# Narrative, Literacy and Other Skills

Edited by Edy Veneziano and Ageliki Nicolopoulou


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# Narrative, Literacy and Other Skills

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Edited by Edy Veneziano and Ageliki Nicolopoulou

# Narrative, Literacy and Other Skills

## Studies in intervention

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# Table of contents

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# Introduction to narrative, literacy and other skills

## Studies in intervention

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### Introduction

The ability to tell 'good' stories is a complex and sophisticated skill that requires the coordination and integration of both basic and higher-order cognitive, linguistic, pragmatic and social abilities. It is thus not surprising that children's narrative skills are found to be related to literacy, oral language, socio-cognitive abilities and, more generally, to school achievement (e.g., Cooper, Collins & Saxby, 1992; Dobson, 2005; Joffe, 2013; Makdissi & Boisclair, 2006; Snow, Burns, & Griffin, 1998; Wenner, Burch, Lynch, & Bauer, 2008). Given the centrality of narrative skills, it is thus important to understand their multidimensional development and to set up ways that can promote or fully bring forth children's narrative competences, and this from very early on.

The present volume addresses both the relation of narrative development to other skills and the experiences as well as the specific interventions devised to promote oral narrative skills. Accordingly, this volume is organized into two main parts. The first part presents studies showing the interrelatedness between oral narratives and literacy, language and socio-cognitive development as well as the impact of oral narratives on the promotion of these various skills. The second part presents studies that aim to understand which early experiences, contextual settings or specific intervention procedures can help promote children's narrative skills themselves.

Before presenting the chapters in some detail, first we provide a brief discussion of the nature of narrative skills, and a brief overview of the development of narrative abilities and of their relation to other non-narrative skills, and then, we discuss some of the experiences and specific intervention procedures devised to promote children's narrative skills.

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## Narrative skills

### *On the nature of narratives*

Narratives are an extended form of discourse in which temporally and causally-related events, real or fictitious, are communicated to real or imagined listeners. Narratives often report events that listeners have not directly experienced and thus language is the main support to convey and understand these happenings. Compared to contextualized uses of language, narratives require greater explicitness and good discourse organization.

On the more accomplished side, monological narratives provide not only referential and temporal information but also evaluative information (Labov & Waletzky, 1967/1997; Labov, 1972). Narrators talk about the causes of events and behaviors, take the perspective of the story characters in order to convey their psychological states, such as emotions, desires, intentions or beliefs, which often motivate their actions and interactions with others (Bamberg & Damrad-Frye, 1991), and may provide their evaluations about the events or characters' behaviors. 'Good' stories also require narrators to take into account the listeners' perspectives to make their stories interesting for them. Thus, to produce 'good' narratives, children need a good level of vocabulary, grammar, discourse and socio-cognitive competences, as well as an appreciation of how the events should be structured to make them interesting for one's listeners.

### *The development of narrative skills*

Given the wide range and sophistication of abilities required to tell 'good' stories, it is not surprising that narrative abilities take years to develop. Their developmental trajectories vary depending on the content and on the context in which children produce them. For example, narratives of personal experience, particularly if relating recurrent events, seem to be relatively well organized sooner than fictional stories (Nelson, 1999; Berman, 2004), and conversationally-framed narratives are likely to contain more explanations and references to internal states than monological narratives (e.g., Eaton, Collis, & Lewis, 1999; Shiro, 2003; Berman, 2004). Variation also exists across individuals and socio-economic variables, with children from low-income families producing less elaborate narratives than children from middle-income ones (e.g., Peterson, 1994).

Narrative abilities have their origins in early adult-child interaction. The first narratives are simple and are co-constructed with familiar partners who most often initiate and scaffold children's references to their personal past or to previously heard fictional stories (e.g., Fivush, Haden, & Reese, 2006; Miller & Sperry, 1988;

Nelson, 1999; Sachs, 1983; Veneziano & Sinclair, 1995). Children then gradually become better able to initiate both personal life and fictional narratives, to share complex experiences with others and to construct or retell a coherent story from wordless picture books. The structural organization and linguistic expression of children's narratives continues to develop well into middle childhood (Berman & Slobin, 1994; Hickmann, 1995; Berman, 2009; Nelson, 1996) and even adolescence if not adulthood (Nippold, Hesketh, Duthie, & Mansfield, 2005).

A major impetus to the study of narrative development was the use of wordless picture books such as the storybook *Frog where are you*, where children of different ages and different mother tongues were confronted with the same story, elicited in the same way (e.g., Berman & Slobin, 1994; Strömqvist & Verhoeven, 2004). One line of development is reflected in the growing interconnectedness and logical sequencing among events. While preschool children produce mostly descriptive narratives, from about 6–7 years of age children start talking about the causes of events and continue doing this with increasing complexity and sophistication (e.g., Bamberg, 1994; Bamberg & Damrad-Frye, 1991; Berman & Slobin, 1994; Berman, 2004). In addition, children enrich their stories by attributing emotional and mental states to the characters (Bokus, 2004; Nicolopoulou & Richner, 2007), which are then mentioned to account for the characters' actions (Bamberg, 1994; Bamberg & Damrad-Frye, 1991; Berman & Slobin, 1994) and to express, if needed, the different points of view and internal states of the characters, including their possible false beliefs (Aksu-Koç & Tekdemir, 2004; Kielar-Turska, 1999; Bamberg & Damrad-Frye, 1991; Küntay & Nakamura, 2004).

According to Berman (2009), another line of narrative development is observed by tracing the way children express form-function relations such as *connectivity* (referential and temporal) or *evaluation* (taking the perspective of the narrator and/or that of the characters). Initially, children have a small number of underdifferentiated linguistic devices that they use across the board. Gradually, these forms come to fulfill more specific and differentiated functions while children acquire a wider range of linguistic devices that constitute expressive options to convey one particular function in a more precise and differentiated way. For example, while children, at around 5 years of age, add to the linguistic devices expressing the temporal sequencing of events (*then, and then*) the linguistic devices to express causal sequencing (*because, so that*), they also use other newly acquired forms to convey more complex and differentiated temporal (*meanwhile*, *when … then*, *next morning*) as well as logical relations (*and so*, *in order to*). The same development is observed for the expression of other narrative functions such as character referentiality or the combination of events in sophisticated ways, while preserving overall coherence. At the same time, as children acquire more linguistic devices, their functions also become more differentiated and complex.

*Narrative abilities and their relation to other skills*

The development of narrative abilities, is related to reading comprehension and writing skills in school-aged children (e.g., Dickinson & Tabors, 2002; Reese, Suggate, Lang, & Shaughency, 2010), to language development (e.g., Cooper et al. 1992; Mallan, 1991) and to children's school achievement more generally (Snow, Burns, & Griffin, 1998). The relation can be found to hold within a set of other oral language abilities (e.g., Dickinson, Hofer, and Rivera, this volume; Whitehurst & Lonigan, 1998)

Concerning reading, robust relations are found between narrative abilities and reading comprehension. Dickinson and Tabors (2001) found that oral narratives and vocabulary in kindergarten, were related to reading abilities in 4th and 12th grades, but in their study, they did not find that narratives made a specific contribution beyond oral language skills. Such a specific contribution was found, for example, by Griffin, Hemphill, Camp and Wolf (2004) and by Reese et al. (2010). Griffin et al found that the length and quality of 5-year-olds' narratives, such as evaluations, characters' psychological states, plot structure, and plot elaboration, predicted reading fluency and comprehension in 8-year-olds (3rd graders), and Reese et al. (2010) found that the quality of children's story retelling, such as orientation and evaluations, at 6 years predicted their reading fluency two years later.

Children not only tell but also listen to stories, often in the context of shared bookreading with caregivers or teachers. It has been shown, for example, that while the frequency of shared reading, as reported by parents, is not linked to the quality of children's narrative production (Nicolopoulou, Hindman, Sawyer, & Ünlütabak, 2016; Sénéchal, Pagan, Lever, & Ouelette, 2008), it was found to predict children's receptive and expressive vocabulary (Dickinson, Griffith, Golinkoff, & Hirsh-Pasek, 2012; Sénéchal, 2011) and to improve emergent literacy skills (Justice & Piasta, 2011; Pentimotti, Justice, & Piasta, 2013). Moreover, there is evidence indicating that the quality of interactive storybook reading improves the quality of children's narratives (Lever & Sénéchal, 2011; Zevenbergen, Whitehurst, & Zevenbergen, 2003).

Shared bookreading can also help promote children's socio-cognitive understanding. Hutto (2008) argued, for example, that conversational interactions about the characters' mental states and reasons for their actions are likely to promote children's understanding of mind. Ratner and Olver (1998), in a study of four 3- and 4-year-old children interacting with their parents, found that repeated readings of a tale of deception elicited conversations about the thoughts, intentions and feelings of the characters. In the course of subsequent readings, children showed increased comprehension of the story's episodes related to deception and needed less parental support to talk about them. Other studies further showed that the

amount of mental state language, particularly about the story characters, used by mothers during shared storybook reading correlated with children's performance on standard false belief (Adrian, Clemente, Villanueva, & Rieffe, 2005) and emotion tasks (Racine, Carpendale, & Turnbull, 2007; Symons, Peterson, Slaughter, Roche, & Doyle, 2005), and predicted children's performance on these tasks one year later (Adrian, Clemente, & Villanueva, 2007). These findings lend support to theoretical perspectives such as that of Mar and Oatley (2008) who, for literary narratives, argued that carefully crafted stories are in fact 'simulative experiences' that help readers to better understand others and promote their capacity for empathy and social understanding more in general, a suggestion that finds empirical support with adult participants (e.g., Kidd & Castano, 2013; Kidd, Ongis, & Castano, 2016).

## Promoting children's oral narrative skills

Given the centrality of narrative abilities, many studies have tried to understand which experiences, contextual settings or specific intervention procedures would promote children's narrative abilities.

The quality of parent-child conversation during shared bookreading provides particularly favorable experiences for the promotion of narrative abilities in children. In stories children are likely to talk about the characters' inner motives and how these relate to their actions. Early bookreading is indeed found to be related to children's narrative skills (e.g., Harkins, Koch, & Michel, 1994; Kang, Kim, & Pan 2009). For example, Harkins et al. (1994) found a relation between mothers' references to psychological and emotional states of the characters in shared bookreading and children's mention of these aspects when retelling these stories (see also Fein et al., this volume).

Conversations focused on the 'there and then' also seem propitious for the development of narrative skills (e.g., Beals, 2001; deBlauw, Baker, and Rispens, this volume; Uccelli, Hemphill, Pan, & Snow, 2005). For example, Uccelli et al. (2005) found that children who participated in more decontextualized talk at 2 and 3 years of age were better narrators of personal experiences and fictional narratives at age five.

Several studies have devised specific intervention procedures to help promote children's narrative skills (see Pesco & Gagné, 2015, for a review; Nelson and Khan, this volume). In some studies, parents were encouraged to read books to their children interactively, focusing on asking children questions about the causes of the story events or about the psychological states of the characters (e.g., Lever & Sénéchal, 2011), to ask open-ended questions and to respond in an elaborative style (Peterson, Jesso, & McCabe, 1999). In other studies, the shared bookreading

intervention was held in preschool classrooms over a good part of the academic year. For example, Zevenbergen, Whitehurst, and Zevenbergen (2003) had Head Start children participate in shared bookreading both in school and at home. The narratives children produced after the intervention period contained more explanations and/or references to the psychological states of the characters than those produced before the intervention or by a control group. Also, studies using a Storytelling/Story-acting practice have been introduced in classroom curricula to promote children's narrative skills, with positive results (e.g., Cremin, Flewitt, Mardell, & Swann, 2017; Nicolopoulou, 2017 and this volume).

In other studies, short interventions were held within a single session. For example, Silva, Strasser and Cain (2014) compared the narratives of children who were asked questions about the cause of events and actions before narrating to those where the questions were asked after narrating the story. They found that the narratives of children who answered the questions beforehand contained more explanations than the narratives of children who had not previously answered those questions. Veneziano and colleagues (Veneziano, Albert, & Martin, 2009; Veneziano & Hudelot, 2009; Veneziano, 2016) used a within-subject design comparing the narratives produced by the same children before and after a short conversation about the causes of key events of the story. They found that children did not only tell the same story in a more causally interconnected way but also made more references to the psychological states of the story characters which had not been specifically targeted during the conversation. These positive results were obtained also one week later and on a new story (Veneziano, Hudelot, Plumet, LeNormand, & Elie, in press; Veneziano & Plumet, this volume).

## Overview of the volume

The present volume is organized into two main parts. The chapters in the first part present research supporting the involvement of narrative abilities in several other skills and their role in the promotion of these skills. The chapters in the second part focus on the experiences and intervention procedures likely to promote children's narrative abilities.

### *The importance of oral narratives for literacy, language and socio-cognitive skills*

#### *Narrative skills and literacy*

The first three chapters in the first part of the volume report new data that support the relation between narrative experiences and early literacy, particularly reading comprehension.

*Reading abilities.* The first part opens with the chapter by *Dickinson, Hofer and Rivera* dealing with the hotly debated issue as to which language abilities of preschool children best predict their later reading comprehension. Highlighting the importance of the early childhood years and the paucity of large-scale studies on the interrelations between different oral language abilities in the preschool age period, the authors present a large-scale study in which different kinds of children's language abilities – vocabulary, syntax and extended discourse – were followed longitudinally (at the beginning and end of preschool and at the end of kindergarten) in 356 African-American children from low-income homes in the United States. Their results show that preschool vocabulary and extended discourse, including measures of narrative comprehension and production, were closely related in preschool and kindergarten, and that by 1st grade all three language abilities were not only become closely related to one another but also to reading comprehension. Dickinson et al. conclude that a full understanding of the language abilities involved in later reading comprehension requires a comprehensive approach where not only vocabulary and grammatical measures but also narrative abilities are considered at the same time.

In Chapter 2, *Makdissi, Sirois and Boisclair* describe the developmental steps that children go through from their early ideas about reading and writing up to the construction of an alphabetical system, and presents the method of interactive storybook reading and early writing that can be integrated in the everyday curricula of kindergarten classrooms. As an illustration, the authors report the results of a study in which interactive reading and writing methods were implemented during a whole year in a kindergarten classroom in Quebec (Canada). Results obtained from reading and writing tasks administered at the beginning and at the end of the school year show that the children made significant progress in their representation of the alphabetic system. These results are very encouraging and supportive of the relation between interactional narrative experiences and early literacy.

In Chapter 3, *Chen Kingston, Kim, Burkhauser, Mulimbi and Quinn* also address the issue of the relation between narrative practices and literacy. The chapter deals with somewhat older children, 3–4th graders, who participated in a summer literacy intervention program. The authors, using a new methodology, aimed to investigate whether students' retelling of narratives was specifically related to their later reading comprehension. One hundred and seventeen children were contacted by teachers over the phone and were invited to retell the stories of two narrative books as well as informational texts. They found that the quality of the oral retellings of narrative books predicted students' later reading comprehension scores, while this relation was much weaker for children's retellings of informational texts. This study nicely confirms the link between narrative experience and reading comprehension and suggests that narratives are more propitious to

advances in reading comprehension than informational texts. The authors suggest that the specific impact of narratives may be due to children's greater knowledge of narrative text structure and to the greater difficulty they may have in identifying causes and effects in informational texts.

*Vocabulary*. In Chapter 4, Rohlfing, Nachtigäller, Berner and Foltz address the issue of the relation between narratives and the acquisition of new words. The study explores in particular whether the nature of the stories – emotional or neutral – that 2-year-old German-speaking children listened to in a day care center influenced the acquisition of the spatial prepositions *behind* [hinter] and *next to* [neben] included in the stories. An experimental group listened to 'emotional' stories while a control group listened to 'neutral' ones. Results show that all children retained the spatial prepositions, whether they heard them in emotional or neutral stories, suggesting that experience with storybook reading might already be a sufficiently propitious experience for vocabulary learning independently of the more or less emotional content of the stories heard.

*Theory of mind understanding*

The next two chapters deal with the impact of narrative experience on emotional language and Theory of Mind understanding. In Chapter 5, *Grazzani, Ornaghi, Agliati, Brazzelli and Lucarielli* present a study in which 2- to 3-year-old children in daycare centers listened to emotion-laden stories several times a week for three months. After the story, children in the experimental group engaged in conversations where they were encouraged to feel the emotions attributed to the story characters, an interaction that children in the control group did not have. They found that children in the experimental group used more psychological state terms and showed a greater understanding of the four emotions mentioned in the books and focused upon during the conversations, than children in the control group who only listened to the emotion-laden stories. This result is particularly interesting as it suggests that conversations about emotional terms in a narrative context are a crucial experience for the promotion of children's production and understanding of internal state words and this even at 2 years of age.

In Chapter 6, *Brockmeyer Cates and Nicolopoulou* provide further support for the importance of interactive storybook reading for socio-cognitive understanding. In particular, they found a positive relation between interactive bookreading and theory of mind abilities in low-income 4- and 5-year-old children attending daycare centers. The books used involved either socio-cognitive themes, such as false beliefs, deception and appreciation of the difference between appearance and reality, or did not include these themes. Results show that all children who participated in bookreading performed better in a battery of Theory of Mind tasks than children

in a control group who did not participate in the bookreading activity. Children who heard stories with mental state themes succeeded in deception tasks more than children who heard stories without those themes, but no other differences were found between the two groups. These results highlight the importance of narrative experiences for promoting mental state understanding independently of the themes contained in the stories, a finding that is consistent with the result obtained by Rohlfing et al.(this volume) for the acquisition of new words, though narrative contents related to the target skills may have an advantage in some domains.

*Argumentative skills*

In Chapter 7, the last chapter in this first part, *Surrain, Duhaylongsod, Selman and Snow* point to the intricacies between narrative and argumentative discourse in adolescence. Argumentation skills are an important discourse resource in everyday life and are central in middle grades when students are required to provide supporting evidence for their assertions. The authors argue that since narratives and argumentation are both forms of extended discourse based on an understanding of the social world, narrative skills may support students' early attempts at argumentation. Drawing from examples of argumentation produced by 4th to 7th graders (in the 9- to 14-year range), the authors show that students as young as 9–10 years, and increasingly over the course of middle grades, used narrative thinking to produce elements of argumentation, in particular elements that are usually encountered rarely up to 9th grade, such as 'warrants' (providing evidence for the claims) and 'rebuttals' (providing exceptions to a claim). The authors argue that narrative thinking may play a fundamental role in the acquisition of sophisticated skills such as argumentation by allowing students to rely on contents drawn from personal experience and on analytic skills acquired in interaction with others.

*Promoting oral narrative skills*

The second part of the Volume contains studies whose main purpose is to understand the experiences and conditions that can help children develop or promote their narrative skills. In Chapter 8, *Nelson and Khan* provide a comprehensive review of narrative intervention studies aiming to support and promote narrative skills in children. They argue that the production of 'expert' narratives requires that multiple abilities – such as the understanding of intentionality, the use of flexible linguistic devices to implement internal discourse cohesion and planning abilities – attain threshold levels at the same time, a state limited by cognitive constraints on the number of operations that can be processed in parallel. Accordingly, the authors provide a detailed account of the different abilities that they consider necessary for the development of expert narrative skills, and detail

their developmental status at each of the eight sequential levels described from early childhood through adolescence. The authors also review several intervention studies aiming to promote narrative skills and argue that, to be effective, intervention programs need to take into account the specific characteristics of each of the developmental levels identified.

*Narrative skills and parent-child interactions*

As previously mentioned, early experiences with shared bookreading in interaction with familiar adults are considered central for the development of narrative skills. In Chapter 9, *deBlauw, Baker and Rispens* expand the search for early experiences that can promote the development of narrative abilities to children's participation in parent-child conversations dealing with non-present talk. The in-depth analyses of three Dutch-speaking children in spontaneous interactions with their parents in the period between 1;9 and 3;9, provide indications that there may be a positive relation between children's engagement in non-present talk in the early years and the quality of narrative structure at age seven. If confirmed by larger-scale studies, these results suggest that narrative abilities can also develop through children's participation in everyday conversations during which parents and children talk about topics of interest that go beyond the 'here and now'.

In Chapter 10, *Fine, Aram, and Ziv* present an intervention study that focuses on parent-child conversation during shared bookreading. Parents of 4- to 5-year-old children from low socio-economic neighborhoods were instructed to read books (one book per week for six weeks) interactively according to a structured protocol that included asking their children questions about the events and their causes, and about the psychological states of the characters. Parents in the control group read the same books to their children but were not instructed in the conversational protocol. When retelling the story, children in the intervention group referred to the characters' mental states and showed that they understood the story significantly better than children in the control group These results support other findings regarding the importance of conversation about the causes of events and the characters' psychological states for promoting children's narrative production and comprehension, and strongly suggest the significance of conversational experiences beyond storybook reading.

*Narrative skills and intervention procedures*

In Chapter 11, *Kucirkova, Messer and Sheehy* investigate the potential of the specific story-sharing/story-making App "*Our Story*" to support children's narrative skills. The iPad App, developed by psychologists and educational professionals, allows users to create their own story, choose or draw the pictured components, record the narrated story, and interact with adults or peers about the story. The

*Our story* App was made available, for six months to a classroom of 3- to 5-year-old English preschoolers of mixed socio-economic background to see whether the particular features of the Tablet App – attractiveness, multimodality, interactional possibilities and gradual increase in difficulty – could promote children's narrative skills. Results show that, at post-test, both fictional and personal experience narratives produced by the children contained more evaluative information such as the characters' or the narrator's thoughts and feelings about the events or other characters. The authors argue that the use of the App generated a new dynamic in the classroom as well as changes in the teachers' attitude towards the use of these types of new technologies.

In Chapter 12, *Nicolopoulou* examines the impact of a storytelling/story-acting (STSA) practice introduced in a Head Start preschool classroom for an entire school year. Children aged 3 to 5 years from disadvantaged backgrounds engaged, at least twice a week, in STSA during which they were free to construct and dictate their own stories to the teacher, and later on to act them out with their classmates. A classroom from the same Head Start center did not engage in such an activity and served as a control group. Compared to the control group, children who participated in STSA activities, at post-test, increased the percentage of narrative discourse, (here defined as a discourse that can be understood without the help of contextual support), and provided more synonyms. This study nicely shows that child-initiated narrative activities occurring in a context of peer-to-peer interaction have a positive effect on children's more frequent use of decontextualized discourse and more sophisticated vocabulary skills.

Finally, in Chapter 13, *Veneziano and Plumet* attest the usefulness of a short conversational intervention (SCI) to promote children's narrative skills. The SCI solicited children's thinking and talk about the causes of the events depicted in a wordless five-image story of a misunderstanding between two characters. The chapter relates results obtained with typically-developing 4- to 10-year-old children showing that, from 6 years of age onwards, the narratives children tell after the SCI on the basis of the same pictures, contain significantly more causal and mind-oriented content, even though the psychological states of the characters, including their beliefs and their different points of view on the same events, were not specifically focused upon in the SCI. Similar results were obtained in the new study presented here with children with high-functioning Autism Spectrum Disorder (HFA). After the SCI, these children likewise produced narratives that contained more explanations and attributed more internal states to the characters, although these references occurred to a lesser degree than in typically-developing controls. It is possible that the SCI, though useful also with children with HFA, may not be sufficiently focused on psychological states to lead these children to express as much as TD children, mind-oriented content, known to be more difficult to handle for them.

## Concluding remarks and some future perspectives

The chapters in this volume contribute new data about two main issues: the implication of narrative abilities in the development of literacy, language and socio-cognitive skills, and the role of specific experiences and intervention procedures in the development and promotion of narrative skills. By considering the first issue, the chapters address questions such as which specific aspects of narrative skills are involved in the development of reading comprehension, in the acquisition of new words or in the promotion of children's understanding of the emotions, intentions and mental states of others. They have considered whether narrative experiences are specifically related to these skills or whether the relation is more multidimensional, involving a set of other language abilities as well. They have also considered whether shared bookreading may be sufficient, or whether conversation encouraging causal and mind-oriented thinking constitutes an additional crucial experience for children's socio-cognitive understanding and the expression of causal links. Another interesting issue the chapters have addressed is whether experience with stories that contain specific features such as, for example, emotional themes, have a stronger impact than neutral stories on both language and theory of mind understanding.

For the second issue, the chapters address questions related to the experiences and procedures that are most propitious to the later development of children's narrative abilities. They highlight the importance of early shared bookreading in a context of conversation focused on causality links and on the psychological states of the characters, and suggest that, among the early experiences likely to promote children's later narrative abilities, everyday talk about entities and events that are spatially and temporally removed from the situation of enunciation (decontextualized talk) may make a valuable contribution as well. The chapters also consider and provide examples of specific intervention procedures that have already been implemented in educational contexts or have potential implications for pedagogical and clinical settings.

They also point to directions that should be taken more into account in future research. One of these directions is to give further consideration to inter-individual variation. Many studies mainly report results on group data and overall differences between pre- and post-test, and/or experimental and control conditions, paying less attention to the specificities of individual subjects. An interesting approach is provided in this volume by Nelson and Khan who argue that a good intervention should take into account the different developmental levels children have on each of the complex set of skills that are required to be a 'good' or expert narrator. And children differ not only with respect to these profiles but also in other endogenous variables, such as attentional and motivational levels, individual ways of reasoning

and seeing the world, as well as in executive function abilities such as cognitive flexibility and inhibition. They also differ in exogenous variables, such as social and cultural contexts, interactional and narrative experiences, or exposure to different kinds of language models in terms of quality and diversity. Taking into account this variation may help, for example, to understand why experiences and interventions are effective with some children but not, or very weakly, with others.

Yet another direction that might be further pursued in the study of the two main issues addressed in this volume, is the comparison of subjects speaking different languages. Does language influence the relations highlighted between narrative experiences and reading comprehension, vocabulary or socio-cognitive understanding? And language differences should also be taken into account in devising intervention procedures, as knowledge of different lexical and grammatical structures should require specifically targeted interventions.

Another interesting line of research that needs to be pursued further is the impact of peer-to-peer interaction on the promotion of children's narrative abilities and other skills. What kinds of narrative abilities can be fostered in peer-to-peer interactions (evaluative content, language skills for decontextualized talk, …), and how does their impact compare to that obtained in adult-child interactions? Such a comparison would provide very useful insights for the implementation of intervention programs in educational settings, particularly in preschools and in the first grades of elementary schools.

Another more general issue in need of further thought and study is to understand at what level narrative experiences and intervention procedures work for the child. Do they lead children to acquire new knowledge such as socio-cognitive understanding, the capacity to express causality links or to take into account and express the psychological states of the characters of their narratives? Or are the interventions or the conversational exchanges part of a developmental dynamics to which also children's endogenous cognitive progress participates leading children to gradually better understand the experiences in which they participate? Single-session interventions are particularly interesting for a better grasp of this issue. It seems quite unlikely that a short conversation, even if well targeted and child-centered, will create new cognitive structures. The improvements these conversational procedures obtain seem more likely related to the better use of knowledge already at the child's disposal, but possibly not yet well established and/or difficult to access and to coherently integrate at the same time. Interventions may help children to focus on aspects they had not noticed previously or, discussing elements of the story with others, may help children to access, pull together and integrate into an overall coherent story the different pieces of knowledge required in telling a 'good' narrative. Left to their own resources only, children may underperform because of cognitive limitations on working memory, on the number of operations that can

be processed at the same time or on the yet limited overall cognitive organization (e.g., Case & Okamoto, 1996). With the help of well targeted interventions, in one session or in sessions repeated over time, many children can make progress along these lines. One way to better understand this issue is to compare children's comprehension and production of stories, and to compare what children can produce within a conversational exchange to what they produce when telling a personally constructed narrative monologically (Veneziano, in press).

This field of research has made many important steps forward and more are expected to follow. With the extension of the domain of research and the introduction of new methodologies we can expect to ever better understand the underpinnings of the important results that have already emerged and to be better equipped to face the challenges inherent to the educational, social and clinical contexts of action.

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PART I

# The importance of oral narratives for literacy, language and socio-cognitive skills

CHAPTER 1

# The developing language foundation for reading comprehension

## Vocabulary, complex syntax and extended discourse from preschool to grade one

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Oral language is a strong predictor of reading, but few studies have described the development of multiple strands of language ability from preschool through grade one. The development of vocabulary has been thoroughly examined, but few large studies have examined the emergence and interrelationships among vocabulary, syntax and extended discourse between preschool and grade one. This study describes the development of these three strands of language ability and changing patterns of interrelationships among them, with data from 356 African-American children from low-income homes in the United States. Data were collected at the beginning and end of preschool and the end of kindergarten and first grade. Constructs for vocabulary and extended discourse were closely related in preschool and kindergarten, with syntax being less related. By grade one all three constructs were more closely associated. Our results indicate that syntax may draw on linguistic and cognitive capacities that are different from vocabulary and extended discourse, but over time all language capabilities become more closely associated and mutually reinforcing. These findings further support the importance of educational approaches that foster all dimensions of language.

**Keywords:** predictors of reading abilities, multiple strands, vocabulary, syntax, extended discourse, African-American children

### Introduction

Reading comprehension is foundational to success in many academic areas and professions, yet schools in the United States and other countries continue to struggle to achieve desired levels of success. In the United States the National

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Assessment for Educational progress tracks reading success. Students at level 250 can interrelate ideas and make generalizations, a level of competence consistent with acceptable development of eight- or nine-year-old students, yet in 2012 only 22% of all U.S. students achieved this benchmark and only 10% of black and 11% of Hispanic students (National Center for Educational Sciences, 2013). The performance of students in the United States is mediocre relative to other countries. The Programme for International Student Assessment (PISA) evaluates international education systems through assessments of 15-year-old students. In 2012, PISA released results from 65 countries and the U.S. was close to the mean for OECD countries, ranking 17th with a mean reading score of 3.7 (Organization for Economic Cooperation and Development, 2012). This persistent failure to achieve high levels of reading success likely reflects a weakness in the ability of schools in the US to build the language skills needed to support advanced reading ability (Dickinson, 2011).

In this chapter, we review the literature and report data from our longitudinal study that describes the development of three strands of language that support reading comprehension: vocabulary, complex syntax and extended discourse, which includes narrative. Throughout we will use the term "narrative" to refer to research on the production or comprehension of discourse that relates to two or more events that occurred in an individual person's past or to multiple events that are described in a fictional account that is heard or viewed. The broader term, "extended discourse" will be used to refer to research that examines understanding or producing texts that include multiple clauses (Snow & Beals, 2006), such as the Woodcock-Johnson Understanding Directions task (Woodcock, McGrew, & Mather, 2001) which requires the child to understand and comply with multi-clause directions to do two or more things in a particular order. When summarizing findings we use "extended discourse" to refer to narrative and other discourse skills.

## Background

Studies of primary grade students indicate that oral language ability may be a root cause of reading comprehension problems for many by age eight or nine (Garcia & Cain, 2014). Some longitudinal data suggest that the origins of those problems may lie in the early childhood years (Dickinson & Porche, 2011; NICHD Early Child Care Research Network, 2005; Storch & Whitehurst, 2002). The National Early Literacy Panel (NELP; National Early Literacy Panel, 2009) conducted a meta-analysis of studies that examined competencies in preschool and kindergarten and related early competencies to later reading. They found that measures

of extended discourse and grammar were stronger predictors of later outcomes than measures of vocabulary. They did not have a measure predicting reading comprehension from narrative production but did find significant associations to receptive language comprehension (r = .63), expressive language comprehension (r = .59) and grammar (r = .64). These associations are stronger than they found for any print-based measure (i.e., concepts about print, phonemic awareness, decoding words, decoding nonwords). This finding supports a prior call to attend to a broad range of language abilities (Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003).

Language is multi-layered and has been described using a host of different measures but it is unclear whether different measures describe the same capacity. For example do narrative retelling tasks and those that assess understanding of extended discourse assess the same constellation of abilities? Relatedly, we do not know how many distinct constructs are needed to describe language as it is deployed to support reading comprehension. The NELP study employed 12 constructs and these constructs had different relationships to reading comprehension. In our work we take a conceptually guided approach to the grouping of language measures as we create constructs describing vocabulary, syntax, and discourse.

Language (Dickinson & McCabe, 1991, 2001) and language- and reading-related abilities (Scarborough, 2001) have been described as a braid in which separate strands are woven together such that, as children get older, these competencies become automatized and are increasingly interdependent. If we focus exclusively on vocabulary we risk underestimating and misunderstanding the role of the broader constellation of language abilities in fostering reading comprehension. Furthermore, if we examine a single strand of language or consider long-term associations between one language ability and reading, we risk missing indirect effects of one strand of language on others by failing to recognize that a measure of one language ability may reflect mediated effects of others. Also, by examining multiple strands of language over time we can test the "braid hypothesis" and see if language capacities become increasingly related over time.

We address these issues using data from an intervention study in which we collected data at the beginning and end of preschool and at the end of kindergarten and grade one. We collected multiple measures of language using direct assessments and speech sample data and created constructs measuring vocabulary, syntax, and discourse. We address three questions. First, can we combine commonly used variables to create three conceptually-coherent and empirically strong constructs at four time points? Second, are these distinct constructs stable over time? If we find strong longitudinal correlations for a given construct, that provides evidence that the construct taps related sets of abilities and that these are relatively stable constellations of competencies. Third we consider whether there

are changes in the associations among constructs over time. The "braid hypothesis" would be supported by the finding of stronger correlations among abilities across time points, suggesting the emergence of a more tightly interwoven and mutually reinforcing set of language abilities.

## Language and reading comprehension

Among reading researchers there is broad agreement that comprehension is the by-product of language comprehension and the ability to decode print into language (Catts, Adolf, & Weismer, 2006; Hoover & Gough, 1990; Kendeou, Savage, & van den Broek, 2009a; Tilstra, McMaster, van den Broek, Kendeou, & Rapp, 2009; Tunmer & Chapman, 2012). While language has been deemed to be of singular importance, there have not been efforts to trace the development of vocabulary, syntactic and discourse skills using data from large samples of children.

### *Vocabulary*

Vocabulary has repeatedly been found to be related to reading comprehension, but there is variability in how it has been measured. In some studies receptive vocabulary, a measure of breadth of knowledge, is assessed (Catts et al., 2006; Clarke, Snowling, Truelove, & Hulme, 2010; Torgesen, Wagner, Rashotte, Burgess, & Hecht, 1997; Tunmer & Chapman, 2012; Verhoeven, van Leeuwe, & Vermeer, 2011). At other times, productive measures, which measure somewhat deeper knowledge, have been used alone or in combination with receptive measures (Lonigan, Burgess, & Anthony, 2000; Ouellette, 2006; Speece, Ritchey, Cooper, Roth, & Schatschneider, 2004; Storch & Whitehurst, 2002; Vellutino, Tunmer, Jaccard, & Chen, 2007).

There is long-term stability in vocabulary. Lexical processing and associated vocabulary knowledge when children are as young as 18 months old are related to early language experience (Hurtado, Marchman, & Fernald, 2007, 2008), and ability at age three is correlated with vocabulary when children are eight years old (Marchman & Fernald, 2008). Others have found that age three vocabulary is correlated with vocabulary in kindergarten and grades one and two controlling for SES (Walker, Greenwood, Hart, & Carta, 1994) and grade three (NICHD ECCRN, 2005). Receptive vocabulary in kindergarten is moderately correlated with vocabulary in grade four (Dickinson & Porche, 2011) and grades seven and eight (Dickinson & McCabe, 2001; Dickinson & Tabors, 2001), and first grade vocabulary correlates with the same construct in 11th grade (Cunningham & Stanovich, 1997). Correlations between language in preschool and kindergarten and later

reading comprehension have also been found (Cunningham & Stanovich, 1997; Dickinson & Porche, 2011; NICHD ECCRN, 2005; Storch & Whitehurst, 2002; Walker et al., 1994).

### *Syntax*

Syntactic knowledge among preschoolers has been found to be related to listening comprehension in a study of young Korean readers, with this measure combining assessments of sensitivity to grammatical structures and productive ability to complete an unfinished sentence in a grammatically correct manner (Kim, 2016). Syntax was also associated with reading comprehension in the middle elementary grades among a sample of African-American children (Craig, Connor, & Washington, 2003) and in a sample of bilingual children (Swanson, Rosston, Gerber, & Solari, 2008). Similarly, Cooper, Roth, Speece and Schatschnieder (2002) studied middle elementary grade students using a composite measure of language that included syntax as part of a broad-gauged measure of language and found it was related to reading comprehension. Weakness in syntax is a characteristic of children identified as having a specific language impairment (Catts, Fey, Zhang, & Tomblin, 1999; Scarborough, 1991), which is predictive of poor reading comprehension (Catts et al., 2006; Catts, Fey, Tomblin, & Zhang, 2002; Scarborough, 2001). Syntactic awareness has been found to be predictive of reading comprehension (Vellutino et al., 2007), and weakness in syntactic awareness has been found among preschool children (Muter, Hulme, Snowling, & Stevenson, 2004; 1991; Scarborough, 2001) and middle elementary grade students identified as poor reading comprehenders (Cain & Oakhill, 2006). While syntactic ability has received some attention, researchers have rarely used spontaneous production to measure it, even though speech and language pathologists commonly assess children's language using samples of speech obtained through standardized elicitation methods. An exception is Walker et al. (1994), who found moderate to strong correlations between spontaneous language measures (length of utterance, number of different words) from age three and standardized language assessments in kindergarten through third grade.

To what extent are syntax and vocabulary related? Certainly, syntax is impossible without words, and the syntactic category of a word is one dimension of a word's meaning. The interwoven nature of meaning and syntax has received extensive attention from child language researchers who find that they are related even as children first begin acquiring language. Indeed, as early as 9 months infants use the semantic category of causal agent as a guide to treating a word as a subject (Hirsh-Pasek & Golinkoff, 1996). One demonstration of this association comes from the fact that whether a word is used as a mass or count noun suggests

whether the term refers to the material the object is made of or to the object itself: you drink from "a glass" which is made of "glass." As young children first begin learning language, they demonstrate awareness of this connection between the meaning of sentences and grammatical form class (Gordon, 1988), and by the age of three they use it to help assign meanings to words (Booth & Waxman, 2002). From at least 18 months, children are sensitive to whether or not a word functions as a verb, and they use that information to assign meaning to new words (Arunachalam & Waxman, 2010; Ferguson, Graf, & Waxman, 2014; see also Veneziano & Parisse, 2018).

### *Narrative, extended discourse and reading*

Research on personal narratives and discourse springs from multiple traditions. Psycholinguists and child language researchers have traced productive narrative development and described cultural variability (Gee, 2008; McCabe & Bliss, 2003; Michaels, 1981). Psycholinguists have also researched the development and examined linguistic devices, such as connectives, nominals and pronominals, and tense that are used to convey a coherent story (Bamberg, 1997; Berman, 2001; Berman and Slobin, 1994). A third tradition is work by those who seek to understand the structural knowledge required to comprehend and produce narratives (Kintsch, 2005; McCabe & Bliss, 2003; Stein & Glenn, 1979; Trabasso, 2005). A fourth tradition is work by researchers with interest in diagnostic and clinical applications who find that narrative measures can serve as an early screening tool (Bishop & Edmundson, 1987; Catts et al., 2002; Fazio, Naremore, & Connell, 1996; Feagans & Appelbaum, 1986; Scarborough, 1990, 1991).

The most focused research tradition relating discourse to reading has been work testing and extending the Simple View. These researchers have found that oral comprehension helps predict oral comprehension (Kim, 2015) and is a strong predictor of reading comprehension by the middle grades even after controlling for decoding skills (Garcia & Cain, 2014; Nation & Snowling, 2004; Vellutino et al., 2007). Researchers have often assessed comprehension of narrative passages using retellings and the ability to answer probe questions (Cain, Oakhill, Barnes, & Bryant, 2001; Juel, Griffith, & Gough, 1986; Kendeou et al., 2009a; Kendeou, White, van den Broek, & Lynch, 2009b; Nation & Snowling, 2004; Tunmer & Chapman, 2012). Some have examined knowledge of narrative structure and found associations with reading comprehension. Cain and Oakhill (1996) examined 7- to 8-year-old children's abilities to retell stories with and without pictures to prompt their retelling. They found that those with weaker reading comprehension skills told less well-structured stories and were more dependent on pictures to prompt recall, a finding they interpreted as indicating that they had a weaker sense of

narrative structure. In a subsequent study Cain and Oakhill (2006) found that students with weak reading comprehension skills were impaired in their ability to integrate information within a text. More recently Oakhill and Cain (2012) tested children when they were 7 or 8 and again when they were 10 or 11 and found that story structure knowledge was correlated with previous and concurrent reading comprehension.

Some who have investigated narrative comprehension have found no relationship to reading comprehension, particularly when reading was measured at a young age (Menyuk et al., 1991; Roth, Speece, & Cooper, 2002; Snow, Tabors, Nicholson, & Kurland, 1995). However, because reading comprehension in the early grades involves significant decoding efforts, discourse skills such as the ability to produce personal narratives are more likely to emerge as important after initial decoding challenges have been mastered (Snow, 1991; Snow & Dickinson, 1991). Similarly, Feagans and Appelbaum (1986) found that narrative at age 6 did not predict reading but that by age 9 narrative skills were a strong predictor of reading comprehension. These studies suggest that narrative is an important precursor for reading competence, particularly in the later years when children are focusing on comprehension rather than decoding and fluency.

Thus, comprehension of stories, awareness of story structure, and ability to tell narratives are all associated with reading comprehension. However, diverse methods have been used to assess language-comprehension associations, relatively few studies have created composite measures describing discourse level abilities, and none have combined receptive measures of comprehension with retelling. Our approach provides a broad-based examination of multiple measures of extended discourse, providing information about distinct abilities and our composite measures supply a robust way of examining associations over time.

## Current study

In this study, we examine, vocabulary, complex syntax, and extended discourse from age four through the end of grade one. Many have found great stability in vocabulary, but less is known about complex syntax and extended discourse, partly because they have been measured in such divergent ways and have less often been included in large longitudinal studies.

*Data source*

In 2006 a team of Vanderbilt researchers[1] launched a randomized field trial in preschool Head Start classrooms in a southeastern city to evaluate the effectiveness of two early literacy/language curricula. The project had a special focus on children in participating classrooms with the lowest language skills and those who presented behavioral challenges. We found that the interventions had no systematic effects on language development (Kaiser et al., 2010), and for this chapter we use the children's data without respect to experimental condition.

*Sample selection*

Because of the requirements of the sample needed for the intervention study, selection was done in a manner that resulted in disproportionate numbers of children with the lowest skills. Over 450 children from 52 classrooms were included in the study's analysis sample. The sample was primarily black (97.3%), nearly all of whom were native speakers of African-American English and from low-income households. The Head Start agency assigned children to classrooms. Following classroom assignment that drew on the 450 children initially identified, the research team selected four low language children and matched them to four children whose language was deemed "typical" for this sample from each classroom. Note that "typical" for this sample reflected average receptive vocabulary scores that were nearly one standard deviation below national norms for the United States. In this chapter we use the term "typical" because we view these students as typical given the home and community they are from; we presume that they have no learning-related problems other than limited access to the kinds of learning opportunities that result in growth on standardized measures of language. Sample selection was based on results of assessments given prior to the start of the intervention year. Researchers assessed children's language development with the Preschool Language Scale III (PLS; Zimmerman, Steiner, & Evatt, 2002). Selection was done so as to maximize the number of low language children while ensuring that there were four such children per classroom, ideally divided evenly between boys and girls. Children in the low group primarily had PLS scores below 75 (mean of 65), and those in the higher group primarily had scores above 85 (mean of 90).

1. The project was funded by the Department of Education, Institute of Education Science grant # R324E060088A, led by Ann Kaiser and David Dickinson, and key personnel included Megan Roberts, Regan McCleod, Jennifer Frey, Catherine Darrow, and Jill Grifenhagen. We are grateful for the wonderful cooperation of the Head Start teachers and leadership.

*Assessments*

Children were individually assessed with a battery of language and literacy measures at the beginning and end of the pre-k year and at the end of kindergarten and 1st grade. The measures included direct assessments and speech sample data. Direct assessments were combined to create a measure of *vocabulary*, based on an assessment of receptive vocabulary using the Peabody Picture Vocabulary Test III (PPVT; Dunn & Dunn, 2007) and one of expressive vocabulary from the Expressive Vocabulary Test (EVT; Williams, 1997).

*Extended discourse* was a composite variable created from the Woodcock Johnson III Tests of Achievement (WJAT; Woodcock, McGrew, & Mather, 2001). Understanding Directions task and two scales from the Renfrew Bus Story – North American Edition (Bus Story; Glasgow & Cowley, 1994), Story Information and Story Grammar. These measures require children to construct a mental representation of the information they hear and use this framework to identify or reproduce the central elements of the material (Van Den Broek, Virtue, Everson, Tzeng, & Sung, 2002; Van den Broek, Young, Tzeng, & Linderholm, 1999; Wendling, Schrank, & Schmitt, 2007).

A measure of *complex syntax* was obtained from the Bus Story recall and speech sample data collected in 30-minute interactions between a trained examiner and each child. The samples yielded a standard set of linguistic measures including the number of different words, mean length of utterance (MLU) in the first 50 words, and total tokens from the speech samples, as well as story complexity that was based on the number of complex sentences (i.e., sentences with subordinate or relative clauses) and sentence length from the Bus Story. While we refer to this as a measure of complex syntax, we recognize that it is, at best, a crude measure; however, given the paucity of productive data used in longitudinal samples, we use this as an indicator of syntactic competence.

Given that our sample is nearly 100% African-American and nearly all children spoke African-American English, it is noteworthy that there is some evidence that our two vocabulary measures have racially-based adverse effects on these children (Champion, Hyter, McCabe, & Bland-Stewart, 2003; McCabe & Champion, 2010). On the other hand, a prior study that used the Bus Story found that African-American children slightly outperformed Caucasian American on this task (Champion & McCabe, 2015). Because we are not comparing groups but are examining associations among measures within this one sample, differential performance associated with background variables on these tasks does not affect the arguments we make regarding developmental patterns in this sample.

Only children who had valid data for all language variables at all time points were included in analyses. This analysis sample included 356 children who had an average age at the start of pre-k of 4.5 years. According to the larger study's original

groupings, 51.7% of the analysis sample was considered to be in the low-language group (mean PLS = 65.3, SD = 6.76), while 48.3% was in the matched-language group (mean PLS = 89.6, SD = 10.24). In analyses conducted for this chapter we initially considered the two groups separately. Though there were some differences by language sample, the overall pattern of results was the same for both language groups; therefore we only present the combined sample here.

### *Development of language strands from pre-k to end-of-grade one*

#### *Strength of our constructs*

We created three conceptually based constructs. Vocabulary included receptive and expressive vocabulary, two variables that were strongly related at each time point (r = .72 to .77). Principal components analysis revealed that the first component accounted for 87% to 89% of the variance at each age, with eigenvalues of 1.74 to 1.78. Syntax comprised a relatively large set of variables drawn from two speech samples, that is, the retelling of the Renfrew Bus Story and talk that occurred as children read a book and played with toys and with the tester. From the Bus Story we used the length of the retelling and the length and number of sentences with relative or subordinate clauses in the Bus Story. From the toy play we used the number of different words used and the MLU in the first 50 words. We also coded the speech samples for use of 11 features of complex syntax (McLeod, 2010) based on the work of Craig and Washington (2006). Despite the large number of measures included, principal components analysis found two factors in these variables with the first factor accounting for 58% to 59% of the variance and a loading of 2.9 to 3.0. The second factor had only the Bus Story complexity variable in it, which also loaded highly on the first factor, and explained 21% to 24% of the variance. Extended discourse was assessed using two scores from the Bus Story, story information and story grammar, and the Woodcock-Johnson Understanding Direction task. These variables formed a strong construct at each time point with one factor being extracted that had an eigenvalue of 2.1 to 2.2 and accounted for 70% to 72% of the variance.

We conclude that our analyses provided empirical support for our hypothesis that the sets of variables that we combined based on conceptual similarity were sufficiently well associated with each other at each time point to be considered constructs that reflect a related set of linguistic and cognitive abilities.

#### *Longitudinal performance*

To further test for the psychological reality of our constructs we examined the correlations of each measure across time. High correlations indicate that across time our constructs describe sets of abilities that are relatively stable, lending further

support to our hypothesis that our constructs are tapping related sets of abilities. Across time correlations of like skills were generally strong, with this being most noteworthy for vocabulary, with across time correlations ranging from .76 to .87 (see Table 1). Extended discourse also was relatively stable across all time points (r = .60 to .74). Complex syntax showed more modest stability across the three years of our study (r = .35 to .54). This degree of stability is noteworthy given the number of variables in the construct and the fact that they come from productive measures which are more subject to situation-specific variability.

**Table 1.** Zero-order correlations among constructs at all four time points

| | **Vocabulary** | | | | **Complex Syntax** | | | | **Discourse** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Vocabulary | | | | | | | | | | |
| 1. Beginning PK | | | | | | | | | | |
| 2. End PK | .837 | | | | | | | | | |
| 3. End K | .776 | .810 | | | | | | | | |
| 4. End 1st | .760 | .800 | .871 | | | | | | | |
| Complex Syntax | | | | | | | | | | |
| 5. Beginning PK | .327 | .302 | .257 | .290 | | | | | | |
| 6. End PK | .296 | .275 | .299 | .296 | .461 | | | | | |
| 7. End K | .310 | .329 | .384 | .440 | .374 | .491 | | | | |
| 8. End 1st | .387 | .377 | .426 | .468 | .347 | .477 | .543 | | | |
| Discourse Skills | | | | | | | | | | |
| 9. Beginning PK | .681 | .668 | .630 | .632 | .454 | .301 | .392 | .452 | | |
| 10. End PK | .672 | .695 | .683 | .674 | .338 | .388 | .383 | .478 | .725 | |
| 11. End K | .634 | .656 | .713 | .693 | .269 | .367 | .510 | .493 | .643 | .739 |
| 12. End 1st | .533 | .560 | .640 | .663 | .263 | .320 | .418 | .600 | .599 | .673 |

*Dimensionality of language*

We have evidence that our three constructs are reasonably strong descriptions of related sets of abilities and that they are fairly stable over time, but we also wanted to learn whether these strands, in fact, tap distinct sets of abilities. That is, while we label our constructs as "vocabulary", "syntax" and "discourse", we wondered if the measures tap distinct sets of cognitive and linguistic abilities.

To test for the possibility that our measures tap three different constructs, we conducted principal components analyses on the three composites within time point (see Table 2). At each age the first factor accounted for substantial variance,

with the amount of variance increasing from 66.4% to 71.9%.Vocabulary and discourse both loaded heavily on the first factor (.84 to .91); at every time point extended discourse was the most heavily weighted construct (.90 to .91). These results indicate that vocabulary and extended discourse ability are very closely associated, whereas our measure of productive syntax is less tightly related to the other two constructs in preschool and kindergarten.

**Table 2.** Results of principal components analyses of clusters within time point

| | **Beginning PK** | **End PK** | **End K** | **End 1st** |
|---|---|---|---|---|
| Number of Factors with Eigenvalues > 1 | 1 | 1 | 1 | 1 |
| Total Variance Explained by Factor Extracted | 66.35 | 64.40 | 69.44 | 71.93 |
| Eigenvalue of Factor Extracted | 1.99 | 1.93 | 2.08 | 2.16 |
| Factor Loading: Vocabulary | .84 | .86 | .86 | .84 |
| Factor Loading: Complex Syntax | .69 | .63 | .73 | .81 |
| Factor Loading: Discourse Skills | .90 | .90 | .91 | .90 |

To address our third question regarding whether language abilities become increasingly intertwined over time, we looked at the intercorrelations among constructs within time point (e.g., vocabulary with syntax) at each of our four data collection points. As shown in Table 1, in preschool vocabulary and discourse were strongly associated at all four time points (r = .66 to r = .71). Vocabulary and syntax were increasingly associated. At the beginning of pre-k and end of pre-k they were correlated only r = .33 and .28, respectively but the strength of association increased at the end of kindergarten (r = .38) and grade one (r = .47). The syntax and extended discourse association also changed over time. At the beginning and end of preschool they were moderately associated (r = .45, .39), but were more tightly linked at the end of kindergarten (r = .51, .60). This increase in the associations between syntax and the other two dimensions was reflected in the principal components analyses which revealed that, after preschool, the first factor accounted for increasing variance, rising from 64% to 69% and 72% of the variance. This change was due to the increasing contribution of syntax to the overall construct, rising from a weighting of .63 at the end of preschool to .73 and .81 at the latter two data collection points. This finding suggests that the syntactic strand of language may emerge somewhat independently from vocabulary and extended discourse and becomes increasingly tightly related to the other strands over time.

*Early language and literacy development*

Our findings support the assertion that full understanding of the language basis for later reading comprehension requires a comprehensive approach to language (Dickinson et al., 2003) and must include all levels of language ability. This is an important insight because the NELP report (National Early Literacy Panel, 2009), asserted that language is only a modest predictor of later reading. But its findings drew disproportionately on studies that assessed only vocabulary, which was the weakest predictor. Acknowledgement of the importance of broader language abilities is also important at a time when the "30 million word gap," identified by Hart and Risley's (Hart & Risley, 1995) landmark study of children from different social economic backgrounds, has captured public attention in the United States. Unquestionably vocabulary knowledge is of prime importance, but our findings make it clear that vocabulary is associated with extended discourse and complex syntax and that between ages four and seven these competencies become increasingly interwoven, and that one competence may foster development of the others.

It is noteworthy that extended discourse was a slightly stronger indicator of general language ability than vocabulary at each time point. This weighting of extended discourse may reflect the fact that skill in comprehending and producing extended discourse is, in part, determined by syntactic and vocabulary knowledge, because the ability to comprehend extended texts and to tell or retell stories is dependent on lexical and syntactic skills. A large lexicon and strong sense of syntactic structures aid in fluent production and accurate comprehension of texts.

Our data shed new light on the importance of syntactic ability as well. Across our four waves of data collection, our composite measure of syntax became increasingly related to the other language strands. These associations between syntax and vocabulary are likely a two-way street. As children learn more words, especially more verbs, they acquire the building blocks for syntax. For example, transitive verbs call for direct objects, which lead one toward the creation of complex sentences. And, in turn, syntactic knowledge can help children learn the meanings of new words. For example, grammatical form class suggests that a word is a verb.

Our data indicate that the separate strands are increasingly tightly woven together suggesting that, when students are reading, multiple language skills may be activated. Comprehension requires the fluent coordination of syntax and lexical knowledge and assembly of that knowledge in ways that link meanings across propositions. While vocabulary is critical to the emergence of syntax and discourse skills, examining long-term associations between later reading comprehension and early vocabulary in isolation from other language ability obscures the importance of vocabulary in the development of the parallel language structures needed to comprehend text.

*Implications for practice*

Concerns about reading comprehension are widespread and international; national and statewide assessments regularly make visible the progress being made in teaching print-related aspects of decoding skills such as knowing letter names, and phonemic awareness and progress in improving reading comprehension. However, the oral language competencies that support those comprehension abilities are not tracked nearly so carefully, even though early warning that a student may later be at risk of reading failure can come from assessments of language, with narrative skills being a particularly potent mechanism. The relative invisibility of narrative and associated extended oral discourse skills may be partly because of the attention that has been paid to vocabulary, which is more easily quantified and concrete than are discourse skills. The findings of the Hart and Risley study (Hart & Risley, 1995) continue to echo across the United States as reflected in a recent initiative mounted by the National Institutes of Health to address the "Word Gap." Interventions are being developed that are designed to foster vocabulary among middle school students (Lawrence, Capotosto, Branum-Martin, White, & Snow, 2012; Lesaux, Kieffer, Faller, & Kelley, 2010) and preschool-aged children (e.g., Neuman, Newman, & Dwyer, 2011; Roskos & Burstein, 2011; Wasik, Bond, & Hindman, 2006; Weisberg, Hirsh-Pasek, Golinkoff, Nicolopoulou, & Dickinson, 2015). Typically, these efforts strive to build vocabulary as students engage with extended texts, either as they read articles and engage in argumentation (Lawrence et al., 2012) or as they listen to and respond to stories. Through these experiences students may be acquiring an ability to understand more complex syntax and greater extended discourse level skills, but the interventions tend not to assess if growth is occurring in these other areas of language. By focusing narrowly on vocabulary, we might miss effects on these related language competencies that we have shown are highly related to vocabulary and are predictive of reading success.

Our data point to the need for researchers and practitioners to pay much more attention to measuring and fostering narrative and other extended discourse abilities. Vocabulary is seductive because individual words are very concrete, teachers and students can identify clear instructional targets, can feel a sense of accomplishment when new words are mastered, and can even count the number of words learned. Similarly, researchers can use receptive measures that are highly reliable and yield quickly interpreted scores for most children. Growth in the skill of understanding and producing extended oral discourse is harder to measure and is difficult for teachers to track.

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CHAPTER 2

# Storybooks to promote emergent literacy in kindergarten classrooms

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Reading comprehension refers to the ability to construct a global representation of the macrostructure of a text and to establish links between its different components. To achieve this, however, the reader must also manage the microstructure of the text, in particular, processing the written code in such a way as to identify the written words, while making inferences to construct their meaning. Based on this perspective, this chapter presents data coming from two pedagogical contexts whose aim was to promote emergent literacy in kindergarten. Results show that children made significant progress in their processing of the written code, measured through their level of representation of the alphabetic system, an emergent writing task and a reading test. Progress in narrative structuring remained however more modest.

**Keywords:** pedagogical contexts, emergent literacy, kindergarten, narrative structuring, alphabetic representation

## Introduction

This chapter presents developmental data on the literacy progress – in terms of narrative structuring and of the emergence of reading and writing – made by kindergarten children who had benefitted from pedagogical contexts centered on the children's own reasoning. The two main pedagogical contexts used in the classroom were 'interactive reading' and 'emergent writing'.

In what follows, we will first describe 'interactive reading' highlighting the pedagogical interventions that are particularly useful for the comprehension and the elaboration of inferences. Then, we will describe the developmental pathways leading to the child's apprehension of the writing system from initial presyllabic

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to later alphabetic representation, and the pedagogical interventions scaffolding this construction.

Finally, we will report results of an intervention study aiming to promote children's narrative recall and their representation of the alphabetic system. Quantitative results will be followed by qualitative illustrations of what kindergarten children produced in their writing and in reading activities.

## Interactive reading

Many scholars have shown that interactive reading fosters emergent literacy by allowing young children to engage in the reading process and to be active in the construction of the meaning of the story (Sipe & Pearson, 2008; Zevenbergen & Whitehurst, 2003). In this pedagogical context, the adult reads the story aloud and thus children can concentrate on the meaning of the new words they may hear in the context of literary syntax. They can also focus on the causal relations among the components of the story and integrate them into a coherent macrostructure thus favoring an understanding of the basic plot of the story (Makdissi & Boisclair, 2006). This approach is interactive because it allows children to express their own ideas on the story being read by the adult. Dialogue during reading facilitates language interaction. In this case it is in fact a trilogue between the child, the author and the adult. The child verbally reflects in the here-and-now act of reading on the discourse of the author of the book, with the mediation of the adult who, on the one hand, reads the text and, on the other, encourages the child to express his/her interpretation of the story as explicitly as possible. To capture the processes involved in this type of interaction, Makdissi, Boisclair, Blais-Bergeron, Sanchez and Darveau (2010) introduced the concept of 'zone of intersubjective literacy dialogue'. This interaction about the story that takes place between the adult and child while the story is being read allows children to construct causal relations among the different components of the story, something that would be harder to obtain if the discussion was held after the story was read in its entirety (Kendeou, Van den Broek, Helder, & Karlsson, 2014; Makdissi & Boisclair, 2006).

Pedagogical interventions aiming to prompt children's participation in the interaction during reading can vary greatly. The Research Group on intervention with deaf children (Groupe de recherche en intervention auprès de l'enfant sourd, referred to hereafter as GRIES)[1] developed an intervention approach that generates

1. The pedagogical intervention approach presented in this chapter stems from the work of the Groupe de recherche en intervention auprès de l'enfant sourd (GRIES, research group on intervention with deaf children) of Laval University, which ultimately led to the founding of the

open discussion between the children and the adult in the classroom, favoring the causal inferences needed to understand the story and to elaborate the macrostructure of the text (Makdissi & Boisclair, 2006; Makdissi et al., 2010). Interactive reading is not conceptualized here as involving a series of closed questions where the child has to find the expected answer, but as a genuine dialogue between adult and child. To design an interactive reading intervention, the teacher is first asked to analyze the structure of the story in terms of causal relations between the different components of the story, that is, the problem/subproblem, episodes, goals/subgoals, solution and the characters' emotions (Blanc, 2009; Dougherty Stahl, 2014; Makdissi & Boisclair, 2006; van Kleeck, 2008). Based on this causal analysis of the story, the teacher will then be able to ask the child open-ended questions leading to a dialogue that stimulates the child to elaborate the causal relations that unify the storyline. The teacher reads the story up to and including the key point in the causal chain of events and then s/he formulates questions about the story components to stimulate discussion and the construction of causal inferences by the children (for more details on the interactive reading procedure, see Makdissi & Boisclair, 2006).

These questions need to focus on the emotions the characters experience at different points in the story and on the motivations behind their actions. In this way, a dialogue can emerge between the child and the adult regarding the meaning the author intended to convey. In this way children can be led to construct inferences which causally link the components of a story into a coherent whole (Trabasso & Wiley, 2005), as well as to infer invisible component units such as emotions, goals and motivations that often remain implicit in the written text.

In addition to supporting the construction of causal inferences, interactive reading can also increase children's ability to construct the meaning of new words. Young children are known to spontaneously make lexical inferences during conversations or reading situations, and the adult can thus expect them to make lexical inferences also during the reading of the story. Indeed, to be a good reader, children do not only have to know how to decode written words. Even at the beginning of their formal learning of reading, children have also to be able to construct the meaning of new words in the contexts they encounter them. To encourage this, the teacher should carefully choose the words and expressions in the story to focus upon. These words should not belong to the repertoire children use in everyday life, such as "carrot" or "house". Moreover, the words or expressions

École oraliste de Québec pour enfants sourds/Quebec Oral School for Deaf Children. These studies were conducted with a population of deaf children and a general population of children. GRIES and the École oraliste de Québec pour enfants sourds were founded by Andrée Boisclair in collaboration with Pauline Sirois and Hélène Makdissi.

should be used with enough contextual cues to allow children to make hypotheses about their meaning. For example, it would not be appropriate to choose a word such as "flesty"[2] in a sentence such as "he picked up his flesty and left", because it does not provide sufficient contextual cues to allow hypotheses about its meaning. However, this same word can be chosen when used in a sentence such as "he picked up his flesty and, using it to start the car, he quickly left" because here, the context is sufficient to make a specific lexical inference. The teacher can also plan subquestions focused on children's knowledge of syntax: "he used his flesty TO START the car, so what do you think it is?" (with emphasis on the expression in capital letters).

This kind of interactive reading is used to foster the development of the inferential processes needed for reading comprehension and narrative skills. However, formal entry into the written world still requires knowledge related to the code. We think that the development of this knowledge is strongly supported by the early writing activities in kindergarten.

## Emergent writing: Development and pedagogical intervention

Code learning figures prominently in the early formal learning of reading in schools. School practices often begin by having children read meaningless units such as syllables or isolated words (Sirois, Boisclair & Makdissi, 2008). The alphabetic principle is usually explicitly taught from kindergarten on, and it is taught as if the system could be directly transmitted to the children without involving their underlying reasoning. That is, the code is taught first while the construction of inferences to grasp meaning is programmed only for subsequent years. But wouldn't it be important to work on these inferences from the start and wouldn't they actually also sustain young children's decoding skills and their construction of the alphabetic system?

'Emergent writing' refers to any context that allows children to make their own attempts at writing, on the basis of their own reasoning. Placing children in an emergent writing situation, even before starting the formal teaching of the code, allows them to construct their own representations regarding the alphabetic system, in our case, of written French. It is known that such representations go through a long developmental path that starts well before kindergarten age, and continues through different functional writing activities taking place in the

**2.** A pseudoword was used here for clarity's sake, but in the reality of the classroom, an actual word would be chosen from the book, one that was not known by the children, and which they may be encountering for the first time.

classroom (Sirois, Boisclair, Vanlint, Savage, & Hébert, 2012): writing stories, writing in the context of symbolic play, of board games designed by the teacher, writing birthday cards or cards for other special occasions, etc. By trial and error and through hypotheses that change as children reflect on these experiences, children can start to conceptualize the alphabetic writing system. Progressively, they construct an operation that consists in matching each phoneme to the grapheme that conventionally corresponds to it. This is indeed the alphabetic principle that underlies written French. If an operation is conceptualized as a type of reasoning, then it cannot be explicitly taught but must rather be constructed by the child. An operation can, for example, be constructed through pedagogical stimulations that enable cognitive conflicts which, in turn, may lead children to reorganize their own cognitive structures (Piaget, 1969). Within this perspective, it is crucial to let children express themselves freely in their attempts at writing, stimulating their reflections on these attempts through questions adapted to their level of cognitive development. As Ferreiro (2000) showed, it is through writing activities that children are likely to develop phonological and then phonemic awareness, thus constructing their decoding skills themselves.

Ferreiro's studies (Ferreiro, 2000; Ferreiro & Palacio, 1988; Ferreiro & Teberosky, 1979) identified four levels in the development of the construction of the alphabetic system: presyllabic, syllabic, syllabico-alphabetic and alphabetic. At the presyllabic level, children distinguish between drawing and writing. They then construct ideas about the minimum and maximum number of graphic marks needed for a sequence of marks to be considered a written word (usually between 3 and 6–7 letters). Children also use qualitative and quantitative variations in their writing. For example, changing the positions of the same letters within a three-letter word results in different words. Children usually use the letters of their own name to form written words but sometimes they may also include other marks such as, for example, numbers. At this level of development, however, children do not conceive any direct link between the written marks and the sounds they hear. Children mark the figural aspects of the referent rather than the sounds articulated in the word. Thus, they might write many letters for a word such as éléphant (elephant), which represents a big animal, and just a few small letters for coccinelle (ladybug), which represents a small insect. Towards the end of this level, children begin to take into account the sound of the word, as when they start the written sequence with the grapheme corresponding to the sound heard at the beginning of the oral word. At this first level, the pedagogical interventions to be privileged are those that take into account the children's presyllabic conceptions. Children should thus be encouraged in their attempts at writing and congratulated on their creative hypotheses in order to sustain the pleasure they experience in their discovery of the written language. This may lead children to pay greater attention

to their written environment and possibly invalidate some of their presyllabic hypotheses. Children can also be encouraged to compare different writings, such as the names of their classmates (for example, why Caroline's name is written with many letters even though she is the smallest child in the class, while Luc's name is written with only a few letters even though he is the tallest), or their own writing of a word with the way it is written in a book. Since, at the very end of the presyllabic period children can make the first correspondences between a grapheme and the initial sound of words, at that period children can be asked to pronounce the words slowly, say what they hear in the word and then write down what they hear.

At the second level, that of syllabic representation, children think that written marks relate to the sound of the words and that each oral syllable must be marked by a letter, with or without a conventional sound value, or by other marks, such as numbers. For example, the child might use three letters ("grf") to write giraffe, which is pronounced in three syllables, or two marks ("2p") to write toothpaste, which is pronounced in two syllables, with the number 2 corresponding to the sound at the beginning of the word toothpaste. Also here it is possible to devise pedagogical interventions that take into account the children's level of representation. At this level, the numerous monosyllabic and bisyllabic words present in French are likely to create a conflictual reasoning on the child's part: the syllabic hypothesis would lead children to produce, respectively, one or two marks while, according to the ideas deriving from the preceding presyllabic level, at least three letters would be needed. This conflict may lead children to write other sounds they hear in these words, progressively leading them towards the next level. Another intervention that can cause conflict among the children's own representations is to have them write words that have the same syllabic and consonantal structure such as patate (potato) and patatra (an onomatopoeic sound corresponding to a crash) or carotte (carrot) and carotter (to rob or cheat someone). The syllabic hypothesis will lead the child to write these pairs of words in the same way: "ptt", for patate and patatra and "krt", for carotte and carotter. However, children also think that two different words cannot be written in the same way. Thus, the teacher can point out that both words are written with the same letters and ask: Where is carotte written and where carotter? What can we do to differentiate them? This questioning is likely to prompt the child to look for distinctive marks that differentiate the two orally different words.

During kindergarten, children can reach a syllabico-alphabetic representation of the writing system, that is, they can alternate between the syllabic hypotheses of the second level and the alphabetic hypotheses of the following one. For the same word, they may sometimes mark the syllables, and sometimes the phonemes within the syllables. For example, the word giraffe might be written as "jraf", where "j" represents the first syllable while the following three letters present a

graphophonemic correspondence. Pedagogical interventions adapted to this level should help children to strengthen this emergent phonemic reasoning by having, for example, the teacher read aloud words that the children have written. While congratulating children on their hypotheses, the adult could say that other sounds may be heard when the word is read aloud and could ask them to search for these sounds and write them down. For example, for "jraf", the teacher could point out that there is a sound between "j" and "r", and ask the child to pronounce the word very slowly. Since children at this level can isolate a particular sound and ask the adult how to write it, the teacher may provide them with the appropriate writing conventions that children eventually need to acquire. Thus, if the child asks how to write the sound [ʃ] in cheval (horse), s/he is ready to benefit from the adult saying that the sound [ʃ] is written with two letters, "c" and "h". Children's questions about orthography will be used by the teacher to construct tables of the different ways in which certain sounds, such as [o] or [ã], are written in and the children will be referred to them whenever the complex graphemes come up.

According to Ferreiro (2000), the fourth and last level is attained when children mark each phoneme in the word with a written mark (in a term-to-term grapheme to phoneme correspondence), regardless of whether the graphemes are conventional or not. Some children may also have constructed some orthographic regularities, such as combining "a" with "n" to make the French sound [ã]. At this level, since the term-to-term phoneme-grapheme correspondence is now constructed, the pedagogical intervention should aim to encourage children to read autonomously and to strengthen their acquisition of the orthographic conventions.

According to Ferreiro (2000), the practice of writing gradually leads children to an alphabetic representation and thus to phonemic awareness, which is basic to the formal learning of reading. However, awareness cannot be explicitly taught to the child. Awareness can only develop through the child's own activities, in this case the act of writing, in particular together with an adult who knows how to appropriately stimulate and accompany the child's reflection.

Many scholars have questioned how well a developmental approach centered on children's own activity – with no explicit instruction or training program relating to phonological awareness – can adequately prepare children for formal learning of the written system. The remaining part of this chapter reports empirical data relating to this matter.

## Current study

### *Method*

The aim of this study[3] was to trace the literacy progress made by kindergarten children who benefitted from a pedagogical context such as that described above. This involved daily interactive reading and emergent writing activities.

#### *Subjects*

The study involved one kindergarten classroom of 18 children (11 girls and 7 boys) aged between 5;1 (= 5 years and 1 month) and 5; 11 (M = 5;6; SD = 4 months) at the beginning of the study, and between 5;8 and 6;7(M = 6;2; SD = 4 months) at the end. All the children were French-speaking from Quebec (Canada).

#### *Procedure*

Children were exposed to a developmental approach that involved interactive reading and emergent writing. Throughout the school year the teacher, in order to familiarize herself with the approach described above, attended a weekly university program on emergent literacy in kindergarten under the supervision of three professors (Makdissi, Boisclair and Sirois). Teachers were required to construct, plan and implement in the classroom interactive reading and emergent writing activities, and to perform a reflexive analysis of the pedagogical intervention. Moreover, every two months, one of the three professors visited the classroom during the activities to work with the teacher and the children on them.

#### *Data collection*

Data were collected at the beginning and at the end of the school year. The initial data (T1) were collected between the end of September and the first week of October, and the final data (T2) were collected between the first and the second week of May. In between these two measurements, the children benefitted from 6 and a half months of daily interactive reading sessions, using a variety of books from children's literature (excluding the one used for the initial and final measurements), and of emergent writing activities.

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3. This study was part of a broader research project conducted by a Quebec-France team (Makdissi & Veneziano, 2009–2011) with the support of a grant by the Fonds de recherche du Québec-Nature et technologies (FQRNT) and the Conseil Franco-Québécois de Coopération Universitaire (CFQCU) that we would like to thank.

*Narrative recall task*

The French version of the story Franklin in the Dark was first read to each child individually by the researcher who then asked the child: "Can you tell me the story of Franklin in the Dark?". Children's narrative recalls were videotaped, transcribed verbatim and were subsequently coded using the seven levels of narrative recall developed by Makdissi and Boisclair (2008), redistributed here on an ordinal scale ranging from 0 to 14, as described in Table 1.

**Table 1.** Narrative recall coding scale (min 0; max 14)

| | |
|---|---|
| 0 | Naming of objects on the cover page. |
| 1–2 | Naming of one or more characters in the story. |
| 3–4 | Recollection of isolated actions. |
| 5–6–7 | Emergence of narrative structure. Coordination of components.<br>The child identifies the problem, recalls episodes in a structured way, or recalls the end or the final solution. The child obtains a higher score if he recalls more than one of these three parts. |
| 8–9 | Temporal structuring.<br>Temporal marks emerge between the different components of the narrative, either between the problem and episodes, or between the episodes and the end. |
| 10–11 | Causal structuring.<br>Causal links emerge between the different components of the narrative, between the problem and episodes, between the episodes and the end or solution, or between the problem and the solution. |
| 12–13–14 | Causal explanation – emergence of one explanation based on another explanation.<br>Recalling the episodes that occur around the goal pursued by the protagonist, the child explains the protagonist's refusal of the help offered to him. The help offered meets the needs of the friends, but not those of the main character. A dual explanation is emerging here, bringing out the moral or theme. |

*Emergent writing task*

Children were asked individually to write by themselves and without the help of the adult, their name and five words. The words were: girafe (giraffe), coq (rooster), éléphant (elephant), hippopotame (hippopotamus), and coccinelle (ladybug). Children had at their disposal an alphabet book without illustrations. These interviews were videotaped to keep track of what the children wrote and of the comments they made during their writings. The productions were coded according to Ferreiro's four levels of development described in the previous section, redistributed on a 7-point ordinal scale, as detailed in Table 2.

**Table 2.** Emergent writing rating scale (min 1; max 7)

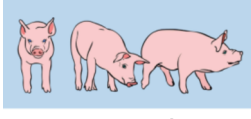
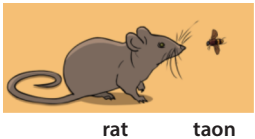
| | |
|---|---|
| 1 | Presyllabic level: the child does not make the link between written marks and the sound of the words. |
| 2 | For at least one word, the child demonstrates a syllabic representation, as at the following level, but this does not extend to all written words. |
| 3 | Syllabic level: for all written words, a written mark corresponds to each syllable. |
| 4 | For at least one word, the child demonstrates a syllabico-alphabetic representation as at the following level, but this does not extend to all written words. |
| 5 | Syllabico-alphabetic level: for all written words, within the same word, a written mark corresponds to a syllabic or subsyllabic unit. |
| 6 | For at least one word, the child demonstrates an alphabetic representation as at the following level, but this does not extend to all written words. |
| 7 | Alphabetic level: for all written words, a written mark corresponds to each phoneme. |

*Emergent reading task*

This individually-administered test, constructed by Makdissi within the CFQCU project (Makdissi & Veneziano, 2009–2011), consists of 8 items aiming to identify the child's emergent reading abilities and the different levels of their representation of the alphabetic system. Each item presents specific characteristics well suited to reveal these different levels. For each item, the child is first asked to tell what happens, to show where this information is written, and to read what s/he thinks is written. After the child's "reading", the adult reads the sentence herself (except for items 5 and 6), following her reading of the words with her finger, and then asks the child to point to where particular words are written or to read isolated words. All the interviews were videotaped and then transcribed in full. Table 3 presents the items in the order of presentation and the rationale behind their choice.

The rating scale for emergent reading was constructed through inductive analysis based on the first transcriptions of the interviews up to the point of data saturation (Corbin & Strauss, 2008). The scale so created associates the four levels described by Ferreiro (2000) to nine distinct ranks, as shown in Table 4.

**Table 3.** Emergent reading task

| | |
|---|---|
| 1<br>  <br>Le lion attrape le souriceau | After the adult's "reading" of the sentence "The lion catches the baby mouse" she asks the child to point to where it says "lion" and where it says "baby mouse" (souriceau).<br>This item is well suited to reveal children's presyllabic representation (at this level, children do not make yet links between oral language and written marks, but rather between marks and the figurative aspects of the referents) because the monosyllabic word "lion", which represents a large animal, is written in very small characters, while the trisyllabic word "souriceau", which represents a tiny animal, is written in large print. Presyllabic representations would lead children to identify the word "lion" as the one written in large characters and, conversely, the word "souriceau" as the one written in small characters, regardless of the order in which the words were read. |
| 2<br>  <br>**trois petits cochons** | For the sentence "Three little pigs" the child is asked to point to where it says "pig" (cochon).<br>This item is well suited to reveal whether children believe that each word refers to each represented object ( pig-pig-pig) or whether s/he understands that the text refers to the sequence of words just read.<br>Next, the adult hides the word "pig" and asks the child what it says now. A presyllabic representation would likely have the child say "two little pigs". Then the adult shows the word but hides the pig on the left in the illustration and asks the child what the text says now. With a presyllabic representation the child is likely now to say again "two little pigs". Finally, the adult points to each of the three words asking each time what it says . Since at the presyllabic level written words do not have a stable correspondence, the child may say "cochon" (pig) for each word pointed out by the adult. |
| 3A 3B<br>  <br>**rat** **taon**<br>  <br>**raton** | The adult reads the two words: "rat" Item 3A shows the words "rat" [ʁa] and "horsefly" (taon [tɔ̃]) whose sounds, in Item 3B, combine to form "young rat" (raton [ʁatɔ̃], (raccoon).<br>This item, as well as items 4A and 4B below, are well suited to reveal children's syllabic representations. Indeed, children who have not reached a syllabic representation will be unable to combine the two syllables to form the new word and construct its meaning. |

(*continued*)

**Table 3.** (*continued*)

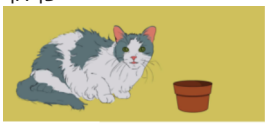
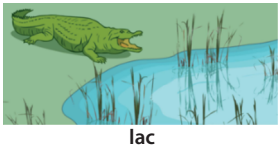
| | |
|---|---|
| 4A 4B<br>  <br>chat pot<br>  <br>chapeau | Item 4A shows the words "chat" [ʃa] (cat) and "pot" [po] (bucket) whose sounds, in Item 4B, combine to form "chapeau" [ʃa po] (hat). |
| 5<br>  <br>lac | This item, presenting an illustration of a lake and a crocodile under which the word "lac" (lake) is written, also aims to reveal whether or not children have a syllabic representation. Since, at syllabic level, children associate one letter with a syllable, they will therefore tend to believe that the three-letter word under the illustration says crocodile, since crocodile has three syllables and shares some letters with "lac". They will therefore make the following association: l = [kʁɔ]; A = [kɔ]; C = [dil].<br>Children having reached a more advanced representation of the alphabetical system know that a letter is associated with a phoneme and thus the word lake cannot be read as crocodile since it does not contain enough letters. Most of them will also be able to decode "lac" since it does not have complex graphemes. |
| 6A et 6B<br>  <br>mont<br>  <br>colline | Items 6A and 6B refer to children who have a syllabico-alphabetical representation of the French writing system. Item 6A, showing the illustration of a mountain or hill (montagne, mont or colline) and a ladybug (coccinelle), aims to identify the transition from syllabic to syllabico-alphabetic representations. It is indeed possible, based on a syllabic representation, to put forward the hypothesis that "mont", which is composed of four letters, refers to ladybug (coccinelle) since, orally, coccinelle is made up of four syllables [kɔk-si-nɛ-lə]. The child might also read "mont" as mountain (montagne), which, orally, has three syllables [mɔ̃-ta-ɲə]. Item 6B is composed of the same illustration under which the word "hill" (colline) is written. A syllabico-alphabetic representation will lead the child to assert that it says ladybug (coccinelle), since these two words, in addition to sharing the same number of syllables, are composed of the same letters. |

**Table 3.** (*continued*)

| | | |
|---|---|---|
| 7 |  <br>**Maman prépare des patates.**<br>maman<br>cuisine<br>repas<br>patatra | Thus, a child who does not yet associate every grapheme with a separate phoneme might, nevertheless, adjust his hypothesis based on the first letters.<br>After the child's "reading" of this item, the adult reads the sentence, following the words with his finger: Mom is cooking potatoes. Then he asks the child to read the four isolated word-labels: maman (Mom), cuisine (kitchen), repas (meal) and patatra (an onomatopoeic sound corresponding to a crash).<br>This item aims to reveal the children's alphabetical representation. The selected isolated word-labels mislead children who have not reached an alphabetical representation. Thus, the word "Maman" (Mom) can be identified by a majority of children since it is one of the first words they recognize. It can also be associated with the reading aloud of the adult and the word Maman written under the illustration. "Cuisine" (kitchen) is semantically related to the illustration. It presents more than one difficulty in French: the letter "c" which can be pronounced [s] or [k], the complexity of the grapheme "ui", and the letter "s" which can be pronounced [s] or [z]. The word "repas" (meal) could be confused with the word "prépare" (is cooking) since they contain similar letters. The same applies to the words "patatra" and "patates" (potatoes), which will be distinguished by children with a strong alphabetical representation but confused by children with a syllabico-alphabetical representation. It should also be noted that the number of isolated word-labels corresponds to the number of words in the sentence. Some children will spontaneously assume that the sentence is fully displayed in the word-labels. |
| 8 |  <br>**Les enfants écoutent la maîtresse qui a écrit des lettres au tableau.**<br>élève<br>pupitre<br>écrire<br>table<br>tableau | After the child's "reading" of this item, the adult reads the complex sentence, following the words with his finger: The children are listening to the teacher, who has written letters on the blackboard. He then asks the child to read five isolated word-labels: élève (pupil), pupitre (desk), écrire (to write), table (table), tableau (blackboard).<br>This item also aims to identify children who have reached an alphabetical representation. Again, the word-labels were selected for their graphic and semantic characteristics, which will mislead children who have not reached an alphabetic representation. The word "élève" (pupil) might be confused with the word |

(*continued*)

**Table 3.** (*continued*)

| | |
|---|---|
| | "enfants" (children), and the beginning of the word "écrire" (to write) has similar graphemes to the words "écoutent" (are listening) and "écrit" (written), which were previously read by the adult. The words "table" (table) and "tableau" (blackboard) share the same first five graphemes. Semantically, the word "pupitre" (desk) is closely related to the illustration. |

**Table 4.** Emergent reading rating scale (min 1; max 9)

| | |
|---|---|
| Reading based on **presyllabic** representation<br>**LEVEL 1** | **Level 1A (Rank 1):**<br>– Picks out the word *baby mouse* (souriceau) to identify the lion (length of word);<br>– Points to the word in the center (*petit*) to identify the pig (as though it said *pig-pig-pig* (cochon-cochon-cochon) and sometimes points to the picture instead of the words.<br>**Level 1B (Rank 2):**<br>– Does not always respect the word order of the syntax when "reading" after the adult (e.g., pigs three (cochons trois)); reads the sentence in various ways which show that the child sees the written words as being unfixed; the emphasis is on interpreting the picture. |
| Reading based on **syllabic** representation<br>**LEVEL 2** | **Level 2A (Rank 3):**<br>– Emergence of the syllabic idea with a lot of help from the adult, in particular in items 3 and 4, with the continued presence of many presyllabic behaviors.<br>**Level 2B (Rank 4):**<br>– Clearly at the syllabic level. Usually succeeds in items 3 and 4 without help. For item 5, the child reads the word *lake* (lac) as *crocodile*, with each letter corresponding to one syllable: 1 = cro; a = co; c = dile.<br>– There is still evidence that the child sees the written form as being unfixed, a usual characteristic of the presyllabic level.<br>– Two words that are written differently may be read as the same word: for example, *meal* (repas) and *potatoes* (patate) both read as *potatoes*.<br>– In items 7 and 8, the child sometimes tries to find words that start with the same letter as the target word. |

**Table 4.** (*continued*)

| | |
|---|---|
| Reading based on **syllabico-alphabetic** representation<br>**LEVEL 3** | **Level 3A (Rank 5)**<br>– Usually succeeds in item 5.<br>– Often interprets words in item 6; *mountain, ladybug* (instead of *mountain, hill*).<br>– Here again, there is evidence that the child sees the written form as being unfixed.<br>– Decodes some isolated words in items 7 and 8; for the other isolated words to be read, the child often finds words that contain the same or similar letters as the target word.<br>– Decoding of isolated words in items 7 and 8 is difficult and tedious. |
| | **Level 3B (Rank 6):**<br>– Syllabico-alphabetic + +. The child prefers to say "I don't know" rather than coming out with something that has no meaning or changing the target word.<br>– Manages to deocde some words in items 7 and 8. |
| Reading based on **alphabetic** and **orthographic** representation<br>**LEVEL 4** | **Level 4A (Rank 7):**<br>– Decoding is difficult and the child does not always adapt the identification of the word; often attempts to decode words more than once or still makes mistakes that are typical of the syllabico-alphabetic level. |
| | **Level 4B (Rank 8):**<br>– In identifying the word, the child does not always take into account the meaning, syntax or constraints imposed by the written form. In item 2, the child is often drawn to the hidden image of the pig: two little pigs. |
| | **Level 4C (Rank 9):**<br>– In identifying the word, the child quickly takes into account the meaning and syntax. |

*Data analyses*

The analyses of the data collected during the narrative recall and the emergent reading and writing tasks used paired-samples t-tests to determine whether significant differences existed between the two measurement times. In order to determine whether emergent writing and emergent reading were interrelated at T2 (i.e., at the end of the interventions), a Pearson correlation was conducted. Researchers in statistics (Abelson, 1995; Rasmussen, 1989) have reported that the same analyses applied to parametric measures can also be applied to ordinal scale data with more than 5 ranks, without compromising the power of the test.

*Results*

*Narrative recall*

At the beginning of the school year, the mean narrative recall score was 9.6 (SD = 3.1), that is, at the level of temporal structuring. By the end of the school year, the mean score had increased to 10.9 (SD = 2.4), that is, it reached the level of causal structuring. The difference in recall score between the two measurement times was not significant ($t(17) = 1.71$; $p > .05$). The increase in the causal links observed in the narrative recall at the end of the study, even if marginal, points however to a change in the quality of the recalls (Kendeou et al., 2014; Makdissi & Boisclair, 2008; Trabasso & Wiley, 2005). It thus appears that the 6 months and a half of interactive reading intervention, involving questions leading to discussion and to the construction of causal inferences, helped the children to improve their understanding of the story's causal structure, though the improvement was only marginally significant.

*Reading and writing*

*Quantitative analyses.* As shown in Figure 1, both emergent reading and emergent writing show a significant improvement (for reading: $t(17) = 8.04$; $p < .001$; for writing: $t(17) = 8.23$; $p < .001$). Moreover, whereas at the beginning of the year the children were more advanced in reading (M = 3.3; SD = 0.5) than in writing (M = 1.9; SD = 1.1), by the end of the year the difference between the two had almost disappeared with a slight advantage for writing (M = 5; SD = 1.3) compared

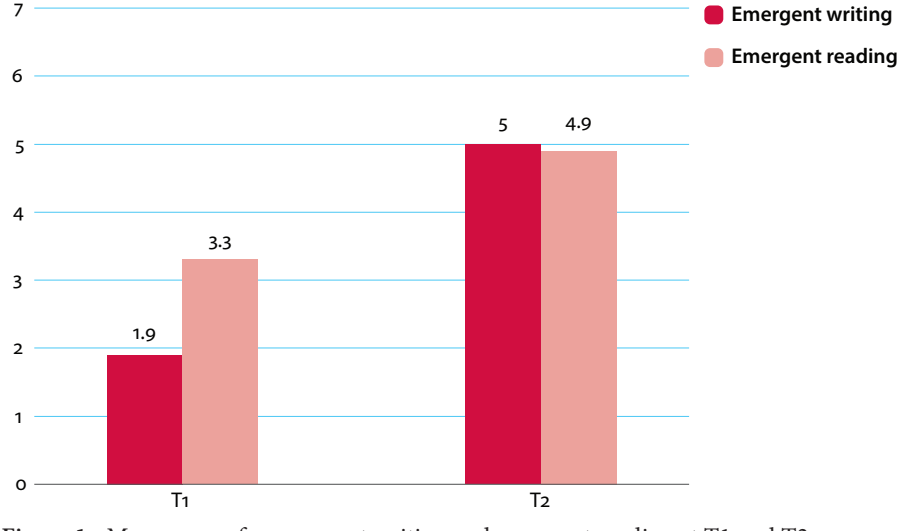



**Figure 1.** Mean scores for emergent writing and emergent reading at T1 and T2

to reading (M = 4.9; SD = 0.9), and the correlation between the two being significant (r = 0.66; p < .01).

*Qualitative analyses*

*Emergent writing at T1.* The mean score at T1 is 1.9, corresponding to the presyllabic representation with a syllabic representation for at least one word. Figure 2 presents a typical example of writing at the level of the mean score.

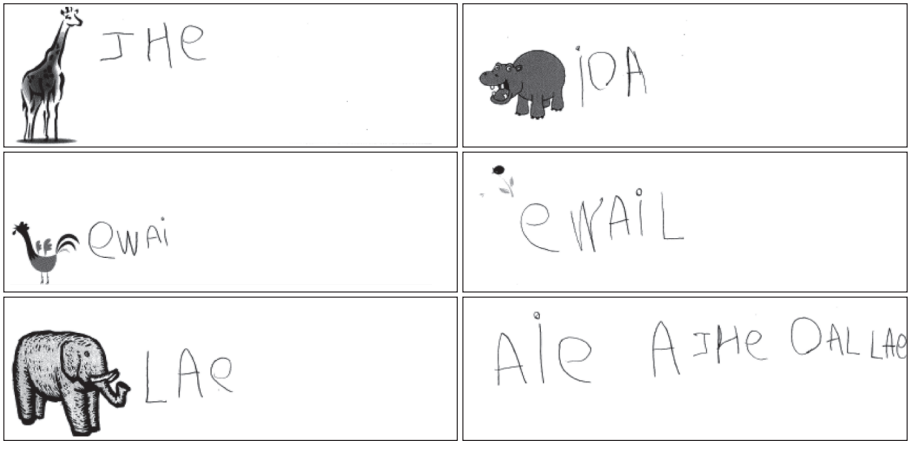


**Figure 2.** Example of writing at the level of the mean score at T1. Mainly presyllabic with progress towards syllabic representation

This child obtained a score of 2 because he analyzed most of the words at the presyllabic level. For example, for the word coq (rooster), the child thought for a long time and then wrote the letter "e". He then pronounced the word [kɔkə] and went on as follows:

Child: is there a w?
Adult: if you think there is one, put one in
Child: (adds the letter w, then the letter a and the letter i) I think this is how you write it

It can be assumed here that the child heard the final [ə] of coq and that he then added letters to fit the minimum quantity requirement. This word was thus analyzed according to a presyllabic representation. However, the child showed a higher level of representation for the word girafe (giraffe):

Child: well, I think it starts with a j (shows the letter J in the alphabet book)
Adult: go ahead and do as you think
Child: (writes the letter J - whispers [ʒi ʁa fə] and looks at the alphabet book) there's an h next

Adult: hum
Child: wait a minute, I don't know how to write it! Like this? (Shows the letter H in the alphabet book)
Adult: yes
Child: (writes the letter H - whispers [ʒi ʁa fə] and writes the letter e - whispers again [ʒi ʁa fə]) I think there are three letters
Adult: yes? Do you want to read it to me?
Child: yes, girafe (vaguely following the written letters with his pencil)

This excerpt clearly indicates that the child splits the word into three syllables [ʒi ʁa fə] and associated a written mark with each syllable, sometimes with a conventional sound value (J and e), sometimes not (H for "ra"), but he did not systematically apply this reasoning to all the words.

The lowest score obtained by the children at T1 was 1, corresponding to a systematic presyllabic level of reasoning for all the words. The highest score, achieved by two children (11% of the group), was 4, corresponding to a syllabic representation with syllabico-alphabetic reasoning for at least one written word. Figure 3 shows an example of writing at the highest score obtained at T1.

**Figure 3.** Example of writing at the level of the highest score obtained at T1. Mainly syllabic writing with progress towards syllabico-alphabetic representation

Most of the words written by this child presented a syllabic representation. For example, the child segmented the word girafe (giraffe) as [ʒi ʁa fə] and used one letter for each syllable. On the other hand, the child wrote the word éléphant (elephant) as lfan, with the l for [ɛl] and fan for [fɑ̃], thus using a syllabico-alphabetic analysis. This seems to be confirmed by the exchange below:

Adult: (points to the picture of the elephant.) [What animal is this] Here?
Child: (whispers [fɑ̃])

Adult: what's the word?
Child: éléphant (writes the letter l)
Adult: éléphant, how do you write éléphant?
Child: [ɛfffff] f, f(writes the letter f) eh, [ffff], [fã], [ã]how do you write [ã]?
Adult: how do you think [ã] might be written?
Child: I don't remember anymore but I have it in class
Adult: yes, a-n
Child: a (writes the letter a, looks at the alphabet book and points to the letter n) is that it?
Adult: yes
Child: (writes the letter n)

Although the letters "a" and "n" were given by the adult, it was the child himself who isolated the phoneme [ã]. The letters written with the support given by the adult in response to the child's questions are underlined in Figure 3. The same syllabico-alphabetic reasoning was used to write the word hippopotame (hippopotamus):

Adult: what's the first word?
Child: ah, hipotame
Adult: very good! Hippopotame, how do you write hippopotame?
Child: (the child writes the letter e - whispers [pɔ] and writes the letter o - whispers [ttttt, tam, tttt] and writes the letters t and a.) hippopotame

This child, from an English-speaking background, thus made a syllabic analysis when he associated the letter "e" (which corresponds to the sound [i] in English) with [i] (both a syllable and a phoneme), and the letter "o" with the syllable [pɔ] (analyzed only once as he pronounced 'hipotame'), but he made a partial phonemic analysis when he associated the letters "ta" with the syllable [tam].

*Emergent writing at T2.* At T2, the mean score for emergent writing increased from 1.9 to 5, corresponding to a syllabico-alphabetic representation. Figure 4 presents a typical example of writing at the level of the mean score.

In this example, the child used letters according to their conventional sound value, but he did not mark all the phonemes of the word. Some phonemes were not marked: the [a] in girafe (giraffe); the second [k] in coq (rooster); a letter to mark the sound [ã] in éléphant (elephant); the second [p] and [o] and the [a] in hippopotame (hippopotamus); and the [ɔ], the [k] and the [ɛ] in coccinelle (ladybug).

Only one child obtained the lowest score of 2. Ten children (56% of the group) obtained the highest score of 6, corresponding to a syllabico-alphabetic representation, with alphabetic reasoning for at least one word. Figure 5 shows an example of this type of writing.


**Figure 4.** Example of writing at the level of the mean score at T2. Syllabico-alphabetic representation

In this example, the child produced a letter with a conventional sound value for each of the phonemes contained in the words girafe, coq and éléphant (giraffe, rooster and elephant). He also exhibited some orthographic knowledge as he ended all the words with the letter "e", which is often silent in that position in written French, and stuck the letters "a" and "n" together for the sound [ã]. Towards the end of the task, for hippopotame and coccinelle (hippopotamus and ladybug), the child did not mark all the phonemes present in these words. For this reason, his writing is considered to be syllabico-alphabetic with progress towards alphabetic

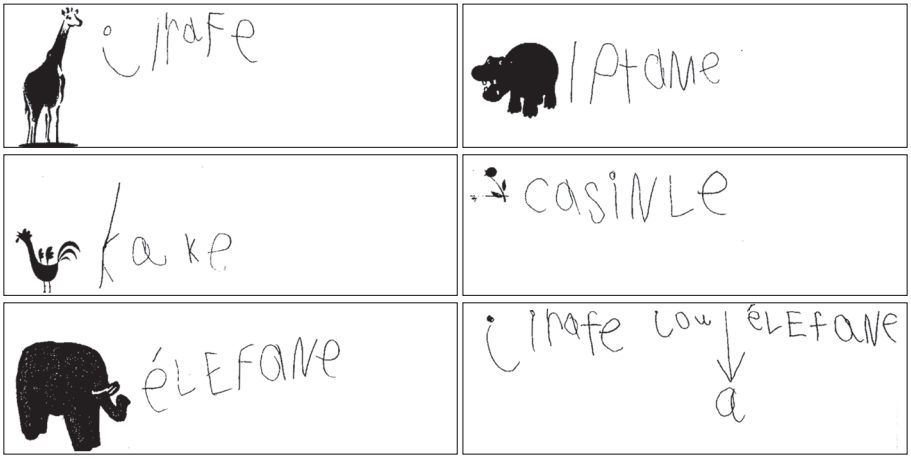



**Figure 5.** Example of writing at the level of the highest score obtained at T2. Syllabico-alphabetic with good progress towards alphabetic representation

writing. The appearance of the alphabetic level of representation, though yet not systematically applied, constitutes a very important step into the writing/reading system of French. Indeed, it can be considered to indicate the beginnings of phonemic awareness, which underlies all 'decoding' in reading.

These results, showing that more than half of the children developed the alphabetic level of representation, are encouraging and suggest that the six and a half months of pedagogical interventions involving daily emergent writing activities were quite efficient in preparing children to develop the abilities needed to autonomously identify written words.

*Emergent reading at T1.* At T1, the mean score for the emergent reading task was 3.3, corresponding to the emergence of a syllabic representation, with the child needing the support of the adult to solve items 3 and 4 of the protocol (see Table 3 above). An example of this type of reasoning by children with this score is illustrated in the exchange below. The adult first showed the child Item 3A, asked the child to read what it said and then she read it in turn. She next presented Item 3B and said to the child:

Adult: and so here we've taken the two words, the word rat and the word taon, and we've stuck them together to make a new word (places Item 3B in front of the child). How many words are there here?
Child: well, rat and taon
Adult: yeah, so if we just stick them together, just these two words, what does that make? Rat and, rat?
Child: and rat and taon
Adult: rat (few seconds silent) taon
Child: raton (young rat)
Adult: what?
Child: (laughs) not a raton-laveur (raccoon)? Eh?

The adult, instead of repeating the connector 'and' that the child had just said between the words, rat and taon, pronounced the two words one after the other with just a brief pause between them. It was only in this way that the child could finally say raton (young rat).

The mean reading scores at T1 ranged only between 3 and 4. This means that children, without the adult's conversational support, performed items 3 and 4 according to a syllabic representation.

As an example, a child ranking 4, for item 3B, put together the two syllables and formed the word raton even before the adult had instructed him to do so, and succeeded just as easily with Item 4B. In Item 5, the child interpreted the written word lac, composed of three letters, as crocodile, which he separated into three syllables when reading it aloud [kʁɔ-kʁɔ-dil]. In Item 6A (showing a ladybug on

a hill), the child interpreted the written word mont (mountain), made up of 4 letters, as being coccinelle, which he separated into 4 syllables when reading it aloud [kɔk-si-nɛ-lə]. It can thus be concluded that his level of representation was strongly syllabic. In Item 6B, the child was surprised to see the same picture as in Item 6A: "Encore une coccinelle?" (Another ladybug?), suggesting that the child might think that two different written marks could not represent the same oral word. He then said that in the written word colline, containing seven letters, it was written: "La coccinelle a'monte" (the ladybug a (a filler for she) climbs), a sentence composed of seven syllables.

*Emergent reading at T2.* At T2, the mean score was 4.9, which is higher than the highest rank obtained at T1 (4). As an example, at Rank 5 (corresponding to the emergence of a syllabico-alphabetic representation), a child identified all the words on items 3A, 3B, 4A and 4B and could read the word lac in Item 5. However, in items 6A and 6B, the child interpreted the word mont as montagne (mountain) and the word colline (hill) as coccinelle (ladybug):

Adult: (presents Item 6A to the child) what's in the picture here?
Child: ants and a mountain
Adult: an ant and a mountain, so what does it say here?
Child: mountain (montagne)
Adult: very good! Can you read it to me with your finger?
Child: montagne (using his finger to follow the word)
Adult: very good (presents Item 6B to the child) what's in the picture here?
Child: a ladybug and a mountain
Adult: and what does it say here?
Child: ladybug (coccinelle)
Adult: can you read it to me with your finger?
Child: coccinelle (using his finger to follow the word)

In contrast to behaviors proper to Rank 4, this child was not surprised to see the same picture twice because he took into account the first letters of the written words mont and colline to make hypotheses about what was written, which probably led him to reinterpret the picture as representing a coccinelle (ladybug), and not ants, as was the case when Item 6A was first presented. However, he did not take into account all the written marks during his reading, suggesting that his alphabetic representation was not yet well established.

The highest score obtained at T2 was 7, corresponding to the beginning of the alphabetic representation. In a typical reasoning corresponding to Rank 7, a child was capable of alphabetic representation, but also came back to syllabico-alphabetic reasoning for some of the words. He managed to decode the words, but with difficulty and much effort.

Adult: (presents Item 8 to the child) we've come to the most difficult card! Are you ready?
Child: (the child smiles proudly) yes!
Adult: look at this picture, what's going on in the picture?
Child: there are students, and an instructor
Adult: hummm
Child: and, there are letters
Adult: where is the writing here?
Child: (she points to the letters, sliding her finger under the sentence where it says "Les enfants écoutent la maîtresse qui a écrit des lettres au tableau" [The children are listening to the teacher, who has written letters on the blackboard])
Adult: what do you think is written?
Child: (the child looks at the words, then at the illustration, and again at the words - she starts reading) Les [the] (she looks alternatively at the words and at the illustration, and then looks at the adult who waits patiently for her response - she looks again alternatively at the words and at the illustration - after two long minutes, she starts reading) Les enfants [the children] (again, she looks back and forth at the words and the illustration and continues to read the sentence for nearly four minutes) Les enfants écouta la maîtresse qui écrire les lettres au tableau [the children listened (singular) to the teacher who to write the letters on the blackboard]

The child managed to identify the written words, which were not easy. In fact, there were compound graphemes ("en" and "an" in enfants (children), "aî" in maîtresse (teacher), "eau" in tableau (blackboard)), and 'silent' morphemes ("ent" in écoutent (are listening), which the child identified as écouta (listened)). She also managed to decode words that she had not mentioned in her initial interpretation of the illustration. So, she correctly read the word maîtresse (teacher rather than monitrice (instructor), the word she had used when she interpreted the illustration. She also effectively used her inference skills to identify words while reading sentences, something she couldn't do when reading the decontextualized isolated words accompanying this item. She did not even manage to identify tableau (blackboard) while she correctly identified it when reading the sentence written underneath the picture. It is thus possible to think that inferences were constructed not only through the support of the picture, but also through the syntactic context in which the words appeared in the sentence. For this child, it seemed easier to identify written words in a syntactic sentence than to identify isolated words, even if, in the former case, the words contained complex phoneme-grapheme correspondences and, in the latter, simple correspondences alternating consonants and vowels, as in the word élève (pupil).

This child's way of working through the task lends some support to Goodman's (2005/1986) notion that written language learning is easier when young children can rely on contextual relevance (here, syntactic cues and contextual cues provided by the picture), on the goals set for their reading activity, and on the meaning they can construct on the basis of the knowledge they have about, among others, the written system and the structure of the oral language.

## Discussion

The results of this study support the hypothesis that children's progress in writing prepares their learning to read, even in the absence of an explicit "phonological awareness" training program (Sirois et al., 2008; Sirois et al., 2012). Thus, having children write every day in their own way and with an adult stimulating children's reflection on their own act of writing, supports the development of children's representation of the alphabetic system. Writing activities should start right away with complex tasks such as writing a short story underneath a drawing, or writing a card to a classmate or a parent.

These results are in line with numerous other studies indicating that the development of the abilities to write and read are interrelated (Darveau, 2012; Ehri, 2002; Goodman, 2005/1986). They also show that teachers, focusing on the causal links that hold the story together, can use stories from children's literature to help children construct the causal inferences needed for reading comprehension (Blanc, 2009; Dougherty Stahl, 2014; Kendeou et al., 2014; Makdissi & Boisclair, 2006; van Kleeck, 2008). With this pedagogical approach, narratives produced by kindergarten children appear to add, over the course of a few months, causal links to the initially expressed temporal ones. This progress was however modest as it was not significant after the 6 months and a half of pedagogical interventions. It should be mentioned, however, that while children's narrative recall develops greatly between the ages of 3 and 5;6, progress is more modest afterwards (Makdissi, Boisclair, Blais-Bergeron, & Sanchez, 2008; Trabasso, Stein, Rodkin, Munger, & Baughn, 1992).

Written language seems to develop spontaneously and progressively with time, through experience with written text and meaningful complex writing activities. The pedagogical approach implemented in the present study aimed to provide just enough support to lead children to the inferential processes necessary for the comprehension of narratives. In particular, interactive reading is meant to focus children, from the start, on the construction of interpretations and meanings on the basis of complex written texts such as children's storybooks (Goodman, 2005/1986; Makdissi et al., 2010). Once children have made sufficient progress in

their representation of the alphabetic system, interactive reading is also likely to support the identification of the written words themselves (Kendeou et al., 2014).

The results of this intervention study also suggest that writing activities also helped children to improve their abilities to read, even in kindergarten children, thus before any explicit phonological training had begun.

These overall encouraging results need to be confirmed with a larger sample of kindergarten children, possibly using a longitudinal design in which the children are followed up to Grade 4, when the progress of children having reading difficulties levels off, while school expectations on inferential skills rise (Haager & Vaughn, 2013). Moreover, the results obtained by the group that underwent intervention should be compared to a control group who did not go through the pedagogical intervention in order to better distinguish the effects specifically due to the pedagogical intervention from the children's spontaneous developmental progress.

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CHAPTER 3

# Do children's oral retellings of narrative and informational texts predict scores on a standardized reading comprehension test?

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This study assesses whether oral retellings of a narrative and informational text during the summer following third grade predicted performance on reading comprehension in the fall of fourth grade. To assess comprehension of a narrative and an informational text, 52 teachers called 117 third-grade students over the summer and asked them to provide an oral retelling of two books. All students were participating in a summer literacy intervention called READS for Summer Learning (READS). Oral retellings of narrative and informational books from the READS lessons were analyzed using content units, or individual units of meaning, from the books. We found that the percentage of total content units recalled on the narrative text was a predictor of narrative comprehension subtest scores, while the percentage of content units recalled on the informational text was not a significant predictor of informational comprehension subtest scores. This study lends further empirical evidence to the link between oral retellings of narrative texts and later reading comprehension and extends prior research by examining the possible link between both informational oral discourse skills and reading skills.

**Keywords:** retelling, reading comprehension, oral narrative, story recall

## Introduction

Oral retellings measure a child's ability to hear or read a text and then describe that text to a listener (Kim, Park, & Park, 2015). This is a skill that children typically develop through early elementary school, when they also begin to be able to produce and comprehend extended written texts (Reese, Suggate, Long, & Schaughency, 2010). To produce oral retellings, speakers must convey decontextualized

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information to the listener so that the listener can make sense of the events even with no prior knowledge of such events. Scholars have posited that the ability to tell an organized, coherent story, taking into account a listener's knowledge of the situation as well as perspective taking, is essential for reading comprehension (Boudreau, 2008; Dickinson & McCabe, 2001). Moreover, the autonomy required to convey the decontextualized information in oral narratives such as retellings is important in school and for literate uses (Blum-Kulka & Snow, 1992; Gardner-Neblett, Pungello, & Iruka, 2012). Griffin, Hemphill, Camp, & Wolf (2004) argue that learning to represent information content in oral retellings can "serve as preparation for producing longer and more explicit written texts, the kinds that are required in many academic settings" (p. 125). It is critical for children to attend to the elaboration of information in written texts in order to comprehend such texts. Thus, oral retellings may provide formative skills for producing written texts, which then contribute to later reading comprehension skills. Prior research suggests that oral retellings are predictive of a child's reading comprehension development (Pankratz, Plante, Vance, & Insalaco, 2007; Snow, Porche, Tabors, & Harris, 2007) and thus are often used as a measure of discourse-level oral language skill to predict reading comprehension (Kim et al., 2015).

To situate our study in extant literature, it is important to note that prior studies of oral narrative production examine both *retellings*, as described above, and *tellings*, or the generating of stories, such as in the case of presenting children with wordless picture books and asking them to tell the story made by the pictures. Liles (1993), in a review of literature on the theoretical perspectives of narrative analysis, finds that "retold stories resulted in longer and more complete samples [than generated stories] but that the children used similar organizational structure across tasks" (p. 872). In short, the author found that story structures used in retellings and tellings were "almost identical" (p. 872), and as such, our review of previous studies includes both those using retellings and tellings produced by children.

Prior studies of the links between oral discourse and later reading skills have also focused almost entirely on retellings of narrative text (Curenton, Craig, & Flanigan, 2008; Dickinson & Tabors, 1991; Justice, Bowles, Pence, & Gosse, 2010), with limited attention to retellings of informational text. This could be due to the lack of tools to measure retellings of informational text, which have different text structures from narrative text. Understanding and measuring children's retellings of informational text may be useful because comprehension of this genre is also critical to academic success. Consistent with Common Core Standards, schools are facing increasing pressure to develop their students' informational text reading skills. The Common Core's English and Language Arts Standards emphasize student proficiency in reading complex informational text independently and across

a variety of content areas: "In K-5, the Standards follow NAEP's lead in balancing the reading of literature with the reading of informational texts [and] the Standards demand that a significant amount of reading of informational texts take place [in the classroom]" (English Language Arts Standards, 2016, p. 5). Understanding the nature of the relationship between oral retellings and reading comprehension of both narrative and informational texts is therefore critical as students are required to read and comprehend both genres of text in the classroom.

The present study examines the relationship between third-grade children's oral retellings of both narrative and informational texts and later reading comprehension. As suggested by prior research, we focus on students in third grade because they have largely mastered print skills and decoding (Reese et al., 2010). This study seeks to lend further empirical evidence to the link between oral retellings and later reading comprehension, as well as extend prior research by examining possible links between informational oral discourse skills and reading skills. In the sections that follow, we review the extant literature on the relationship between oral retellings and reading comprehension, paying particular attention to the ways in which oral retellings of narrative and informational texts have been studied. We then describe our study and its place in this broader literature. Finally, we present our findings and discuss the implications of these findings for future research.

## The relationship between oral retellings and reading comprehension

Empirical research supports the theoretical connections between children's abilities to produce oral narratives and their reading comprehension development. Griffin et al. (2004) found that children's ability to narrate events using a story prompt at age 5 predicted reading comprehension at age 8. Tabors, Snow, and Dickinson (2001), in their study of 74 low-income children, found that oral narrative production in kindergarten predicted reading comprehension in both fourth and seventh grade. Miller, Heilmann, and Nockerts (2006), in their study of kindergarten to third-grade English-Spanish bilingual students, found that oral narratives were the best predictor of third-grade reading comprehension, using retellings of a wordless picture book as their oral language measure and the Woodcock Johnson Passage Comprehension test as their reading comprehension measure. In addition, oral retelling was shown to have a statistically significant impact on reading comprehension in Gambrell, Pfeiffer, and Wilson's (1985) investigation of fourth-grade students. This study suggested that the informativeness of event narration and evaluative skills was important for reading comprehension – students who retold important ideas from a story, versus illustrating important ideas from the story, performed better on all measures of reading comprehension including immediate

free recall, delayed free recall, and cued recall of the story. The authors suggested that "retelling has direct, beneficial consequences on children's processing of text information" (p. 219).

Prior research further suggests that the relationship between oral narratives and reading outcomes depends on children's age and reading levels. Reese et al. (2010) found that children's story retelling skills were correlated with reading fluency. When taking into account early literacy skill, oral narrative predicted children's reading skill only at older ages after two to three years of reading instruction. Their findings suggest that as literacy demands increase throughout elementary school, narrative ability may become a more important predictor of reading ability than receptive vocabulary. This stronger link between oral narrative and reading after several years of formal reading instruction is aligned with other research showing that the extent to which oral language relates to reading is dependent on the age and reading levels of children (Sénéchal & LeFevre, 2002; Storch & Whitehurst, 2002; Tabors et al., 2001).

## Narrative and informational retellings

Reese et al. (2010) point to the importance of understanding whether the link between oral narrative skill and children's reading is genre-specific, as oral narrative skills are based on understanding the structure of stories, and not necessarily information conveyed in informational texts. We might expect to see oral narrative skills predict measures of reading comprehension across genres, though, and even across subject areas, as O'Neill, Pearce, and Pick (2004) suggest. They found a link between preschool children's oral narrative skills and later math skills and posit that narrative abilities may be powerful predictors of later academic achievement across subjects. Specifically, in a narrative task during which children were asked to tell what happened in a picture book, measures of conjunction use, conveying events, perspective-shifting between characters, and mental state reference significantly predicted math scores. This suggests that specific narrative measures may transfer to other domains such as mathematics that share the need for similar analytic skills.

However, while a large number of studies have examined the relationship between narrative retellings and later analytic skills, including reading comprehension, few studies have examined the relationship between informational retellings and later reading skills. A rare exception is Griffin et al.'s (2004) study, which included an informational picture description task in which children's oral production was scored for informational genre features such as the inclusion of a statement of a central theme, major and secondary details, and the absence of narrative features such as characters and events. Additionally, a small body of

literature has examined students' performance on retellings of informational texts, focusing not on later reading comprehension performance, but on the accuracy of the retelling (Kucer, 2010; Moss, 1997) or comprehension of only the text retold (Gambrell et al. 1985; Moss, 1997). This research suggests that students' ability to retell informational texts may be weak when compared to their ability to retell narrative texts. In Kucer's (2010) study, fourth-grade students retelling a narrative text recalled information with 82% accuracy, while a comparable group retelling informational text did so with only 41% accuracy, although both groups retold a similar proportion of the text's clauses (narrative: 15.6%, informational: 12.3%). So, even though students recalled about the same proportion of the text, they did so with greater accuracy for the narrative text than for the informational text. It is not clear why this was the case – that is, whether lower accuracy might be due to difficulties in recalling features of informational text structure, or if this might be due to less nuanced measures for informational recall.

Perhaps because of the lack of attention paid to oral informational discourse and its potential relationship to later literacy skills, tools to measure the quality of informational retellings lag behind those for oral narratives. One way to address this is to measure oral retellings of narrative and informational text in a parallel fashion, using the same measurement tool for both genres. Omanson and Formosa (1983) offer a method of assessing the quality of oral retellings by breaking the text of books into individual units of meaning, or content units. These content units are further classified as either central or non-central units of meaning. Students' retellings can then be analyzed for both length (total content units recalled) and quality (central content units recalled). While originally used to evaluate narrative retellings, content unit analysis lends itself well to informational retellings as well in that texts of both genres can be systematically broken down into central and non-central units of meaning.

## The present study

As part of a larger evaluation study of a summer literacy intervention called *READS for Summer Learning* (READS), we used a combination of end of year teacher-scaffolded lessons, along with matched books with comprehension activities sent during the summer, to support independent summer reading and improve fall outcome reading measures. A unique feature of our study is that students' oral retellings of books they read during the summer may offer a glimpse into what transpires at home during the summer, and the comprehension activities offer students strategies they can employ on their own, fostering discourse awareness and ostensibly impacting reading comprehension indirectly.

As mentioned, while research suggests that children's oral retellings of narrative texts are predictive of reading comprehension, much less is known about the relationship between informational oral retellings and reading comprehension. To address this gap in the extent literature, we ask the following research question: Do children's retellings of narrative and informational texts predict reading comprehension, controlling for vocabulary and pre-test comprehension scores?

## *Method*

### *Study context*

This study is part of READS, a larger effort to evaluate an innovative summer reading program for upper elementary students (White, Kim, Kingston, & Foster, 2014). The acronym READS stands for Reading Enhances Achievement During Summer, and its mission is to improve reading comprehension by fostering children's engagement with books over the summer. We designed READS to address the summer reading losses that contribute to the achievement gap in reading between low-income and minority children and their more advantaged peers (Alexander, Entwisle, & Olson, 2001; Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996; Downey, von Hippel, & Broh 2004; Heyns, 1978; Phillips & Chin, 2004). Students participating in READS take part in end-of-year lessons that prepare them to engage with the books they will receive over the summer. The books that READS mails to students at home throughout the summer are well-matched to both their reading levels and interests. Additionally, students receive copies of two of the books used during the READS lessons – one narrative book and one informational book. All summer books come with a comprehension activity for students to complete (see samples in Appendix A).

Students participating in this study received up to three phone calls over the summer from a teacher. As part of these phone conversations, teachers asked students to tell them about the READS books they had read. To answer our research question, we assessed students' oral retellings of the two lesson books that were used in the classroom in the spring and also mailed to students at the beginning of the summer. These lesson books were read to students during the teacher-taught lessons at the end of the school year.

### *Participants*

A representative sample of 482 students who had just completed third grade in a large and ethnically diverse mid-Atlantic suburban school district received up to three summer phone calls from 52 teachers in the same district. Our sample consists of the 117 students who received at least one summer phone call and completed both the spring pre-test and the fall post-test. We do not consider the

data of students who were not reached for at least one phone call and/or did not complete the fall post-test.

We obtained student demographic data from district administrative files, including gender, ethnicity, the primary language spoken at home, income status (i.e., receiving free or reduced-price lunch), and whether the child had limited English proficiency. Seventy-three percent of the sample (73%) comprised low-income children (receiving free- or reduced-price lunch); 44% were Black, and 39% were Hispanic. Additionally, 31% of the children were identified as limited English proficient (LEP). Baseline scores on the Iowa Tests of Basic Skills comprehension test ($M = 186$, $SD = 24$ [$N = 117$]) indicate that the sample mean was approximately at the national norm.

### *Data*

*Summer phone calls.* Students received up to three summer phone calls in order to give them time to read the books that were mailed to them weekly throughout the summer. Our study focuses on only the first phone call, during which teachers asked students to talk about the narrative and informational books that were read to them by teachers during the end-of-year READS lessons. These two books were in the first summer mailing that students received, and calls were included in the sample if students reported also reading the books on their own after receiving them during the summer.

Each teacher was responsible for calling between seven and 10 students, and teachers kept records of their phone calls. Up to four attempts were made to reach each student. Teachers faced many challenges making contact with students, including the transient nature of our student population and disconnected phone numbers. Some teachers noted on their call logs that they made more than the required four attempts in their efforts to reach students.

We developed a scripted protocol that teachers were required to use during their phone calls with students (see Appendix B for phone call script). The narrative elicitation procedure consisted of a prompt by the teacher, "Tell me about the book," followed by non-specific requests for more information including, "Tell me more," and "What else?" In addition, for informational texts, students were asked to describe two things that they learned from the book, and one question that they still had. If students initiated talk on a topic unrelated to the book, teachers were instructed to redirect the conversation back to the book. All story retellings were audio-taped and then transcribed by a transcription company. Transcripts were then formatted according to the CHAT format of the Child Language Data Exchange System (CHILDES) (MacWhinney, 2000).

We assessed implementation of the teacher calls in terms of the number of calls each student received at home ($M = 1.12$, $SD = 1.05$, $Min = 0$, $Max = 3$) and

the number of books students reported reading when they were successfully contacted ($M$ = 2.93, $SD$ = 1.59, $Min$ = 0, $Max$ = 10). Teachers' percentage adherence to the phone call scripts were calculated. Overall adherence was 73%, which is considered moderate to low. Deviations from the script tended to be omissions of icebreaker questions, prompting for more story details than the script called for, and skipping questions about the READS reading comprehension activity. Teacher script adherence scores were correlated with students' total number of narrative content units recalled ($\rho$ = .17) and with total number of informational content units recalled ($\rho$ = .36). In short, students recalled more content units when the teacher adhered more closely to the script.

*Content unit analysis to assess oral retellings.* Oral retelling was measured by content units, using central and non-central content units, which convey the story content through causally or purposefully connected events. We based this protocol on Omanson and Formosa's (1983) method of oral narrative analysis, which maps the structure of event-based narratives, and which we adapted to also capture main ideas and supporting details in informational texts. Beck, Omanson and McKeown (1982) argue that a child must first establish a "story map," or "a unified representation of the story's main, stated, and implied events and the causal relations that connect them" (p. 464). Only then may the child establish more interpretive and evaluative comprehension of a text. Content unit analysis was performed for oral retellings of narrative and informational books from the lessons (N = 117).

The books were first broken down into individual units of meaning, or content units. We then determined the relationships connecting the content units to one another. Next, we analyzed the content units to determine which should be considered central and which non-central. Again, Omanson and Formosa's (1983) method was used to determine the central units in the narrative text. Generally, central content units introduce main characters or form a sequence of connected events from the beginning to the end of the story. While Omanson and Formosa distinguish further between supportive versus distracting content units, we pooled these categories together as non-central units. We considered content units in the informational lesson text to be main ideas that had at least three supporting details. These main ideas had to be taken from the main text of the book, not from captions or sidebar facts.

The next step was to create templates for scoring students' oral retellings. The scoring sheets listed all content units, in the order they appeared in the lesson books, with central content units separated from non-central units. Look Out, Jeremy Bean! (Schertle, 2011) comprised 546 content units, 96 of which were identified as central. Polar Bears (Gibbons, 2002) comprised 156 content units, 17 of which were identified as central.

Four research assistants scored students' retellings of the two lesson books against these templates, based on transcripts of the retellings from the first round of summer phone calls. To prompt student retellings, interviewers had been instructed to use only the neutral prompt "Tell me what happened in the book," followed by the neutral probe, "What else happened?" if necessary. Students' retellings elicited through these prompts were considered open-ended retellings. Research assistants were instructed to note whether (a) the interviewer never asked for an open-ended retelling, (b) the interviewer offered non-neutral probes during the retelling, or (c) the student reported not receiving the books and therefore gave a retelling based only on hearing the story at school. If books were not received, or if students received the books but did not read them, the retelling was excluded from the data.

The research assistants then scored the retellings by giving one point for each content unit, marking it as either central or non-central. Statements that were not connected to content units from the book were given no credit (i.e., statements that connected to prior knowledge, the student's opinion or interpretation, etc.). If a student stated the same content unit multiple times, it received only one point. The child received credit for capturing the gist of a content unit, since children were not expected to retell the texts verbatim. Table 1 displays examples of central and non-central content units from the narrative lesson book, Look Out, Jeremy Bean!, with columns to the left that research assistants scored "1" if those units were observed in a student's retelling of the book. For instance, the central content

**Table 1.** Example of content units recalled by a student

| Observed | Central content unit | Observed | Non-central content unit |
|---|---|---|---|
| 1 | Jeremy Bean's mom was talking on the telephone. | | |
| 1 | Jeremy was listening. | | |
| | | | "I will be busy tomorrow," said Jeremy's mom. |
| | There are dust bunnies under the bed. | | |
| | | 1 | "I have to get after them" |
| | | | "Dust bunnies!" thought Jeremy Bean. "Under the beds!" |
| | | | Jeremy had never seen a dust bunny. |
| 1 | But he was sure that a dust bunny would make a wonderful pet. | | |

unit, "Jeremy was listening," was recalled by the student, thus the score of "1"; the non-central content unit, "I will be busy tomorrow" was not recalled by the student, thus no score was given for that unit.

Students' retellings received scores for both the narrative and informational lesson books which were expressed as percentages of the total content units possible and were divided into central, non-central, and total units recalled.

*Inter-rater reliability.* To ensure that the four research assistants scored student retellings consistently, they first all coded the same 10 transcripts. Each research assistant then randomly coded 25% of all sample transcripts. Inter-rater reliability on the first 10 transcripts was high, with Kappas ranging from 0.93 to 0.95. These measures capture key elements of our students' retellings of narrative and informational texts and were used to assess the relationship between retelling and reading comprehension.

*Outcome measure*

Iowa Test of Basic Skills (ITBS). The pre-test and post-test measure was the ITBS reading comprehension narrative and informational subtests. Level 9, Form A was administered in Spring 2011 when children were in third grade, and Form C was administered in Fall 2011. The ITBS is a 37-item comprehension test including 20 items from narrative passages and 17 items from informational passages. Passages include at least one narrative passage, a poem, and a passage about a science and social studies topic. Passages are of varying length and difficulty and are followed by multiple-choice questions and sometimes accompanying illustrations. The ITBS is a highly reliable assessment with reported KR-20 coefficients above 0.93 and equivalent form estimates of 0.86 or higher (Hoover et al., 2003).

## Results

Table 2 contains descriptive statistics on all variables. The correlations among content units (narrative and informational recall; total recall) and reading comprehension are shown in Table 3. We controlled for vocabulary and pre-test reading comprehension because they are so highly correlated and are subtests of the ITBS test.

**Table 2.** Descriptive statistics of content units and reading comprehension

| Measure | N | M | Range | SD |
|---|---|---|---|---|
| % recalled of narrative text | 117 | 2.56 | 0–16.7 | 3.1 |
| % recalled of informational text | 117 | 1.95 | 0–24 | 4.3 |
| # central content units, narrative text | 117 | 8.58 | 0–48 | 9.3 |
| # non-central content units, narrative text | 117 | 5.19 | 0–54 | 8.1 |
| # central content units, informational text | 117 | .40 | 0–3 | .74 |
| # non-central content units, informational text | 117 | 1.50 | 0–10 | 2.2 |
| Fall Reading comprehension (ITBS) | 117 | 186.00 | 123–260 | 28.6 |
| Fall # Correct Narrative | 117 | | | 4.7 |
| Subtest (20 Qs total) | | 11.61 | 1–20 | |
| Fall # Correct | 116 | 7.01 | 0–13 | 3.3 |
| Informational Subtest (17 Qs total) | | | | |

*Note*. The narrative text, *Look Out, Jeremy Bean!*, comprised 546 content units, 96 of which were identified as central. The informational text, *Polar Bears*, comprised 156 content units, 17 of which were identified as central.

**Table 3.** Correlation coefficients for content units and ITBS reading comprehension subtests

| Content units | | | | ITBS reading comprehension | | |
|---|---|---|---|---|---|---|
| | Narrative | Informational | Mean | Total Reading | Narrative Subtest | Informational Subtest |
| Narrative Recall | -- | 0.39*** | 0.77*** | 0.37*** | 0.35*** | 0.28** |
| Informational Recall | | -- | 0.89*** | 0.21* | 0.21* | 0.13 |
| Mean Recall | | | -- | 0.33*** | 0.32*** | 0.23** |

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

## *Content units*

Recall of narrative text was positively correlated with total reading comprehension and narrative subtest comprehension, as was recall of informational text, to a lesser degree. Total recall of narrative and informational text together was also correlated with both total reading comprehension and the narrative subtest (Table 3).

To investigate whether the percentage of content units recalled predicted children's later reading performance, a linear regression analysis was conducted. Our results indicate that content units predict performance on fall measures of reading comprehension after controlling for pre-test comprehension and vocabulary scores (Table 4). The percentage of content units recalled on the narrative text was

a positive predictor of narrative comprehension subtest scores (β = .19). However, the percentage of content units recalled on the informational text was not a significant predictor of informational subtest scores (β = −.01).

**Table 4.** Content units predicting fall ITBS scores (Beta coefficients)

| | (1) Fall narrative subtest of ITBS | (2) Fall ITBS | (3) Fall informational subtest of ITBS |
|---|---|---|---|
| Narrative | 0.186** | | |
| | (0.018) | | |
| Pre-test vocab | 0.313*** | 0.395*** | 0.394*** |
| | (0.087) | (0.097) | (0.104) |
| Pre-test comp | 0.467*** | 0.421*** | 0.340** |
| | (0.090) | (0.100) | (0.107) |
| Informational | | | −0.008 |
| | | | (0.016) |
| *N* | 117 | 117 | 116 |
| $R^2$ | 0.633 | 0.661 | 0.471 |

*Note*. Standardized beta coefficients; Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

## Discussion

This study set out to examine the relationship between third-grade children's oral retellings of narrative and informational texts and later reading comprehension. Specifically, we measured students' retellings of lesson books, as told to teachers on the phone over the summer. In so doing, we were able to explore both the relationship between children's oral retellings of narrative texts and reading comprehension within a new context and the relationship between oral retellings of informational texts and comprehension, which has been understudied.

Our finding that the percentage of total content units recalled on the narrative text was a predictor of narrative comprehension subtest scores confirms previous findings, but within a new context and using a different measure. Our strategy is unique in that we use content units to assess oral retellings of both narrative and informational text. Our findings replicate and build on those of earlier studies that use oral retellings and tellings to predict reading comprehension, and are in line with Reese et al. (2010) and others in that our content units also predict reading comprehension.

Differences in genre, and in particular in the organizational features of narrative and informational texts, may help account for why retellings of informational text did not predict reading comprehension. In comparing the retellings of informational and narrative texts, Best, Floyd, and McNamara (2008) and Bridge and Tierney (1981) found that in third grade, "students orally recalled significantly more predetermined propositions in narratives than in [informational] text" (p. 203). Similarly, our finding of a higher percent of content units recalled in narrative texts, and narrative content units predicting fall narrative subtests, may be related to students' stronger knowledge of narrative text structure (e.g., story grammar, and the event- and orientation-driven nature of narrative structures) than informational text structures, which often present challenges in comparing and contrasting, cause and effect, and problem and solution.

## Limitations and future research

While this study extends previous research by examining both narrative and informational oral retellings within a new context, there are several limitations which must be considered. For one, we did not include a measure of quality for the retellings beyond the non-central content units, which is something we think will be valuable in future research. In particular, capturing the quality of retellings of both narrative and informational texts using the same measure, something that is not currently done in narrative quality assessments, would be valuable and would build on previous research on narrative quality that focuses on events, orientations, and evaluations. Some prior research has found that the oral narrative variable that is most strongly associated with early reading skill is narrative quality, as measured by orientations (character introductions, temporal terms, causal terms, and dialogue) and evaluations (person or object evaluation, intensifiers or delimiters, and internal states) (Reese et al., 2010). Their story memory variable (an immediate recall of content and fact units) is not as strongly correlated with reading skill, highlighting the importance of measuring both story recall and narrative quality when assessing children's oral narratives. In addition to a measure of the quality of retellings, this study could be strengthened by reducing the time between reading the book and the retellings, thus reducing variability in short- and long-term memory. The oral retellings were sometimes elicited several days after the students had finished reading the book, which may have impacted their ability to recall content units.

Despite these limitations, the results of this study suggest connections between oral retellings of narrative text and reading comprehension. Further research about the underlying mechanisms of this relationship, such as how text genre might

affect retellings and comprehension, and the development of measures for scoring such retellings, will be useful, as will measures to capture the quality of retellings.

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## Appendix A. READS postcard for fiction book

1. What is the title of the book you got?

Book Title: _____

2. Did you finish reading this book? ___ Yes ___ No, I stopped on page _____
3. How many times did you read this book? ___ Didn't finish ___1 time ___2 times ___3 times or more
4. What did you do to better understand this book? (check all that apply)
   ___I read the list of words and phrases.
   ___I made guesses about the story using the words and phrases.
   ___I checked to see if my guesses were actually in the story.
   ___I thought about which of my guesses were the same or different from the actual story
5. After you read the book, tell someone in your family what the book was about. Use the words and phrases to help you remember details of the story such as characters, setting, plot, etc.

Did the words and phrases help you remember the story? ___Yes ___No

6. Family Member's Signature: _____

## READS postcard for non-fiction book

1. What is the title of the book you got?

Book Title: _____

2. Did you finish reading this book? ___ Yes ___ No, I skipped around and read different parts
3. How many times did you read this book? ___1 time ___2 times ___3 times or more
4. What did you do to better understand this book? (check all that apply)
   ___I made a KWL chart.
   ___ I wrote down what I already **K**now about the topic.

___I wrote down what I **W**ant to know about the topic.
___I wrote down what I **L**earned about the topic.
___I thought about what I **K**now, what I **W**ant to know, and what I **L**earned, but I didn't make a KWL chart

5. After you read the book, tell someone in your family 2 things you learned and 1 question you still have after reading this book.
   Did I share 2 things I learned? ___Yes ___No
   Did I share 1 question I still have about this topic? ___Yes ___No
6. Family Member's Signature: _____

## Appendix B. 2011 New READS Teacher Log and Script (Student Call #1: Week June 22–June 28)

Student name/code: _____ Teacher: _____
_____.

| Attempted Call | Date and Time of Call | Notes |
|---|---|---|
| 1st attempted call | | |
| 2nd attempted call | | |
| 3rd attempted call | | |
| 4th attempted call | | |
| Unable to reach child | | |
| Additional attempts | | |

Date: _____ Start Time: _____ End Time:_____

You do not have to write down students' answers, since the call is being recorded. However, the script has some check boxes and you should check any that apply as you go through it.

Introduce yourself to the student. **Hi, *[student FIRST NAME, LAST NAME].* This is *[YOUR NAME]* from the *[SCHOOL NAME]* elementary school.**

Ask a couple of general ice-breaker questions. Some suggestions:

How's your summer?
What have you been doing this summer?
Have you been swimming?

**Look Out, Jeremy Bean!**, by Alice Schertle.

Summary:

This book is divided into 3 short stories, each featuring Jeremy Bean as the main character. In Book 1, Jeremy's teacher asks the whole class to bring in a collection. Jeremy rushes home to tell his Gramps about his assignment, and Gramps tells Jeremy a story about Ralph the rooster. Jeremy then comes up with ideas for his collection, including collecting shoes, rocks, sticks, and bugs. None of his ideas work out, and Jeremy tells Gramps about his disappointment.

Gramps tells Jeremy another story. Jeremy shows up at school the next day and tells his class a story about how he tried to find something to collect. Finally he tells his class that he is going to collect stories.

In Book 2, Jeremy overhears his mom talking about dust bunnies. He thinks they would make wonderful pets and sets up a home for them. He sets traps for them but doesn't catch anything. That night he has a nightmare about a giant bunny. He wakes up and his parents explain that dust bunnies are dust.

In Book 3, and Jeremy gets ready for a St. Patrick's Day class party at which everyone will wear green. Jeremy goes home and pulls out a green sweater to wear the next day. He puts it on even though St. Patrick's Day isn't for another day. In the middle of the night he gets hot, takes off the sweater, then forgets to bring it to school. Jeremy has nothing green to wear, and hides in a school closet, where Principal Mr. Dudley finds him. Mr. Dudley shares his green bow tie with Jeremy, and everyone is impressed that Jeremy has made a friend in the principal.

1. **Did you get Look Out, Jeremy Bean! in the mail?**
   - □ Yes.
   - □ No.

   If no, confirm the address and log it so we can make sure the book is sent.

2. **Did you get a chance to fill out the postcard and mail it?**
   - □ Yes.
   - □ No.

   If no, say, "**That's ok, you can still do it. Will you try to fill it out and put it in the mail?**"

3. **Did you read Look Out, Jeremy Bean! after you got it in the mail?**
   - □ Yes.
   - □ No.

   If no, say, "**Well, I know you read this book in class during the last couple of weeks of school, so let's talk about it.**"

4. **Did you like Look Out, Jeremy Bean!?**
   - □ Yes.
   - □ No.

   If no, say something like, "**That's ok. I don't like every book I read either.**"

5. **Tell me about the book.**

   Encourage the student only with the prompt, **"What else happened?"** This is the student's *independent* retelling of the story.

6. **Did you get a story impression list?**
   - □ Yes.
   - □ No.

7. **Did you use your list of story impression words to write a story guess?**
   - □ Yes.
   - □ No.

8. **How was your story guess similar to the actual story? How was it different?**

9. Ask the following questions:
   - □ **What were some of the problems Jeremy faced?**
   - □ **Why do you think Jeremy dreamed about a giant dust bunny?**
   - □ **What do you think is one important message from the stories about Jeremy Bean?**

   You may ask additional probing questions (optional):
   - □ **Where do the Jeremy Bean stories take place?**
   - □ **Who are some of the main characters?**
   - □ **How does Jeremy feel about finding a collection?**
   - □ **What could Jeremy have done after he realized he wasn't wearing green?**

10. Wrap up the call with appropriate encouragement, and check all that you used.
    - □ **I can see that you are really enjoying your book.**
    - □ **I notice that you're doing a good job using story impressions to better understand your book.**
    - □ **I can tell that you're reading a lot this summer and having fun.**
    - □ Other: _____

11. Based on the child's retelling and answers to the questions, how well do you think the child comprehended the book?
    - □ 75–100%.
    - □ 50–74%.
    - □ 25–49%.
    - □ 24% or less.

**Polar Bears**, by Gail Gibbons.

Summary:

- Polar bears live in the Arctic, the area around the North Pole.
- Only a few animals can survive in the cold, harsh climate; polar bears are the biggest and most powerful of them.
- An average male polar bear can be as tall as 10 feet and weighs from 750–1100 pounds; a female is 2/3 that size.
- They have a thin, clear extra eyelid to protect them from bright sunlight, and no eyelashes because they would collect ice.
- The bottom of their paws have rough pads and fur to keep them from slipping on ice.
- Polar bears have an amazing sense of smell and it's believed that they can smell a seal more than 3 miles away.
- They growl, hiss, show their teeth, and lower their heads and ears to communicate.
- Polar bears have several layers of fur; the top layer is the guard layer, and it's colorless but looks white. This layer is waterproof and helps keep them warm. Under the guard layer is dense underfur, black skin, and blubber.
- They are carnivores; favorite food is the ringed seal. Polar bears wait patiently by air holes for seals to come up, then catch them for food, or they pretend to be a chunk of ice until they get close enough to grab the seal.
- They also eat walruses, small whales, fish, and other sea life.
- During spring and summer when they can't find seals, they also eat musk oxen, caribou, seabirds, mushrooms, berries, and seaweed.

- They mate in spring and females give birth in winter to 1–4 cubs. Newborn cubs weigh just over 1 pound.
- As they grow, cubs are taught by mother bears to hunt, protect themselves, and dig dens. Cubs stay with mothers for about 2 years.
- People are their main enemy, hunting them for meat and sport. Around 1970, only 5000 polar bears were left so laws were passed to stop virtually all hunting of them. Today there are 20,000 to 40,000 polar bears in the wild.
- Pollution and global warming still threaten polar bears.
- All polar bears live in Alaska, Canada, Greenland, Russia, and Norway.
- Polar bears and penguins never meet because they live on opposite poles.

1. **Did you get Polar Bears in the mail?**
   - □ Yes.
   - □ No.

   If no, confirm the address and log it so we can make sure the book is sent.

2. **Did you get a chance to fill out the postcard and mail it?**
   - □ Yes.
   - □ No.

   If no, say, "**That's ok, you can still do it. Will you try to fill it out and put it in the mail?**"

3. **Did you read Polar Bears after you got it in the mail?**
   - □ Yes.
   - □ No.

   If no, say, "**Well, I know you read this book in class during the last couple of weeks of school, so let's talk about it.**"

4. **Did you like the book, Polar Bears?**
   - □ Yes.
   - □ No.

   If no, say something like, "**That's ok. I don't like every book I read either.**"

5. **Tell me about the book.**
   Encourage the student only with the prompt, "**What else?**" This is the student's *independent* retelling of the story.

6. **Did you get a KWL chart?**
   - □ Yes.
   - □ No.

7. **Did you use the KWL chart to think about what you already knew, what you wanted to know, and what you learned?**
   - □ Yes.
   - □ No.

8. **What are 2 things that you learned? What is 1 question that you still have?**

9. Ask the following questions:
   - □ **What do polar bears eat?**
   - □ **How do polar bears stay warm?**
   - □ **How might polar bears survive better in the future?**

You may ask additional probing questions (optional):

- ☐ **Where do polar bears live?**
- ☐ **How do polar bears communicate?**
- ☐ **What dangers do polar bears face?**
- ☐ **How well did the author describe polar bears to help you learn about them?**

10. Wrap up the call with appropriate encouragement, and check all that you used.
    - ☐ **I can see that you are really enjoying your book.**
    - ☐ **I notice that you're doing a good job using the KWL chart to better understand your book.**
    - ☐ **I can tell that you're reading a lot this summer and having fun.**
    - ☐ Other: _____
11. Based on the child's retelling and answers to the questions, how well do you think the child comprehended the book?
    - ☐ 75–100%.
    - ☐ 50–74%.
    - ☐ 25–49%.
    - ☐ 24% or less.

CHAPTER 4

# Does emotional narrative context influence retention of newly learned words?

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In this pilot study, we hypothesized that emotional information in stories allows children to become involved in the verbal interaction. This involvement, in turn, might result in improving children's ability to learn new words. To test this hypothesis, 20 German-speaking 2-year-old children listened to stories containing the spatial prepositions *behind [hinter]* and *next to [neben]*. These words were presented within 'emotional stories' to the experimental group ($N = 10$) and within 'neutral stories' to the control group ($N = 10$). The 'emotional stories' comprised adjectives (*happy*, *excited*), affective markers in the form of direct speech (*look here!*, *shouting out loud: "I'm coming"*), connotations (*spring*, *friend*, *favorite dish*), and evocative physical descriptions (*the wind is whistling*) to enhance the emotional content of the stories in the experimental group. Results show that children trained with the 'emotional' stories retained the learned target prepositions as well as children trained with the 'neutral' stories. In a delayed post-test, retention of the newly learned words improved over time for all children. This study presents a first approach to investigating the role of emotion in young children's word learning in the context of picture bookreading. The results are discussed with respect to the methods and materials used.

**Keywords:** emotional stories, word learning, spatial prepositions, retention

## Introduction

Stories organize words into events (Mandler & Johnson, 1977). This narrative structure might facilitate children's learning of new words not only in the context of bookreading (for a recent review, see Blewitt, 2015), but also while playing with toys, as it provides a semantically organized input that serves as an effective scaffold (Nachtigäller, Rohlfing, & McGregor, 2013). A previous study found that a

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narrative presentation influenced the acquisition of a new word in 21-month-olds: children with more advanced vocabulary than their peers understood a new word better when it was presented in a narrative context than in a non-narrative context, even though both contexts contained a similar number of words (Nachtigäller et al., 2013). Recently, these investigations were extended to 28-month-olds and revealed that for this age group, regardless of vocabulary knowledge, children retained new words better when they were exposed to a training with narratives within the context of bookreading in comparison to non-narrative input during bookreading or narrative input with toys rather than pictures (Rohlfing & Nachtigäller, 2016).

However, stories – as they are reflected in narrations – do not only structure events. The characters in a story are "the exponents of intentionality (and emotions)" (Bamberg, 2012, p. 82). In this chapter, by emotions we mean particular psychological states that are either positive or negative in valence (e.g., joy or sadness). Emotions are reported to constitute the primary motivational system for all actions and thoughts (Izard, 1991) around which events are organized (Nikolajeva, 2014). A child who can reproduce the motivations behind events might become emotionally involved and interested in the sentences in the story and might thus better understand complex sentences in the context of picture books (Sahr & Schlund, 1992). It is thus reasonable to assume that not only the causal and temporal structure (as suggested, for example, by Mandler & Johnson, 1977), but also the emotional information in stories may allow children a richer understanding of what is happening in the stories. This understanding, in turn, might result in improving children's learning capabilities for tasks such as the acquisition of new words.

## Emotions and language in younger children

Earlier studies suggest that the relation between emotion and language can change with the child's development. Thus, depending on the children's experience in language and interaction, emotions might play different roles (Friend, 2001). For early language learning, emotions may convey a feeling for communicational exchange (Bruner, 1983) resulting in emotional attunement (Markova & Legerstee, 2006), while for older children, emotional words may improve the perception of particular inner states (Friend, 2001; Lindquist & Gendron, 2013). For example, Nicely, Tamis-LeMonda, and Bornstein (1999) investigated mothers' attuned affective responsiveness to 9- and 13-month-old infants' early expressions (e.g., responses of the same valence and intensity). They found that at 9 months, children of more attuned mothers comprehended and produced their first 50 words as well as simple word combinations earlier than children of less attuned mothers.

However, mothers' attunement at 13 months did not predict children's subsequent language outcomes. These results suggest that mothers' affective responses may be particularly important during the first year of life, enhancing children's social understanding (Doan, 2010). Affective communication may teach children the importance of social cues for communication, which, in turn, has been shown to be important for word learning (Tomasello & Barton, 1994; Tomasello & Todd, 1983).

One study, however, provides an argument against the hypothesis that evoking emotions might result in improving young children's capabilities for tasks such as learning new words. In a laboratory setting, Bloom and Capatides (1987) followed 12 infants from about 8 to 28 months of age at monthly intervals. The authors identified the periods of children's first words and vocabulary spurt and transition to multiword speech. Children's affective expressions (i.e., any observable change in valence or intensity in facial expression, body tension, or posture) or affective vocalizations (e.g., whining or laughing) were coded for valence (neutral, negative, positive, mixed) and intensity (1, 2, 3) as well as duration. The results indicated that the more time children spent in neutral affect, the younger they were when they produced their first words and the earlier their transition to multiword-speech. Interestingly, the frequency of positive emotions drove this effect, whereas the frequency of negative expressions was not correlated with the age of language milestones. In sum, this study by Bloom and Capatides (1987) suggests that neutral states, rather than positive emotional states, may be more facilitative of language acquisition. The authors argued that a neutral affect supports the reflective stance that children need for word learning and that the experience of affect may compete for cognitive resources (Bloom & Capatides, 1987; Bloom, 1990). There is, however, an alternative explanation for the results of their study. It is possible that those children who more frequently expressed emotions entered interpersonal communication nonverbally, as their caregivers reacted to them as if they were communicating verbally (Bruner, 1983). The early communicative repertoire of these children may have comprised emotional expressions rather than words.

## Emotions and language in older children

While communication serves the function of emotional attunement early in development (Markova & Legerstee, 2006), with growing language experience, children may develop an increased sensitivity to the social cues expressed in language, with the result that contexts explicitly evoking subjective states via affect and intentions can be better perceived. In fact, there is some support from studies on older children and adults for our hypothesis that emotional information allows older children a richer understanding of interaction. Lindquist and Gendron (2013)

reviewed evidence that once children have reliably learned the meaning of emotion words such as *sad* around the ages of 3 and 4, they can apply them to achieve a more accurate perception of emotional facial expressions. It seems that with development, emotion words may sharpen children's perception of social signals.

Emotions can enhance not only attention, but also memory. Studies with adults in which the effects of emotional stimuli on recognition memory were tested (Dewhurst & Parry, 2000) suggest that emotional information may be favored in terms of attention and memory, and emotional material may undergo more in-depth processing. For example, adults recognized words judged to evoke an emotional response better than emotionally neutral words. This was the case for both positively and negatively valenced emotion words, though the effect was stronger for the negative words. Two possible mechanisms underlying the influence of positive affect on recognition are currently being discussed. On the one hand, emotionally laden information may be treated preferentially and thus lead to deeper processing of emotional information compared to neutral information (Dewhurst & Parry, 2000). On the other hand, greater variability in happy tokens (e.g., warmth, freedom) may promote a positive effect, similar to effects in younger children (7.5-month-olds) showing that affective variation in fluent speech positively influences the creation of generalizable word representations as well as a phonologically precise memory for words (Singh, 2008).

Emotional labels are reported to not only enhance recall of emotional information, but also recall in general. In a study by Liwag and Stein (1995), preschool children aged 3 and 4 years were asked to recall an episode that was evoked by an emotion-precipitating event. Children generated more clauses and elaborated narratives when recalling happy episodes than they did when recalling episodes described as negative. Doan (2010) thus concluded that from a cognitive perspective, the current state of research on this topic suggests a preferential treatment of affective information in children's word learning through attentional and memory processes.

In sum, while research on memory suggests the facilitative enhancement of learning via affect, the effect of emotional state anchored in the lexicon on the acquisition of new vocabulary in the context of narratives has seldom been studied. Narrative context seems to be a valuable context for learning new vocabulary (see a review in Blewitt, 2015), and positive emotions seem to elicit more elaborated episodes (Liwag & Stein, 1995), which might provide a rich context that enhances memories and long-term learning.

## Does emotional narrative context influence the retention of newly learned words?

Continuing the research by Nachtigäller et al. (2013), we asked whether 27- to 29-month-old children would benefit from positive emotions conveyed via a narrative context when learning new words as compared to neutral stories. To this end, we designed a narrative context that was meant to evoke positive emotions in children. We hypothesized that this context would enhance children's interest in the stories (Davidson, Luo, & Burden, 2001) and that, as a result, target words would be better retained and better incorporated into an already established semantic network. In this study, emotionality in narratives was operationalized through affective markers known from narratology: valence, creation of psychological proximity and suddenness. As in Nachtigäller et al. (2013) and Rohlfing and Nachtigäller (2016), we chose spatial prepositions as the target words that were the subject of training. This was done for several reasons. First, previous studies have mostly dealt with children's learning of emotional words, whereas we were interested in whether an emotional context in stories can promote the acquisition of words that do *not* have any emotional content themselves. Second, we wanted to extend our knowledge about word learning to word classes other than nouns. Third, the ability to extend the concept of a spatial relation can be tested without the application of novel (artificial) objects. In several studies of different languages, spatial prepositions are typically acquired in a particular order (Johnston & Slobin, 1979). Since we tested 28-month-old children, we decided to teach children the prepositions *behind [hinter]* and *next to [neben]* because they are acquired between the ages of 2;0 to 3;0, after children have already mastered *in*, *on* and *under* (Johnston & Slobin, 1979). According to Johnston and Slobin (1979), 28-month-old children could well have heard the target prepositions before, but would likely not have built a complete lexical representation of them.

To gain insight into children's abilities to extend their word knowledge, we tested children's understanding of spatial prepositions in an acting-out task, in which children had to apply to objects the spatial relation concepts learned on the basis of pictures. The prepositions were tested at three different times, that is, before, immediately after training and with some days of delay after training (see also Rohlfing & Nachtigäller, 2016).

## Method

### *Participants*

Twenty German-learning children participated in this study. One group of children ($N = 10$, age $M = 28$ months, $SD = 0.82$) received narrative input containing emotional narrative elements (emotional input group / EG). A second group ($N = 10$, age $M = 27.9$ months, $SD = 0.84$) received narrative input without emotional elements (neutral input group / NG) and was also a part of a larger study reported in Rohlfing and Nachtigäller (2016). The groups did not differ in age ($t(18) = 0.29$, $p = .77$), gender ($\chi^2(1, N = 20) = 0.00$, $p = 1.0$), productive (Mann – Whitney $U = 39.0$, $p = 0.44$) or receptive (Mann – Whitney $U = 30.5$, $p = 0.14$) vocabulary, maternal status of education (Mann – Whitney $U = 49.00$, $p = 0.97$), maternal time spent with child per day (Mann – Whitney $U = 40.00$, $p = 0.48$) or older siblings ($\chi^2(1, N = 20) = 0.00$, $p = 1.0$). Children with atypical speech and hearing development, twins, children of premature birth and bilingually raised children were excluded.

### *Materials*

*Objects and photographs.* The testing (pre-, post- and delayed post-test) and training materials were objects and photographs depicting scenes with these objects. Four sets of three objects (one trajector, one landmark and one distractor) were created. Half of the sets included animate objects and half consisted only of inanimate objects to create high diversity in the stimuli. The photographs

**Figure 1.** An example of training (left) and test material (right) consisting of three items: A girl, a boy and a bench. The training material was used to tell a story to the child, in which the preposition was embedded. The test material was used to test the child's understanding of the preposition via a picture-selection forced-choice task, in which the child was instructed to select the correct picture.

depicted these sets of three objects in a number of different spatial relationships. For example, a photograph may show a girl, a boy and a bench in a certain spatial relation (see Figure 1).

Particular objects were chosen because they allowed for plausible spatial relationships in addition to the particular relationships being trained. For example, a bench was chosen because the relations *on* and *under* are also plausible with it. The relationships *behind* and *next to* were not canonical in the training items to ensure that children may consider other spatial relations (e.g., *on* the bench) as more appropriate. A *canonical* relationship characterizes the most common function between two particular objects such as a lid and a pot, in which case the lid goes ON the pot. In addition, the two objects have to be in an appropriate orientation.

*Stories.* Four story scripts were created for each of the four sets of three objects. Two of the stories contained neutral narratives (one using *behind* and one using *next to*) used for the *neutral group*. Two stories contained emotional narratives (again one using *behind* and one using *next to*), used for the *emotional group*. In both groups, each narrative contained four coherent sentences with a temporal and causal structure. The first sentence introduced the general situation (e.g., the weather). The second and third sentences introduced the trajector and landmark objects involved in the narrative and motivated an action. The action was carried out in the fourth sentence, resulting in a consequence.

The neutral and emotional narratives were developed specifically for young children (see Table 1). They had similar content and a similar number of words. In addition, the target prepositions occurred equally often and in the same positions in the stories. The neutral stories described a scene and the motivation for the action of a trajector object (see Figure 1). In addition to this, the emotional stories positively highlighted some scene and motivation descriptions. Thus, while the neutral stories also contained descriptions that might be seen as affective, the emotional stories included positive emotional words found in typical books for preschoolers (e.g., *lovely*, *glad*, *happy*), direct speech (e.g., *look here!* or *shouting out loud: "I'm coming."*), connotations (e.g., *spring*, *friend*, *favorite dish*) and evocative physical descriptions (e.g., *the wind is whistling*). A 5-point Likert scale rating study in which 20 adult participants rated the emotionality of the stories confirmed that the emotional stories were perceived as more emotional than the neutral stories (neutral: $M = 2.04$, $SD = 0.77$; emotional: $M = 2.81$, $SD = 0.65$; $t\ (19) = 4.09$, $p < .001$). Table 1 also shows a sample script for input without stories, taken from Nachtigäller (2013), which will be relevant for follow-up analyses of our data.

**Table 1.** Textual input during the training of the neutral and emotional stories groups. Textual input from Nachtigäller's (2013) group without narratives is also given.

| Neutral stories | Emotional stories | Input without stories |
|---|---|---|
| Es ist ein sonniger Tag<br>[It is a sunny day] | Es ist ein wunderschöner Frühlingstag<br>[It is a wonderful spring day] | Lass uns das hier anschauen.<br>[Let's have a look at this.] |
| Der Hase möchte gerne seine Nachbarin besuchen<br>[The rabbit wants to visit its neighbor] | Der Hase freut sich, seine Freundin zu besuchen.<br>[The rabbit is looking forward to visit its friend] | Das ist ein brauner Hase.<br>[This is a brown rabbit.] |
| Darum hüpft er zu der Katze und dem Stall.<br>[Therefore, it hops to the cat and the hutch] | Darum hoppelt er fröhlich zu der Katze und dem Stall.<br>[Therefore, it happily hops to the cat and the hutch] | Und das ist eine graue Katze, und das ist ein großer Stall.<br>[And this is a gray cat, and this is a big hutch.] |
| Und wartet direkt hinter dem Stall, um sie zu überraschen.<br>[And waits right behind the hutch to surprise the cat] | Und wartet kichernd hinter dem Stall, um sie zu überraschen.<br>[And waits giggling behind the hutch, to surprise the cat] | Und jetzt ist der braune Hase hinter dem Stall.<br>[And now the brown rabbit is behind the hutch.] |

*SETK-2.* The SETK-2 (Grimm, 2000) is a German standardized diagnostic tool to assess language capabilities of children between 2;0 and 2;11 years of age. It contains four subtests that measure children's comprehension and production of words and sentences. We used the subtests for word and sentence comprehension in this study because we considered these to be the most relevant with respect to children's ability to benefit from narrative structure in the input and to integrate new words into their already existing memories.

### *Procedure*

The study used a pre-test/post-test-design with two post-tests and followed part of the design of a larger study reported in Rohlfing and Nachtigäller (2016). Participants visited the lab a total of 4 times: Visit 1 comprised the pre-test, the first training session and the immediate post-test. Visit 2 comprised a further training session and the SETK-2. Visit 3 comprised yet another training session. Visit 4 involved a delayed post-test. All visits were scheduled within two weeks with at most one visit per participant per day.

#### *Pre-test*

The pre-test provided a baseline for children's comprehension of the prepositions *behind* and *next to*. The pre-test used both a picture-selection and an acting-out

task. For the picture selection task, children were shown photographs with four pictures (see Figure 1, right) and asked to point to the picture that shows the scene described (e.g., *Show me: The girl is behind the bench*). For the acting-out task, children received sets of three objects and were asked to put the trajector in a certain relation to the landmark (e.g., *Put the girl behind the bench*). The pre-test included four picture-selection and four acting-out trials.

*Training*

Eight pictures (four for *behind* and four for *next to*; see Figure 1, left) were combined into a picture book and used to introduce the children to the spatial prepositions. The order of the pictures was randomized for each child and for each training session. Children in both training groups (see Table 1) experienced the same picture bookreading scenario. The experimenter first introduced the task by saying: *I have brought you a picture book that we will now look at together. This is how we'll do it: I will show you the pictures and tell you a little story for each picture. You should just listen carefully and pay attention.* The experimenter then showed children each picture in the book and told them a short narrative about each picture. The pictures in the book depicted the end state of the short narratives. The short narrative followed a script (see Table 1), which allowed us to control for unintended differences between training groups (see Horst, 2013). Both *behind* and *next to* were named four times in a training session (each once in four different stories) for a total of 12 mentions per preposition across all three training sessions. To enhance engagement, the child was allowed to turn the pages. After listening to each passage, the child was free to comment briefly on the items, but was not asked to do so. Groups differed only in terms of the verbal input (see Table 1) to which the children were exposed (neutral or emotional).

*Post-tests*

The post-tests investigated children's comprehension of the target prepositions using the same picture-selection and acting-out tasks as in the pre-test. All item sets applied during post-tests were familiar from the pre-test and/or training and thus tested children's retention of the target words. The immediate post-test included four picture-selection trials and two acting-out trials and assessed children's short-term learning, that is, immediately after one training session. The delayed post-test included eight picture-selection trials and two acting-out trials and assessed children's long-term learning, that is, after three training sessions and a longer time of consolidation.

*Scoring*

In the picture-selection task, children received 1 point for pointing to the correct picture, that is, the picture that matched the spatial relations in the verbal input. No points were given if children pointed to one of the other three pictures. Since children saw four potential target pictures, chance level was at 25%. In the acting-out task, children received 1 point for correctly acting out the spatial relations provided in the verbal input. Otherwise they received no points. Note that scores of the picture-selection task are based on a dependent variable that is different from the dependent variable in the acting-out task. More specifically, while in the picture selection task the probability that the child will choose the appropriate picture was 1: 4, in the acting-out task, there are many more possibilities for the child to relate objects to one another.

One rater coded all the data. A second rater coded 4 randomly selected participants in each training group (corresponding to approx. 40% of the data). An overall Cohen's Kappa of 0.92 (0.95 for the pre-test, 0.92 for the immediate post-test and 0.92 for the delayed post-test) indicated high inter-rater agreement for the whole testing.

## Results

We analyzed children's performance in the picture-selection and acting-out tasks at pre-test, immediate post-test and delayed post-test in order to gain insight into children's word learning over the course of the study. We performed logistic regression models separately for the picture-selection task and the acting-out task. Logistic regression models are appropriate here since the dependent variable is binary. For each task, the initial logistic regression model included children's response (correct vs. not correct) as the dependent variable, as well as test session (pre-test, immediate post-test, vs. delayed post-test), training group (emotional vs. neutral; or stories vs. no stories for follow-up tests), and test session by training group interaction as independent variables. We performed model comparisons such that only independent variables that significantly improved the model fit were retained (see Baayen, 2008). This procedure yielded the statistical models (final models) reported below.

### Children's performance in the picture-selection task

Table 2 presents children's performance in the picture-selection task. The final statistical model for the picture-selection task included only the test session as

independent variable. There were thus no significant effects of training group or of the test session by training group interaction. The results for test session indicated a marginally significant but moderate learning effect from pre-test to delayed post-test (estimate = 0.49 $z = 1.75$ $p = 0.08$, $Eta^2 = 0.37$), but no effect from pre-test to immediate post-test (estimate = 0.21, $z = 0.65$, $p = 0.51$). Thus, both groups improved their understanding of the new words over time, in particular, from pre-test to delayed post-test, but emotional narratives were not more beneficial for the acquisition of the prepositions than neutral narratives.

**Table 2.** Mean (M) proportions of correctly selected pictures and standard deviations (SD) in the picture-selection task at pre-test, immediate post-test, and delayed post-test for the emotional narrative group and the neutral narrative group. Data from Nachtigäller's (2013) group without narratives is also given.

| | N | Pre-test | | Post-test | | | |
|---|---|---|---|---|---|---|---|
| | | | | Immediate | | Delayed | |
| | | M | SD | M | SD | M | SD |
| Emotional narrative group | 10 | .35 | .27 | 38 | .36 | .41 | .22 |
| Neutral narrative group | 10 | .35 | .21 | .43 | .24 | .53 | .15 |
| Group without narratives | 16 | .38 | .27 | .32 | .32 | .35 | .24 |

To test whether stories facilitate word learning compared to sentences without stories, follow-up tests compared the training groups of the current study to a sample of children of the same age who learned the same prepositions using the same procedures, but received descriptive and not temporally or causally connected sentences rather than stories as input (see Table 1). This sample of children comes from Nachtigäller (2013). We compared both groups trained with stories in the current study ($N = 20$) to the group of children trained without stories ($N = 16$, see Table 2 for descriptive results). The final statistical model included only training group as independent variable, and showed a marginally significant but moderate effect of training group (estimate = 0.30, $z = 1.68$, $p = 0.09$, $Eta^2 = 0.38$), indicating that the stories groups performed marginally better in the picture-selection task compared to the group without stories. The absence of an effect of test session is probably due to the fact that the performance of the group without stories decreased from pre-test to the post-tests.

## Children's performance in the acting-out task

Table 3 presents children's performance in the acting-out task. This task captures children's ability to transfer the spatial prepositions learned through pictures to another material, namely, toys. The final statistical model for the acting-out task also included only test session as independent variable. Again, there were no significant effects of training group or of the test session by training group interaction. The results for test session indicated a significant and large learning effect from pre-test to delayed post-test (estimate = 0.90, $z = 2.14$, $p < 0.05$, $\text{Eta}^2 = 0.55$), but no effect from pre-test to immediate post-test (estimate = 0.07, $z = 0.16$, $p = 0.88$). Again, both groups learned the new words over time from pre-test to delayed post-test, but did not additionally benefit from the emotional narratives over neutral narratives.

**Table 3.** Mean (M) proportions of correctly acted out relations and standard deviations (SD) in the acting-out task at pre-test, immediate post-test, and delayed post-test for the emotional narrative group and the neutral narrative group. Data from Nachtigäller's (2013) group without narratives is also given.

| | N | Pre-test | | Post-test | | | |
|---|---|---|---|---|---|---|---|
| | | | | Immediate | | Delayed | |
| | | M | SD | M | SD | M | SD |
| Emotional narrative group | 10 | .18 | .26 | .25 | .26 | .45 | .37 |
| Neutral narrative group | 10 | .25 | .33 | .20 | .35 | .35 | .41 |
| Group without narratives | 16 | .23 | .31 | .31 | .40 | .27 | .42 |

Follow-up tests again compared the training groups of the current study to Nachtigäller's (2013) group trained without narratives (see Table 3). The final statistical model included only test session as independent variable, and indicated a marginally significant and moderate learning effect from pre-test to delayed post-test (estimate = 0.61, $z = 1.87$, $p = 0.06$, $\text{Eta}^2 = 0.35$), but no effect from pre-test to immediate post-test (estimate = 0.12, $z = 0.35$, $p = 0.73$). This suggests that regardless of the input in the training, all children showed the ability to transfer the learnt prepositions.

Overall, the results from the picture-selection task indicate that children in both training groups showed enhanced comprehension of the target prepositions, particularly at the delayed post-test. However, in both tasks, we found no difference between the two training groups, indicating that the emotional narrative training is not more effective than a neutral narrative training for this age group. Follow-up tests established that the groups trained with stories performed better in the picture-selection task than Nachtigäller's (2013) group trained without

stories, but that all groups showed comparable improvement from pre-test to delayed post-test in the acting-out task.

## Discussion

The present study was designed as a first approach to investigating the influence of emotionally highlighted narratives on word learning in 28-month-old children. During three training sessions, children were exposed to target words embedded in either neutral or emotionally positive short narratives. Children's comprehension of the target spatial prepositions (*behind* and *next to)* was analyzed using two different language comprehension tasks (a picture-selection and an acting-out task) employed before the training, immediately after training and with a delay of several days after training.

The picture-selection results revealed that children in both groups show marginally enhanced comprehension of the target spatial prepositions at delayed post-test. In addition, children trained with stories performed better than children trained without stories in the picture-selection task. These findings are in line with earlier research by Nachtigäller et al. (2013) which showed the beneficial effect of a narrative structure in the input on 20- to 24-month-old children's long-term word learning. The former findings were thus replicated with older participants in the present study. Taken together, both findings extend our knowledge about how young children's word-learning can be supported by narrative structures. Both usual stories that describe the scene and the action motivation as well as emotionally highlighted stories facilitate children's word learning in comparison to training in which the input does not follow a narrative structure. Our study furthermore provides important insight into the learning process: the learning gain was statistically larger at delayed post-test in both training groups. On the one hand, this effect may be due to the number of training sessions, in which participants were repeatedly exposed to the target prepositions. Several authors have identified repetition as an important factor influencing the word learning process (Horst, Parsons & Bryan, 2011). On the other hand, by designing the study over the course of several days (and also nights), children were given time for consolidation of the target words, which is known to be an important memory process that is particularly relevant for word learning (Booth, 2009).

In contrast to our assumptions, the present study did not reveal any differences between the two training groups, that is, the narratives designed as 'emotional' were as effective as the 'neutral' narratives in enhancing children's comprehension of the target prepositions. As the present study aimed at tying in with open

research questions, we will discuss possible methodological as well as developmental reasons for this finding in the following paragraphs.

First, the degree of emotionality in the narratives was created based on principles known from narratology, for example, the use of positive emotional words or direct speech. It might be that our approach of operationalizing positive emotions in the narrative did not go far enough in that the differences between groups did not become salient enough for the age group studied. Further research will be needed to find more distinct ways of defining emotionally positive narratives. One way would be to consider the prosody of the narrative performance (which might also vary in valence) in addition to the emotions in the stimulus. Another way would be to purposefully choose pictures in the book that correspond to the emotional input. While our pictures were photographs depicting the same event in both groups, it is plausible that pictures could reinforce the emotionality conveyed in speech, for example, by visualizing the emotional states of the protagonists. It remains an open question whether different picture materials, which visually support the difference in narration, would reveal greater differences between the groups. Our findings suggest that, at this age, emotional words alone did not increase the involvement of the child. It is likely that children at the age of 28 months need more multimodal support to benefit from emotions. A recent study by Kucirkova et al. (2014) showed that it is possible to increase the involvement and thus the learning of new words in children at the age of 2;11 to 4;8. Their solution was to personalize the book used by applying a bundle of elements (emotional words, familiar pictures, familiar names, etc.) that, in sum, show an effect on the children's involvement (Kucirkova et al., 2014). It is thus possible that the inclusion of more familiar context in our study (familiar characters, events, goals) would have scaffolded the children to recognize the meaning of the emotions and to become involved in the stories.

Second, the choice of the learning content may have been problematic because spatial prepositions are poorly related to the emotional states of the characters. It could be that learning nouns or verbs would be enhanced in this context because of a stronger and more direct association. Gentner (2003), for instance, showed that when spatial relations such as *on*, *in* and *under* are associated with nouns such as *top*, *middle* and *bottom*, 3-year-olds' understanding of instructions was facilitated.

Third, we created both types of narratives to embed unknown words and thereby to enhance the learning of these words. Our operationalization of learning gain thus focused on word learning, more precisely, on tasks assessing children's word comprehension. It might be that our focus of measuring word comprehension did not capture children's learning correctly and that the learning gain was not in word learning, but in a different area. For example, it is possible that children in the emotional group learnt the content (i.e., the whole event) of the narratives

better than children in the neutral group. Future research needs to explore whether narratives containing positive emotions enhance children's learning in other ways than the one assessed in our study. In older children, a narrative retelling might be elicited to assess learning effects in word production.

The question remains why the group trained without stories succeeded in transferring their knowledge to untrained material (toys) while it did not show a learning effect with pictures. This effect contradicts findings from Rohlfing (2006) suggesting that learning spatial prepositions progresses from familiar to untrained situations. However, in our study, children were trained with pictures and not with toys (as they were in Rohlfing, 2006). Training with pictures provided the children with a concrete model of the target relation that they had to readjust in the acting-out task. Thus, it is possible that the transfer to untrained material was less challenging than in Rohlfing (2006), where the cues were strictly limited. In fact, Rohlfing and Nachtigäller (2016) report that when it comes to a transfer to untrained material, the group trained with narratives and pictures outperformed the group trained with narratives and objects. It seems thus that the combination of the narrative input and picture material brings the highest advantage for learning. It is interesting to mention that in Rohlfing and Nachtigäller (2016), the group trained with narratives only marginally demonstrated the ability to transfer word knowledge to an untrained task. However, the authors coded children's performance differently and in a finer-grained way than reported above. It is possible that the coarse coding applied in this paper yielded sharper differences between pre- and post-test.

As pointed out above, our study opens up many questions for further research. However, the study provides promising results showing that both groups revealed significant understanding gains of new words when they were embedded in a narrative in comparison to a group that did not receive narratives. Our results argue against the assumption that emotions might hinder learning, as they disrupt attention and memory (Bloom & Capatides, 1987). Rather, highlighting positive emotions facilitates learning, but as a method for children at this particular age it does not provide any additional benefits compared to the stories that are usually told.

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CHAPTER 5

# Enhancing mental state language and emotion understanding of toddlers' social cognition

## The role of narrative and conversation

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This study investigated whether conversing about emotions in day-care center enhanced toddlers' spontaneous use of mental state language and emotion understanding, both of which are key components of social cognition. In the course of a three-month intervention, the children assigned to the experimental condition (N = 29) participated daily in bookreading sessions of stories with high emotional content. Bookreadings were followed by a conversation, held in small groups, about the emotional states featured in the stories. The children assigned to the control condition (N = 28), after listening to the same stories, engaged in free play. At post-test, children in the experimental condition significantly outperformed the control group on measures of mental state language and emotion understanding, even after controlling for verbal abilities and age. These findings suggest the value of having children as young as 2–3 years participate in conversational activities about emotional experiences and inner states.

**Keywords:** social cognition, mental state language, emotional lexicon, emotion understanding, intervention study

### Introduction

This chapter presents a study aimed at promoting the development of social cognition in day-care centers. Specifically, the study tested whether intense exposure to stories with emotional content, followed by adult-guided conversation in small groups on the theme of emotions would lead to significant gains in toddlers' mental state language (MSL) and emotion understanding (EU).

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The past three decades have seen an explosion of research interest in how children develop social cognition, that is, their understanding of the social world and their ability to recognize that human beings act on the basis of their internal states in a variety of different situations. The social cognition construct encompasses a range of cognitive abilities such as understanding emotions, feelings, desires, thoughts, beliefs and other inner states, as well as verbal skills such as the use of mental state language (Astington & Pelletier, 2005).

Recent research has specifically focused on the development of social cognition in early childhood, given that key socioemotional, language and cognitive development takes place during the second and third years of life (Hughes, 2011). For example, infants as early as 14 months can use the facial emotional cues provided by an adult to interpret unfamiliar situations (Klinnert, Emde, Butterfield, & Campos, 1986). Moreover, from the second year of life children are able to provide unsolicited help, attributing to their interlocutor the intention of picking up an object that he or she cannot reach (Tomasello, 2009). At around 18 months, toddlers acquire the ability to recognize other people's desires, even when these are different from their own preferences, such as preferring broccoli over appealing sweets (Repacholi & Gopnik, 1997). More surprisingly, at around two years, children are able to correctly predict how interlocutors will behave even when this involves attributing a false belief to them, that is to say, with inaccurate knowledge of the real state of affairs (Buttelmann, Carpenter, & Tomasello, 2009).

From about 20 months, infants also begin to use mental state language. This type of lexicon is relevant to the development of social cognition in that it attests children's early ability to refer to the inner world of psychological states (Bartsch & Wellman, 1995; Poulin-Dubois, Chiarella, & Polonia, 2009; Veneziano, 2009). MSL has been divided into categories (Bretherton & Beeghly, 1982), including physiological (tiredness, hunger), perceptual (sight, hearing), emotional and affective (fear, joy, love), volitional (desire, need, want), cognitive (knowing, thinking, believing), and moral (obligation, being good, being naughty) terms. MSL first appears in the context of everyday social interaction and conversational exchanges; its use fosters interpersonal communication and reciprocal attention to inner states (Hughes & Devine, 2015) and is therefore key to developing social cognition.

Between the ages of 2 and 3 years, children also begin to develop emotion understanding. As documented by Denham (1998), toddlers display behaviors attesting their ability to recognize the emotions expressed by others and to identify the causes of both positive and negative emotion. These are crucial abilities: the literature on EU reports that children with more advanced EU show greater readiness for school and academic success (Izard et al., 2001) and interact more effectively with peers and teachers (Denham, 2006).

Given that our goal in the current study was to test an intervention aimed at promoting two specific aspects of social cognition, MSL and EU, we begin by briefly reviewing the existing research in this area, most of which has been conducted with children from older age groups than the toddlers targeted by our study.

## Mental state language and emotion understanding: Longitudinal and intervention studies

Much of the research on the linguistic correlates and predictors of social cognition has explored the link between MSL and children's EU via either longitudinal or training studies with toddlers and preschoolers.

Longitudinal investigation was pioneered by Judy Dunn and her team: the group's seminal conversational studies with a sample of children tested in the second, third and fourth years of life showed that children learn about feelings, beliefs and thoughts and how to talk about such concepts, in the context of *discourse among family members* (Hughes & Dunn, 1998). Empirical data have also indicated that mothers' discourse and language about mental states is related to children's understanding of inner states, while several studies have confirmed the finding that children from families in which desires and feelings are frequently discussed are more likely than their peers to succeed in emotion understanding tasks some months later (e.g., Dunn, Brown, & Beardsall, 1991a). In addition, mothers' early use of cognitive verbs in picture bookreading has been found to be correlated with children's later understanding of mental states and emotions (Adrià n, Clemente, & Villanueva, 2007). Research has also suggested that mothers' explanations of emotional states in conversation predict children's emotion comprehension (Dunn, Brown, Slomkowsky, Tesla, & Youngblade, 1991b; Garner, Jones, Gaddy, & Rennie, 1997; Laible 2004). These findings reliably demonstrate the link between engaging in discourse and conversational practices about the inner world with young children, and their later performance on social-cognition tasks in the field of emotion understanding.

Similar conclusions may be drawn on the basis of findings from experimental research and *intervention studies*. Studies of this kind are relatively rare, however, and have mainly been conducted with children of three years and older, rather than with toddlers. For instance, Aram, Fine, and Ziv (2013) demonstrated the potential of shared reading to elicit richer conversations between parents and children and enhance the latter's social cognition abilities, including emotion understanding. Cigala, Mori and Fangareggi (2015) found that training based on narrative and dramatization had a significant effect on preschoolers' perspective-taking abilities. Finally, Aram, Dwairy-Jarrous and Khalaily (2015) conducted a

study with Arab preschoolers who were assigned to either an experimental condition (listening to stories enriched with mental and emotional terms and discussing the story characters' social dilemmas) or a control condition (listening to stories focusing on events and story characters' behavior). The experimental condition had positive effects on children's social understanding.

In our own earlier research, we adopted the intervention or training-study method. In line with the *conversational and pragmatic hypothesis* underpinning the intervention studies reviewed above, our starting assumption was that the *active* use of mental state terms in everyday conversation would improve children's understanding of internal states and mental lexicon. In the first of two studies (Ornaghi, Brockmeier, & Grazzani Gavazzi, 2011), an intervention group of children aged 3 and 4 years, after listening to storybooks created on purpose for the study, took part in conversations designed to elicit the maximum active use of the target mental terms through the use of focused questions and comments on the inner states of the story characters. The training had a significant effect on participants' comprehension of mental state language and emotion. In the second study (Grazzani Gavazzi & Ornaghi, 2011), the intervention focused specifically on emotional-state talk and the effect of its use on preschoolers' emotion comprehension. Again, the children in the training group took part in conversations designed to stimulate the use of selected emotional terms from the storybook. The training had a significant effect on children's comprehension of both MSL and emotion, especially at 3 years of age. In both studies, children in the training groups outperformed the control groups that had not been stimulated to converse on inner states.

Taking this body of intervention studies as a whole, it should be noted that the majority of them made use of stories and narratives. Story-reading, while deployed in different ways in the various studies, was invariably found to act as an effective and powerful means of capturing children's attention and creating a *communicative and conversational context* within which to conduct the intervention. In the cited literature, story-telling was used as a spring-board for initiating discourse, eliciting explanations of the causes of events, telling and retelling, perspective-taking, and so on, within conversational interactions between adults and children. Furthermore, the training studies reviewed suggest that conversing about inner states plays a significant role in enhancing children's perspective-taking, and emotion comprehension abilities. However, all of these studies were conducted with children aged 3 years and older. It therefore remains to be established how conversational processes may contribute to fostering social cognition in toddlerhood, particularly in relation to MSL and EU.

## The present study

The aim of our study was to test the effects of an intervention program (based on story reading and conversation), conducted at a day-care center, on children's use of mental state language and their emotion understanding, viewed as key components of their social cognition. The intervention research presented in this chapter was informed by a well-established paradigm (Adrià n et al., 2007; Aram et al., 2013; Ensor & Hughes, 2008; Grazzani Gavazzi & Ornaghi, 2011; Grazzani, Ornaghi, Agliati, & Brazzelli, 2016; Hughes, 2011; Ornaghi et al., 2011; Ornaghi, Brockmeier, & Grazzani, 2014; Ornaghi, Grazzani, Cherubin, Conte, & Piralli, 2015). For this study, we designed and implemented adult-toddler storybook readings with subsequent conversational exchanges. We adopted the *conversational approach* used in most of the research reviewed above, as it reflects the social constructionist perspective underpinning our research program. This perspective assumes that, from their earliest interpersonal experiences, children are involved in conversational interactions that draw them into social life and increase their awareness that different people often view the same situations from differing perspectives. In the course of early childhood and beyond, conversational activities such as explaining mental states and discussing them with other people, contribute to children's developing understanding of the mind and emotions (de Rosnay & Hughes, 2006), helping them to transform their implicit knowledge of both epistemic and emotional states into explicit awareness. Children, in effect, learn to construct and reconstruct their understanding of words and expressions by drawing on the way these terms are used in conversation and adult-guided activities (Fivush, Haden, & Reese, 2006), and this is also true of conversational exchanges based on bookreading.

The research presented here offers a number of unique features with respect to other intervention studies using storybooks and conversation. First, we targeted children aged between two and three years, while similar studies have mainly focused on the preschool and primary school years. A second novel feature was the active participation of trained teachers who implemented the intervention under the supervision of our research team. Third, the intervention involved planned interactions between an educator who had received *ad hoc* training and a small group of four to six children, as opposed to dyadic interaction between an adult and an individual child, with a view to also fostering an exchange of perspectives among children.

## *Method*

### *Participants*

Children were 57 toddlers (25 girls and 32 boys), with a mean age at pre-test of 2;5 years (*SD*: 3.42 months; range: 2;0–2;11 years), attending four day-care centers in the province of Milan. Two centers were randomly assigned to an *intervention condition* (29 children) and two to a *control condition* (28 children). All participants came from middle-class backgrounds, and were native Italian speakers. The eight teachers who participated in the study were selected on the basis of their professional experience and motivation to learn how to deliver the intervention. Four of them worked in the nurseries assigned to the experimental condition and four in those assigned to the control condition. They were all female, with a mean age of 32 years (range: 28 to 40), and a mean of 10 years' teaching experience. The teachers assigned to the experimental and control conditions did not differ significantly in terms of mean age or length of teaching experience. The day-care centers were all under the same management, and the teachers followed the same educational programs.

All the teachers were instructed how to read the book to the children; furthermore, the teachers in the experimental group were videotaped while practicing the conversational activities with children and received feedback from the research team. The teachers in the control group were told that they would have the opportunity to receive training in the conversation-based intervention the following year.

### *Research phases, instruments and materials*

Before and after the intervention phase, all children were individually administered the measures listed below in counterbalanced order, in order to pre- and post-test their verbal ability, emotion understanding and use of MSL.

### *The Child's first vocabulary (primo Vocabolario del bambino, PVB)*

Children's verbal abilities were assessed via the PVB, the Italian version of the Questionnaire MacArthur-Bates Communicative Development Inventories – CDI (http://mb-cdi.stanford.edu). The PVB is a standardized questionnaire (Caselli, Pasqualetti, & Stefanini, 2007) based on maternal ratings for children between 18 and 36 months of age. We administered the first part of this questionnaire which measures the child's word production (vocabulary) and standardized scores were used for the analysis.

*Mental state language production.* In order to evaluate children's use of MSL, each participant was video-recorded, alone or in interaction with others, for a total of 20 minutes in two different situations - free play (10 minutes) and lunch (10 minutes) - on two different days. We used a fixed-position video camera that

minimized interference with participants' spontaneous behavior. Two judges who were blind to the aims of the study coded each child's linguistic production during the 20 minutes of video-observations. They used the following categories of mental state lexicon: physiological (e.g., feeling tired), volitional (e.g., wanting), perceptual (e.g., hearing), emotional (e.g., feeling happy), cognitive (e.g., thinking), and moral (e.g., being naughty), attaining 84% agreement at pre-test (Kappa coefficient = .76) and 85% at post-test (Kappa coefficient = .78). For the purposes of statistical analysis, a composite variable (overall production of MSL) and single variables for each sub-type of psychological lexicon were generated for each child.

*The Puppet Interview (PI).* Children's emotion understanding was assessed via the Italian validated version (Camodeca & Coppola, 2010) of the Puppet Interview (Denham, 1986). This instrument uses two puppets with blank faces and four felt discs, each depicting the facial expression corresponding to a distinct basic emotion (fear, happiness, sadness and anger). For the purposes of the current study, four subtasks were administered: the *expressive* task (assessing the ability to correctly label emotions), the *receptive* task (evaluating the ability to understand verbal emotion labels and recognize the associated facial expressions), the *affective perspective-taking* task (assessing the ability to understand other people's emotions in light of given situational antecedents), and the *causes* task (evaluating the ability to comprehend the causes of emotions in the self and others).

Participants received a score of 2 for a correct response, 1 for an incorrect response of the appropriate affective valence, and 0 for a completely inappropriate response. Each child was assigned a total score ranging from 0 to 40, and four sub-scores were calculated for each of the four sections administered (expressive task: max. 8; receptive task: max. 8; affective perspective-taking task: max. 16; and causes task: max. 8).

### *The intervention phase*

Between the pre- and post-test phases, a three-month *intervention* took place. The children took part in daily sessions in mixed-gender groups of four to six children at a time. The composition of the working groups was based on teacher nomination. During these sessions, children listened to stories presented in an illustrated storybook created for this study. The book contained eight short stories, whose age-tuned intelligibility and appeal had been pilot tested with children that did not take part in the study. The main characters in the stories are two rabbits (Beba and Ciro) who get caught up in a series of 'exciting situations' that make them alternately *scared, happy, angry* and *sad* (a sample story for each of the four emotions is provided in the Appendix). All the stories follow a classical story schema: after a brief introduction, a problematic situation eliciting a particular emotion arises, and action is undertaken to solve the problem. For example, in *Beba gets*

*mad at the beach*, the main character loses her temper because a cheeky bear cub snatches her bucket; with Ciro's help, the conflict is resolved and the story ends happily with all three characters playing together. Furthermore, the story texts are enriched with MSL that differentiates them from those most commonly used with young children. The mental state terms in these stories are primarily emotional (*gets mad*, *is scared*, *is surprised*, *is happy*, and so on), but also include perceptual (they can't *see* anything), volitional (that train I really *wanted*) and cognitive (e.g., *decide*) expressions.

The teachers in both the experimental and control classrooms read the stories the same number of times (three times a week). Both groups received the same instructions on how to read the book to the children: they were told to gather the children around them in a circle and to show them the story illustrations while delivering a faithful (*verbatim*) reading of the text; if the children asked questions during the reading they were to respond appropriately but without engaging the children in further conversation. In addition, the teachers in the experimental group were videotaped during the conversational activities with children and received feedback from the research team; the teachers in the control group were told that they would have the opportunity to receive training in the conversation-based intervention the following year.

After listening to the stories, different activities were conducted for each of the two conditions. The children in the experimental condition were involved in conversations about the emotion thematized in the story. Specifically, the teacher drew on the story content to focus on the *expression*, *comprehension* and *regulation* of emotion (Denham, 1998). The stimulus questions, as shown in Table 1, were designed to encourage the participation of all the children in the group, giving them the opportunity to narrate situations in which they themselves, their family members or friends, or familiar cartoon or story characters, had experienced the emotion being discussed. In contrast, after listening to the same stories, the children in the control condition did not take part in conversations about emotions but were offered a selection of toys and allowed to engage in free play. If the children in this group spontaneously mentioned the story, the teachers were instructed to listen to their comments and answer any questions, but without stimulating a discussion.

**Table 1.** Examples of stimulus questions based on the story content and emotional script

| Emotional script | Sample story illustration | Examples of how the conversation may be launched (Stimulus Questions) |
|---|---|---|
| **Anger** (prototypical emotion in frustrating situations) |  | Look at Beba's face, see how mad she is! Try to make an angry face yourself … Children, look what an angry face Giulia is making. *[focus on expressing emotion]* Beba is mad because her bucket was taken away. And do you get mad when somebody takes your bucket? And what about you, children? [*focus on understanding the causes of emotion*] |
| **Fear** (prototypical emotion in situations posing a threat to personal safety) |  | Look at Ciro, what a scared face he's got! He heard a very loud and sudden noise. Let's try to make a frightened face too. [*focus on expressing emotion*] And what about you, Marco, are you afraid of loud noises? *[focus on understanding the causes of emotion]* And what do you do then? … Paolo said he calls his Mummy. [*focus on regulation of emotion*] |
| **Sadness** (prototypical emotion in situations of experiencing loss and abandonment) |  | Ciro is sad, he's crying. What is a sad face like? Will you show me one? [*focus on expressing emotion*] Ciro is sad because he can't find his favorite toy car? Are you sad too when you lose your favorite toys? *[focus on understanding the causes of emotion]* And Paolo, what do you do when that happens to you? *[focus on regulation of emotion]* |
| **Happiness** (prototypical emotion in situations in which a desired outcome is attained) |  | How does Ciro look?. Yes, he's really happy. Look, he's smiling. Let's all make a happy face together. [*focus on expressing emotion*] Why is Ciro happy? He got a present that he really wanted, a lovely little train. And you, Maria, how do you feel when you get a nice present? [*focus on understanding the causes of emotion*] |

*Fidelity to instructions of teachers' interventions*

To obtain a measure of fidelity for implementation of the program, we randomly videotaped 40% of the sessions in both experimental and control conditions. Two expert judges (blind to the research conditions) independently analyzed all the recorded footage, evaluating the extent to which teachers had created a setting for the intervention as instructed and delivered a faithful reading of the story text. For the experimental group only, they also assessed teachers' levels of adherence to the guidelines for conducting the conversation on emotions. For each of these aspects, the judges assigned a fidelity score on a 5-point scale ranging from "not at all faithful" to "completely faithful". Analysis of the scores showed a high level of fidelity across both groups of teachers in relation to all the aspects under evaluation: creation of the setting (experimental group 91%; control group 90%), faithfulness to story text (experimental group 88%; control group 86%). The teachers in the experimental group also displayed a high level of adherence to the guidelines for the conversational activity (86%). Overall, the judges attained 83% of agreement ($\kappa = .74$).

## Results

Table 2 presents the descriptive statistics for all variables in experimental and control conditions for both pre- and post-tests. There were no significant differences between the experimental and control groups on any of the pre-test measures.

To test whether the intervention enhanced children's use of mental state terms (MSL) and emotion understanding (EU) abilities, we analyzed the data using a multivariate repeated measure analysis of co-variance with Time (pre/post) and Group Condition (intervention/control group) as independent variables and MSL and EU as dependent variables. Pre- to post-test gains in verbal ability (vocabulary) and age were included in the analysis model as covariates.[1] As can be seen in Table 2, results showed a significant Time x Group interaction ($p < .001$). The Bonferroni post- hoc test showed that the children in the intervention group obtained higher scores than the control group on both the spontaneous use of MSL ($p = .01$) and EU ($p < .001$) (see Table 2).

1. To reduce the probability of Type I error, we used the Bonferroni correction, setting the *p* value at.0125.

**Table 2.** Pre- and post-test means and standard deviations (in brackets) for all variables by group condition and the time x group interaction

| | **Intervention group** | | **Control group** | | **Time X group condition interaction** | | |
|---|---|---|---|---|---|---|---|
| | ***Pre-test*** | ***Post-test*** | ***Pre-test*** | ***Post-test*** | ***F*** | ***p*** | $\eta_p^2$ |
| Verbal ability | 60.29 | 84.75 | 69.26 | 80.42 | 6.61 | .014 | .145 |
| | (19.84) | (18.14) | (27.19) | (24.68) | | | |
| Use of MSL | 1.04 | 4.12 | .71 | .1.41 | 13.13 | .001 | .257 |
| (total score) | (1.48) | (4.36) | (1.44) | (1.73) | | | |
| *Physiological* | .00 | .20 | .14 | .30 | .15 | .705 | .003 |
| | (00) | (.41) | (,45) | (.55) | | | |
| *Perceptual* | .30 | 1.20 | .18 | .31 | 8.01 | .007 | .131 |
| | (.54) | (1.52) | (.45) | (.62) | | | |
| *Volition* | .31 | .62 | .39 | .50 | 1.09 | .299 | .020 |
| | (.71) | (.82) | (.91) | (.76) | | | |
| *Emotion* | .27 | 1.10 | .11 | .19 | 7.35 | .009 | .122 |
| | (.59) | (1.33) | (.36) | (.49) | | | |
| *Cognition* | .00 | .17 | .00 | .08 | .830 | .366 | .015 |
| | (.00) | (.47) | (.00) | (.27) | | | |
| *Moral* | .17 | .45 | .04 | .19 | .308 | .582 | .006 |
| | (.47) | (.91) | (.19) | (.57) | | | |
| EU (total score) | 14.17 | 25.58 | 15.58 | 18.1 | 34.37 | <.0001 | .475 |
| | (6.95) | (8.16) | (6.38) | (6.16) | | | |
| *Expressive* | 2.76 | 5.43 | 2.43 | 3.24 | 14.80 | <.001 | .225 |
| | (2.45) | (2.00) | (1.45) | (1.74) | | | |
| *Receptive* | 5.45 | 7.29 | 4.96 | 5.64 | 4.18 | .046 | .076 |
| | (2.18) | (1.18) | (2.04) | (2.32) | | | |
| *Affective* | 4.69 | 9.57 | 5.90 | 6.72 | 33.47 | <.0001 | .414 |
| *perspective taking* | (2.58) | (3.56) | (2.47) | (2.15) | | | |
| *Causes* | 1.41 | 4.11 | 1.29 | 2.24 | 5.37 | .025 | .095 |
| *comprehension* | (2.15) | (3.05) | (1.51) | (2.33) | | | |

*Legenda*: MSL = Mental state language; EU = Emotion understanding.

*Children's mental state language production*

Because children in the intervention group displayed significantly greater gains in the total number of mental state terms used in everyday interaction at day-care center than the control group at post-test, we ran repeated measure and found that the mental state terms in which the intervention group outperformed the control group were perceptual ($p = .001$) and emotional terms ($p = .003$) (Table 2).

*Emotion understanding*

We also tested the efficacy of the conversational intervention on toddlers' EU. Mean scores for each of the two groups are reported in Table 2. Post-hoc comparisons show that the EU (as measured by the Puppet Interview) of the intervention group children improved significantly more than that of the control group participants from pre- to post-test. To explore children's improvement in EU, we examined their performance on each of the four subtasks separately: expressive comprehension, receptive comprehension, affective perspective-taking, and understanding the causes of emotion. There was a significant Time x Group interaction for the expressive and affective perspective-taking subtasks (see Table 2 for details).

## Discussion

As far as we are aware, few studies have investigated toddlers' social cognition by examining the efficacy of conversational intervention with 2- to 3-year-old children in an educational context. The results suggest that the intervention based on storybook reading and conversation on emotions with small groups of toddlers led to significant improvement both in children's use of mental state language and in their emotion understanding. More specifically, the participants in the experimental group increased their use of MSL, particularly perceptual and emotional terms, and displayed enhanced ability to label emotions and comprehend emotions with respect to the children in the control group who listened to the same stories but did not engage in conversations about them. Furthermore, the intervention led to gains in these competences, independently of improvements in the children's overall vocabulary and age.

With regard to language, in line with other conversation-based training studies (e.g., Ornaghi et al., 2015; Ornaghi, Brazzelli, Grazzani, Agliati, & Lucarelli, 2017), improvements in children's general language ability over the intervention period did not explain the effects of the conversational training, despite the fact that language ability is known to play a key role in the development of social

cognition. This may be due on the one hand to the fact that a relatively limited measure of language was used in the current study (vocabulary only, as measured by the PVB Questionnaire) rather than a more complete assessment of linguistic competences, and on the other hand to the fact that adult-guided conversation among small groups of children is in itself a powerful mechanism enabling children to make explicit and share their knowledge of internal states (de Rosnay & Hughes, 2006).

Likewise, age differences among participants did not significantly impact on the effectiveness of the intervention. In other words, the training led to similar gains in both younger and older children. Nonetheless, it would be interesting to repeat the intervention in the future with a larger sample and broader age range in order to verify whether some abilities improve more than others at given ages.

In discussing these results, the first point to be emphasized is that they demonstrate the feasibility of carrying out this kind of conversational intervention with two-year old children. Specifically, analysis of the quantitative data showed that the social-cognitive abilities of the children in the experimental group, who took part in an innovative conversational activity with small groups of peers, improved significantly more than those of the control group participants. In addition, the video-recordings document the fact that the children displayed interest and involvement, remaining attentive throughout the conversational activities. What actually happened during this three-month intervention? After the children had been adequately familiarized with the intervention format, the teachers first began to gradually direct their attention towards the story characters' facial expressions ("What kind of face is Beba making here?"; "What is Ciro doing here? Look at his eyes."). During this phase, the children's input to the conversation was relatively limited. They mainly repeated the emotion words uttered by the teachers ("He's scared"), imitated the story characters' facial expressions when invited by the adult to do so ("Show me what you do when you're scared"; "And what about you, Cristina, let's see what kind of face you make when you're scared …"). Next, the teachers increased the complexity of the conversation, helping the children to relate the story with their own personal experience by focusing first on the causes ("And what are you scared of?"), and then on the regulation of emotions ("What do you do to stop feeling scared?"). The toddlers' initial responses to these questions were linked to the story characters' experiences ("I'm afraid of the drill at home", after listening to a story in which the characters were frightened by the sound of a drill), as though they were activating a *mechanism of repetition and imitation* of what they had just heard from others. Finally, towards the end of the intervention, the children improved their linguistic production in terms of both the length of their utterances and the quality of their attempts *to talk about themselves* by linking aspects of the emotional script to their personal experience ("When I want a

toy car and my Dad says no, I feel all red, red in the face, in my eyes, in my arms, in my legs, in my tummy and even in my pants").

This process of change in the participants in the experimental group – from repeating the teacher's comments, or parts of the story script, to speaking about themselves in original terms – may also be considered to be reflected in an increase in their spontaneous references to psychological states as compared to their counterparts in the control group. For example, during a video-recorded play session, a child who had participated in the intervention, pretended that there was a wolf in the classroom, saying: "Here comes the wolf!" (cause); "I'm scared!" (labeling the emotion); "I feel like crying" (expression), "Let's hide!" (regulation). In another video observation, a child turned to her teacher saying: "Can you come, because I'm here on my own and I'm so sad". And subsequently, to her playmate: "If you do that, I'll be sad and Paola (the educator) will be mad".

We might speculate that this transition from imitating the language of others to making more personal and original contributions to the conversation was partly facilitated by the fact that the activity was shared with peers in a small group setting. Analysis of the children's linguistic productions shows that the early stages of the training predominantly featured dyadic interactions between the teacher and individual children. However, as the program progressed, the proportion of exchanges among peers increased. The children gradually became more competent in coordinating their contributions to the conversation and in enriching their own utterances, as in the following example in which, in response to the teacher's question "What are *you* afraid of, children?", one boy answered: "I'm afraid of the orange man who makes holes in the road", and a girl added "Me too, *like him*, I'm afraid of the noise of the digger". Participating in conversations with the peer group may have provided the children with the opportunity to decenter and recognize points of view as distinct from their own, a crucial step in developing social cognition.

The story structure and content may have also played a key part in fostering this change. As shown by Adrián et al. (2007), not all stories are equally suitable for promoting conversation with children about internal states. The stories developed by our team are short and easy for young children to memorize. They also narrate episodes that young children can readily identify with. This similarity between the story characters' "adventures" and toddlers' everyday lives, gives toddlers the opportunity to make active use of the MSL and to practice changing perspectives, by moving quickly back and forth between stories about little rabbits and their own personal experience. For example, during a conversation about a story on the theme of 'joy over receiving a (birthday) gift', one child said: "I got a train too", and another added: "I got a doll" and so on, for each child in turn. A further specific feature of these stories is that they include psychological terms that are not usually

part of toddlers' vocabulary. For example, in the course of a video-recorded conversation, one child was observed to be fascinated with the word "curious", which he had likely just encountered for the first time, repeating to himself, as if to go on reproducing and listening to the sound: "Ciro is curious …Ciro is curious".

## Limitations and educational implications

This study is not without its limitations. First, the research sample needs to be extended to confirm these preliminary results, and to gather more data about the role of control variables such as vocabulary and age. Follow-up data is also required to verify the stability over time of the effects obtained. Finally, it should be noted that the two research conditions were randomly assigned to the day-care centers rather than to individual children, and therefore we cannot claim that the sampling of the participating toddlers was random. However, by implementing one research condition per day-care center, we were able to exclude any influence on the research outcomes of children's assignment to different conditions.

Despite these limitations, to the best of our knowledge, the current intervention study is one of the few conducted with toddlers that has tested the role of conversing about emotions in fostering social cognition. It also provides practical direction for innovative modes of intervention in socio-educational contexts. Up to now, interventions of this kind have often been aimed at enhancing the quality of shared bookreading and conversation within a parent – child dyad (Aram et al., 2013), while none have been tested with groups of children in early childhood settings. Educational programs based on the research reported here will feature types of stories that differ from those traditionally adopted in early childhood education settings, particularly in the context in which our study was conducted. Conventionally, as underlined by Aram et al. (2013), the conversational practices surrounding shared story reading at day-care center still focus predominantly on the external, physical and material aspects of story characters and settings and on outward behaviors, rather than on psychological states, such as emotional and affective states, and expansion of children's mental state lexicon. In contrast, the stories used in our research, enriched with psychological lexicon and themes, can facilitate educational activities aimed at enhancing perspective-taking and socio-emotional abilities in early childhood education centers (Misailidi, Papoudi, & Brouzos, 2013).

In conclusion, our research outcomes suggest the value of early intervention with children in extra-familial educational contexts, conducted with a view to promoting the development of children's socio-cognitive and emotional abilities and harnessing the benefits of story reading and conversing about psychological contents.

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## Appendix. Four stories from the illustrated book

*The dark is scary! [fear]*

Ciro and Beba are in their room. They are playing with building blocks. It's fun to play together!

They want to try to build a very high tower, with lots of different colors.

They are busy playing, when suddenly the light goes out.

Oooh, it's so dark … and the two little rabbits can't see anything. This is scary!

They stay still because they don't know what to do. They can't see anything at all in the dark.

Beba feels like crying, but Ciro yells loudly for their Mom.

Luckily, the light soon comes back on.

Beba and Ciro don't feel scared any more. They smile and go back to building their tower.

*Where's my car? Ciro is sad [sadness]*

Ciro wants to play with his favorite car, but he can't find it. He looks in his room but it's not there. He tries looking in the bathroom, but … the car's not there!

Ciro looks on the balcony, but his car is not there either. Oh no! He just can't find the car anywhere.

Ciro is very sad and he starts to cry.

Ciro is really upset because he can't play with his car.

His Mom comforts him and she says: "Don't worry, Ciro, I'll help you look for your car".

They look everywhere, in every corner of the house, but there is no sign of the car! And Ciro is sadder than ever.

When Beba sees that Ciro is so sad, she decides to try to help him too.

In the end, after they have looked all over the house, it is Beba who finds the car … it was under Ciro's bed. Thank goodness!

"Thank you Beba", says Ciro.

*Beba gets mad at the beach [anger]*

Beba is at the seaside. She is playing on the beach with her bucket and spade. She is having a wonderful time.

She loves playing in the sand. There she is sitting peacefully by the sea and having fun with her beach toys.

Just then, Toby Bear comes over, snatches Beba's bucket and runs off.

Beba is mad because she doesn't want the bear to take her bucket.

"Give it back, it's mine!" Beba yells at the bear.

But Toby doesn't listen to her and starts to play with Beba's bucket himself. Beba is really angry now!

Ciro sees that Beba is really mad and tries to help her. He goes over to Toby Bear and says: "Hi, that's Beba's bucket. She wants it back. Would you like to come and build a huge big sandcastle with us?"

Toby says yes, so the three friends play together and Beba doesn't feel mad any more.

*It's Ciro's birthday: he's so happy! [happiness]*

It's Ciro's birthday today. When morning comes he's still fast asleep.

As soon as he wakes up, the family wish him a happy birthday and give him a beautiful gift.

Ciro sees the parcel with the present inside and smiles happily. It's a really big parcel!!!

Ciro is curious and he can't wait to open the parcel to see what's inside.

"Go ahead and open it" says his Dad "it's your gift".

Ciro starts to unwrap his present.

It's such a big parcel that it's hard to unwrap. But in the end Ciro manages to open it!

And what is inside?

"What a wonderful surprise!!! It's the train I really wanted" says Ciro.

Ciro is delighted. He could not be having a nicer birthday. He starts to play with his new train.

CHAPTER 6

# The effects of bookreading with and without mental state themes on preschoolers' theory of mind

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This chapter reports a study providing evidence that narrative experience, in the form of interactive bookreading, promoted theory of mind abilities of preschoolers. Sixty-seven low-income 4- and 5-year-olds participated in either one of two types of bookreading training or in a control group. The two bookreading conditions involved the reading of books: (1) that included mental state themes such as characters having beliefs counter to reality (false beliefs), or characters deceiving another character to gain something from them (active deception), or characters encountering objects that falsely appear to be one thing but are entirely something else (appearance-reality distinction); or (2) that did not include such mental state themes. The control condition was a no-treatment group in which children continued their daily classroom activities. All children were pre- and post-tested on a battery of theory of mind tasks. Results indicated that children participating in bookreading with or without mental state themes improved in theory of mind abilities from pre- to post-test as compared to the no-treatment control group. However, children who were read storybooks with mental state themes demonstrated greater improvements in active deception than those in the non-mental state themes condition. These results indicate the need for further research to disentangle the impact of *mental state themes, mental state concepts,* and *mental state language* in storybooks for promoting theory of mind abilities in children.

**Keywords:** narrative, theory of mind, intervention, preschoolers, bookreading, mental state language, mental state themes, mental state concepts

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## Introduction

During the last decade, there has been an increasing focus among social psychologists on how narrative experience, particularly with literary fiction, plays a role in enhancing the ability to perceive self and others in terms of thoughts, beliefs, intentions, desires, hopes, and imaginings--what has come to be known as theory of mind (ToM; Mar & Oatley, 2008; Society for Personality and Social Psychology, 2014). This conceptualization is critical in understanding and predicting the interactions between, and among, individuals not simply in behavioral terms (*Mary walks fast by my office and does not say "hi"*) but in attributing to them an inner world that motivates their actions and interactions (*Mary is either angry with me or she is preoccupied because she has an upcoming deadline)*. In fact, the suggestion of a special relationship between narrative and ToM is not new. For several decades, theorists such as Bruner (1986), Nelson (2007), and Hutto (2008) have put forward cogent arguments as to why narrative experience may play an important role in promoting ToM development. There is also ample empirical evidence from developmental research in support of this hypothesis. Several researchers have focused on shared bookreading between mothers and children to delineate aspects of this interaction that are related to and may be especially important for promoting ToM development. As we discuss below, this research points to the significance of caregivers' mental state talk about the internal states of characters during conversations about and around storybooks with their children.

Despite the progress made by this line of research, some aspects of bookreading experience, such as the role that the storybooks themselves may play, have not been fully addressed. For example, storybook themes that center on mental state concepts (such as deception or false belief) and that help organize and permeate the storyline may also be important in advancing ToM abilities. In other words, it may not only be the mental state language caregivers use in talking about storybooks, but also the specific mental state storylines depicted in the books read to the children that could also help to promote ToM abilities. Another somewhat neglected aspect, and on which this study focuses, is how to promote the ToM abilities of low-income preschoolers. There is some evidence that this group's performance on ToM tasks is both more inconsistent (Curenton, 2003) and below that of more advantaged peers (Holmes, Black, & Miller, 1996; Shatz, Diesendruck, Martinez-Beck, & Akar, 2003). However, there has been limited research in using narrative to promote ToM with this population. The current study addresses both of these themes by investigating whether inclusion of mental state themes in storybooks impacts ToM development and whether narrative training, in the form of interactive bookreading, can be effective in promoting performance on ToM tasks for a sample of low-income preschoolers.

*Why narrative may impact theory of mind development*

Bruner, one of the first to discuss the relationship between narrative and mentalistic social understanding (1986: 16), emphasized that a key quality of narrative is its concern with the vicissitudes of human intention. He argued that through telling stories, we make sense of characters' goal directed pursuits and we come to coordinate the perspective of one character with those of others. He further argued that well-formed narratives incorporate a "dual landscape": they depict events and actions in "the real world" (the landscape of action), while also taking into account the mental activity of the protagonist (the landscape of consciousness). Through continuous engagement with narratives in which children must come to explain and understand the actions of characters in relation to those characters' internal mental capacities, children develop the conceptualization of others as mental agents with desires, beliefs, and intentions guiding their actions and interactions with others.

Following Bruner's lead, Nelson (2007) also argued for narrative's unique role in promoting understanding of minds through the way language is used in naturally occurring interactions. She argues that children do not develop a mentalistic conception of the person in isolation, but rather internalize a "communally shared belief system about human goals, aspirations, motivations, knowledge systems, and value systems" (Nelson, 2007: 45). An important part of Nelson's argument is that experience with language, particularly narrative language that is complex and used to describe situations or events that are displaced in time and space, plays an important role in helping children further develop the cognitive capacity to represent or imagine the unseen. This function of language provides new ways for children to organize their own thoughts about the world while simultaneously allowing them a way of imagining how others might be thinking about the world. The ability to simultaneously conceive of more than one way of viewing the world is a necessary precondition for children to understand that appearance and reality may not match (appearance-reality distinction) or that people may hold different beliefs which may be either both valid, or one right and the other manifestly wrong (false belief). The ability to understand that people may hold different points of view is also a necessary precondition for developing a full-blown conception of others as mental agents which requires that individuals and their mental worlds are seen as separate but also comparable to one another or to the world around them. Nelson (2007: 152) further argues that this representational function of language, which narrative embodies, allows children to be engulfed "into a world of cultural knowledge that is beyond their direct experience" in which symbolic knowledge is shared about "unseen" or inner mental states (intentions, beliefs, aspirations).

Finally, Hutto (2008) proposed the "Narrative Practice Hypothesis" which posits that children's engagement with narratives that embody mentalistic conceptualizations about characters acting intentionally, such as those particularly found in storybooks or fairytales, leads to an increased understanding of the internal world of others. Further delineating his perspective, Hutto draws a distinction between 3rd person narratives or the "story itself" (*The farmer lost his hat because the wind blew it away*), and 2nd person narratives (*Do you see the farmer? Do you see his hat?*), which include conversational interactions surrounding the telling of 3rd person narratives. He argues that children's growth in understanding of mind results from learning that occurs during these conversational interactions about characters' mental attitudes and the reasons for their acting. But great emphasis is also placed on the type of narratives children encounter. Psychological types of narratives characterizing many storybooks and fairytales are conceived by Hutto to be very important for generating the types of interactions that help children learn about the psychological motives of characters and develop a rich psychological vocabulary, both central for the development of ToM (2008: 33).

### *The impact of bookreading on theory of mind development: the role of mental state language*

Empirical support for the hypothesis that narrative promotes a mentalistic conception of persons in young children largely comes from studies investigating whether and how bookreading impacts the development of ToM skills. Examples of ToM skills investigated in these studies include: (1) "false belief understanding" whereby self or one character vs. another may hold different beliefs about the world, but only one of them is right while the other is "false"; (2) "deception" whereby a character acts intentionally to cause someone else to have an erroneous belief in order to influence his/her actions; and (3) "appearance-reality" distinction whereby one object appears to be one thing while in reality it is something else (an object looks like an apple but it is really a candle) .

Research points to the significance of conversational interactions in the context of shared bookreading for ToM development and argues for a role of *mental state language*, that is, language describing the internal states of characters such as cognitive states (think, know), emotion states (happy, sad), perceptual states (see, look), and desires (want). In an early exploratory study, Ratner and Olver (1998) asked four parents to engage in repeated readings of a tale of deception with 3- and 4-year-olds. A qualitative analysis of these recorded interactions showed that over the successive readings, which involved different supportive interactions by the caregiver as the child's understanding of the story changed, the children displayed a deeper understanding of the storybook episodes related to deception. This was

evidenced by children's spontaneous conversation about deception or by their answers to parents' comprehension questions.

In a more systematic investigation of the content of conversations surrounding storybooks, Symons, Peterson, Slaughter, Roche, and Doyle (2005) investigated the interactions between mothers and their 5- to 7;6-year-olds as they read a book (*First Day Jitters*) whose main theme included mistaken identity. They found that the amount of mental state language by the mothers, specifically about the characters in the story, was significantly correlated with children's performance on standard and emotion false belief tasks (understanding and predicting how a character will feel upon experiencing a false belief). Similarly, Adrián, Clemente, Villanueva, and Rieffe (2005) found that during readings of four picture books containing mentalist content such as false beliefs and deception with 4- and 5-year-olds, the frequency of the mother's use of mental state words, particularly those referring to cognitive states, was correlated with children's performance on a standard false belief task. In a subsequent longitudinal study, with 3- to 5-year-old children, Adrián, Clemente, and Villanueva (2007) examined whether mothers' early use of cognitive state verbs during shared reading of books also containing mental state themes was related to children's later understanding of mental states as measured through false belief and deception tasks. They found that the prevalence of cognitive state references made by mothers at time 1, both in creating shared understandings about picture books and in talking about the mental state of story characters, predicted children's ToM understanding one year later. Racine, Carpendale and Turnbull (2007) also provide support for the importance of mother's talk during bookreading for ToM development by demonstrating that mothers' talk about belief-based emotions (such as surprise or fear) during a wordless picture book interaction task (involving a storyline typical of those used in emotion false belief tasks) was predictive of children's concurrent false belief understanding as assessed through unexpected transfer and unexpected contexts false belief tasks.

### *The story itself: Mental state themes within storybooks*

While the evidence so far highlights the role of mental state language and explanatory talk about characters during conversational interactions around bookreading, it does not establish whether specific attributes of "the stories themselves," may be important for promoting these outcomes, as Hutto (2008) seems to suggest. In a comprehensive review of popular books read to preschoolers, Dyer, Shatz, and Wellman (2000), observed that many children's books present events in terms of the goals, thoughts, and emotions of characters. They also noted that there is great variability in the degree to which books emphasize mental state information about

characters' thoughts and emotions, and highlighted at least two possible sources of this variability: (1) inclusion of explicit mental state language (e.g., think, know, figure, decide); and (2) inclusion of thematic mental state content (such as deception, false-belief, or differences between real and apparent identities) permeating and organizing the storyline.

A training study by Peskin and Astington (2004) addressed the first of these issues as they investigated whether the presence of implicit or explicit mental state language in storybook texts was critical for promoting ToM development in young children. Forty-eight low-income kindergarten children were divided in two groups and each group was read the same picture books containing either frequent and explicit mental state language or none of it (only implicit reference to mental states were left). Books were read several times a week during four weeks by teachers in the classroom, by graduate students in small groups, and by parents individually at home. Over the four weeks, children in both groups improved their understanding of false beliefs, with no evidence that being read stories with explicit mental state language enhanced false belief understanding to a greater extent than stories without it. In both groups, however, storybooks read to children involved tales with mental state concepts such as characters hiding from one another or mistaking the identity of others due to disguise. The authors thus argued that to promote ToM abilities, the presence of mental state language may be less important than having to actively construct one's own mentalistic interpretations from the narrative texts, which both conditions required.

The idea that the listener's constructions of a mentalistic interpretation is important for promoting ToM goes hand in hand with the possibility that the inclusion of mental state themes is critical for bookreading to impact these skills, as these themes might serve to make mental state information about characters more salient. To date, however, no research has examined whether the presence or absence of explicit mental state themes in storybooks may differentially impact ToM development. It is thus not clear whether experience with narratives without explicit mental state themes such as deception or false belief, yet still containing characters acting with intentional purposes (i.e., to solve a problem or reach a desired goal), might still be associated with gains in ToM development tasks. The current study addresses this question.

## The current study: Using bookreading to promote ToM for low-income preschoolers

Before determining whether the presence of mental state themes in storybooks is a critical factor for bookreading to promote ToM, we must first establish that

interactive bookreading in general can promote ToM in preschool children from a low-income background. Despite the evidence reviewed above documenting associations between bookreading and ToM, most studies offer evidence of concurrent relationships, while few demonstrate that earlier qualitative differences in bookreading interactions relate to later ToM performance. Training studies, however, are needed to fully understand whether interactive bookreading is truly involved in ToM development in young children. Guajardo and Watson (2002) investigated whether the ToM skills of 3- and 4-year-old middle-class preschoolers who participated in interactive bookreading sessions for about 2 weeks, were enhanced relative to a control group. In their first study, where they worked with small groups of 3–4 children using books with themes related to false belief, appearance-reality, and deception, they did not find any significant differences over time in ToM abilities between experimental and control groups. In the second study, where they worked individually with only those children who failed ToM tasks during pre-test, and engaged children in conversation highlighting the mental states, goals and intentions of the characters using the same storybooks as in Study 1, they found that children in the training condition improved in ToM abilities relative to the control group.

Nonetheless, evidence about the effectiveness of using interactive bookreading to promote the ToM skills of low-income preschool children, who may develop false belief understanding about 1–2 years later than their middle-class counterparts (Cole & Mitchell, 2001; Holmes et al., 1996) is scant. The study by Peskin and Astington (2004), reviewed above, provides evidence that ToM skills of low-income preschoolers may be enhanced after narrative training; however, as there was no control group, it is unclear whether the enhancements were due to training or to development over the study period. Aram, Fine, and Ziv (2013) conducted a training study in which they instructed low-income Israeli parents to engage in repeated interactive readings of books containing mental state themes with their preschool aged children. In the experimental group, but not in the control group, they instructed parents on how to structure their conversations, including how to highlight the mental states and emotions of characters. They found that children in the experimental group made more frequent references to mental terms and mental causality during shared reading and in their own story retellings, than children in the control group. These results show a positive effect of specific types of bookreading interactions on some aspects of children's socio-cognitive understanding, but not on ToM tasks, as these were not experimentally measured in this study. Additional training studies are therefore needed to determine whether interactive bookreading focused on mental states can promote ToM skills in low-income preschoolers. Furthermore, more research is needed to determine whether bookreading with groups of children, rather than with individual children, can

also promote ToM skills - a practice that would be more conducive to preschool classrooms.

Therefore, the first aim of the current study was to examine whether engaging groups of low-income children in an interactive bookreading intervention program promoted the children's ToM development. The intervention included repeated readings of a few books, since story re-reading has been found to be associated with both enhancements in story comprehension and story participation (Fletcher & Reese, 2005). We therefore expected that re-reading would yield a deeper understanding of the stories and thus provide greater insight into the mental life of characters, thereby enhancing children's understanding of others as mentalistic agents. It was also predicted that story re-readings would help to enhance child participation and engagement and thus ease delivery of the bookreading sessions to groups rather than individual children.

The second aim was to determine whether the presence of mental state themes within storybooks differentially impacted gains in ToM abilities. Two types of narrative training were thus included in this study: (1) one in which children were read books with mental state themes; (2) another in which children were read books with non-mental state themes. A control group was also included: these children did not receive any bookreading training outside of their daily classroom activities.

## Method

### *Participants and research design*

Participants were 67 4- and 5-year olds ($M$ = 4;8; Range: 3;11 to 5;6) recruited from several low-income preschool classrooms in a medium sized northeastern city in the US. All children were from households with incomes lower than 300% of the federal poverty level, and more than half were eligible for Head Start subsidies from the government.[1] The largest group of children (46%) was of Hispanic ethnic background, followed by Caucasian (33%), African American (19%), and Other (2%). All children spoke English as their primary language. Most of the children came from single-parent households (63%), had siblings (85%), and had mothers with a high school education or less (73%).

This study used a pre- and post-test design that consisted of three phases: (1) pre-test, (2) narrative training, and (3) post-test. At the beginning of the

1. To qualify for Head Start assistance, families must have had household incomes below the federal poverty line which in 2008 was below $17,600/year for a family of three.

intervention, groups of 4–5 children were formed and randomly assigned to one of two bookreading conditions (mental state vs non-mental state theme) or to the control condition. Children assigned to the two bookreading conditions also participated in a complementary activity: in each group, half of the children engaged in story enactment and the other half in a drawing activity related to the storybooks. Thus, in all, there were five conditions: (1) Mental State Theme/Story-Acting (12 children); (2) Mental State Theme/Simple Drawing (12 children); (3) Non-Mental State Theme/Story-Acting (15 children); (4) Non-Mental State Theme/Simple Drawing (14 children); and (5) Control (14 children). All conditions will be included in analyses of overall group differences as well as in those aiming to determine the effects of bookreading on ToM relative to the control group (Conditions 1–4 versus Condition 5). To determine the effect of the presence of mental state themes in books on ToM, we will compare bookreading conditions with mental state themes (Conditions 1 and 2) to those without (Conditions 3 and 4). Since the complementary bookreading activities are not the focus of this study, results involving any differences on this variable will not be considered in this chapter.

### *Pre- and post-test measures*

At pre- and post-test children were administered a battery of tasks. Tests included different ToM assessments, a measure of language ability (using the Clinical Evaluation of Language Fundamentals: Wiig, Secord, & Semel, 2004), and a measure of narrative comprehension based on the Test of Narrative Language (Gillam & Pearson, 2004) that was extensively pilot tested in our previous research (Brockmeyer, Nicolopoulou, de Sá, Ilgaz, & Cortina, 2008). For ToM measures, post-tests consisted of slightly different versions than at pre-tests. There were no differences in language or narrative abilities among groups at the time of pre-test unexplained by child age. Only ToM results are reported in this chapter.

### *Theory of mind tasks*

A battery of eight tasks was used that tapped three aspects of ToM understanding: (1) beliefs and desires of others; (2) appearance-reality distinction; and (3) deception abilities.

### *Belief/desire scale*

This scale, developed by Wellman and Liu (2004), consisted of five tasks, varying in difficulty, which assessed multiple ToM competencies related to young children's understanding of the beliefs, knowledge, desires of self and other: (a) *Diverse Desire*: others may have desires that differ from their own which influence their actions (b) *Knowledge Access*: not all characters have access to the same knowledge

about objects, and (c) *Contents False Belief, Not Own Belief, and Explicit False Belief.* The total range of scores was 0–5.

*Appearance vs. reality*

This task assesses children's ability to hold two representations of an object (based on Flavell, Flavell, & Green, 1983). Children were shown six objects, one at a time, that appeared to be something other than what they actually were (i.e., a candle that looks like an apple or a sponge that looks like a rock). As in classic appearance-reality tasks, children were first asked to identify the apparent identity of the object (apple) and were then shown the real identity (candle). They were then asked what the object "looked like" and what it "really was." For each object, children were given 1 point for the correct identification of both the real and the apparent identity. Thus, the score for this task ranged between 0 and 6.

*Deception*

Understanding that another's perception of reality can be manipulated was assessed using two tasks. First, a *Deception Comprehension* task (based on Lalonde & Chandler, 1995): children observed the experimenter actively deceiving a character by changing the location of an object while that character was not looking, answered questions about the initial and final location of that object, and made predictions about the character's actions upon his/her return; scores on this task ranged from 0 to 2. Second, an *Active Deception* task (adapted from Chandler, Fritz & Hala, 1989): children were encouraged to trick one character by hiding a piece of candy under one of three cups in a tray of sand, and then asked to use a doll accomplice to figure out a way to have the character look under the wrong cup upon his/her return (to deceive the character fully, children needed to make a false set of footprints in the sand leading to the incorrect cup); scores on this task ranged from 0 to 4.

An *Overall ToM* composite score (ranging from 0 to 17) was computed by summing the scores from each of the various ToM tasks used: Belief-Desire Scale, Appearance/Reality, Deception Comprehension and Active Deception.

*Bookreading training conditions*

In each of the bookreading training conditions, groups of 4–5 children participated in 12 experimenter-led storytelling sessions (6 books, each read twice a week) over a period of about 2 months. Sessions were consistently held on the same two days, and took place in a room adjacent to the children's classroom; each session lasted about 15–20 minutes.

*Mental state vs. non mental state themes.*
All of the books selected for the bookreading intervention were commercially available and geared toward children in the target age range, and were unaltered for the purposes of this study.

For children in the Mental State Book Theme condition, all books involved mental state themes (i.e., plots related to character with false belief, acts of deception, or incongruence between appearance and reality). Examples include *Dibble and Dabble* by Dave and Julie Saunders (1990), in which two ducks are afraid of a "furry snake" hiding behind the reeds which turns out to really be the tail of a cat; and *My Lucky Day*, by Keiko Kasza (2005), in which a clever pig deceives a hungry fox by convincing him to work tirelessly while preparing the pig for supper (giving him a bath, a great big dinner, and a nice massage) so that the fox collapses with exhaustion by the end and is unable to eat the pig for dinner after all while the pig has had a good bath, a nice massage, and is well-fed so he returns home, happily contemplating his next victim.

For children in the Non-Mental State Book Theme condition, the experimenter read storybooks which *did not* involve mental state themes but focused on themes such as problem-solving, friendship, and lessons about good behavior. Examples include *Louie's Goose*, by H.M. Ehrlich (2000), in which a child's stuffed goose encounters a series of problems (e.g., breaks its beak, loses its stuffing) and the child tries to fix these; and *The Little Red Hen*, by Paul Galdone (1985), in which a busy little red hen works to make a delicious cake while her roommates lounge lazily, and then she eats the cake all by herself to teach the others that they will not be rewarded for their laziness.

Aside from these differences in theme, books across conditions were comparable in the number of words on each page and in apparent complexity of language based on sentence length and difficulty of vocabulary. All books across conditions used the same number of characters in that each book included either two main characters or two main sets of characters.

*Bookreading training procedures*
In both bookreading conditions, the storyteller engaged the children in a scripted conversation by asking questions during and after the bookreading. These questions served to direct children's attention to key episodes and to clarify story events when necessary. If the children did not know the answer to the questions, the experimenter/storyteller provided the answers. Conversational exchanges were similar across conditions except for the topic of the questions asked and the episodes highlighted.

For the mental state theme condition, the questions were about episodes that centered on mental state themes such as the appearance-reality distinction (e.g.,

What was hiding behind the reeds? Was there really a snake? Answer: it appeared to be a snake but was really a cat) or deception (e.g., Why is the pig asking the fox to give him a bath and a massage? Answer: to trick the fox into getting so tired that he couldn't eat him).

For the non-mental state theme condition, the questions were about episodes that centered on how problems were solved, (e.g., Was Louie's mom able to fix Rosie – the stuffed goose – when she was wet? How was Rosie fixed in the end? Answer: Louie's mom was not able to fix Rosie the Goose but the sun came out and made the stuffed goose dry again) or questions about the story moral lessons (e.g., Who ate the cake? Why did the little red hen eat the cake all by herself? Answer: The hen ate the cake all by herself to teach her friends that they need to work hard to be rewarded).

*Control condition*

Children in the control condition did not participate in any activities other than their typical classroom activities, which occasionally included bookreading in a large group.

## Results

To assess whether participation in bookreading was associated with gains in ToM abilities (Belief-desire understanding, Appearance-reality distinction, Active deception, Deception comprehension, and Overall ToM score), a series of mixed model 5 (*Condition*: Mental State Theme/Story-Acting, Mental State Theme/Simple Drawing, Non-Mental State Theme/Story-Acting, Non-Mental State Theme/Simple Drawing, and Control) x 2 (*Time*: Pre-test, Post-test) repeated measures analyses of covariance (ANCOVAs) were used, with age in months as a covariate. To assess intervention impacts, omnibus tests were conducted across all five bookreading conditions, with planned contrasts between control and intervention groups taken together. To assess differences among gains in ToM related to bookreading theme, planned contrasts were performed between mental state and non-mental state theme conditions (thus collapsing across complementary activities). Preliminary analyses indicated that groups differed significantly in *age*, with the control group being 4 to 6 months younger on average than each of the experimental groups, $F(4, 62) = 3.97$, $p < .01$. Thus, *age* in months was controlled for in all analyses to reduce variability in outcomes due to differences among groups on this variable.

A main effect of *Time* was observed, demonstrating that over the course of the 2-month intervention children gained in their Overall ToM score, $F(1, 61) = 4.42$,

**Table 1.** Mean pre- and post-test theory of mind scores (and standard deviations) for intervention and control groups

| **Bookreading conditions** | **Bookreading Training N = 54** | | **Mental state N = 24** | | **Non mental state N = 30** | | **Control N = 14** | | **Control vs. experimental** | **Mental state vs. non-mental state theme** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Tasks** | Pre | Post | Pre | Post | Pre | Post | Pre | Post | *p* | *p* |
| Belief Desire | 2.71 (1.13) | 3.62 (0.96) | 2.92 (1.06) | 3.67 (0.91) | 2.55 (1.21) | 3.59 (0.91) | 1.86 (1.17) | 1.86 (1.03) | .003 | .27 |
| Appearance/ Reality | 1.94 (1.84) | 3.38 (1.96) | 1.96 (1.99) | 3.25 (1.78) | 1.93 (1.69) | 3.48 (2.13) | 1.29 (1.20) | 1.14 (1.46) | .026 | .68 |
| Deception Comprehension | 0.66 (0.47) | 0.81 (0.39) | 0.75 (0.44) | 0.83 (0.38) | 0.59 (0.50) | 0.79 (0.41) | 0.21 (0.43) | 0.29 (0.47) | .09 | .55 |
| Active Deception | 1.94 (1.16) | 2.72 (0.93) | 1.79 (1.02) | 3.00 (0.72) | 2.07 (1.28) | 2.48 (1.12) | 1.14 (0.95) | 1.36 (1.34) | .036 | .038 |
| Overall ToM | 7.87 (3.32) | 11.34 (3.32) | 8.04 (3.06) | 11.58 (3.01) | 7.72 (3.63) | 11.14 (3.73) | 5.00 (3.48) | 5.00 (2.72) | < .001 | .06 |

$p < .05$ including gains in active deception, $F$ (1, 61) = 4.31, $p < .05$, and a trend for increased belief-desire understanding, $F$ (1, 61) = 4.31, $p < .06$. No overall significant pre- to post-test gains were made by children in the understanding the appearance-reality distinction or deception comprehension. This analysis also yielded significant *Condition* x *Time* interactions indicating differences among groups on the extent to which ToM skills increased, including belief-desire understanding, $F$ (4, 61) = 4.10, $p < .01$, active deception, $F$ (4, 61) = 2.80, $p < .05$, and overall ToM score, $F$ (4, 61) = 6.16, $p < .001$, with a non-significant trend for the appearance-reality distinction, $F$ (4, 61) = 2.41, $p = .06$. However, no differences were found in the extent to which groups improved in deception comprehension.

Planned contrasts revealed that children who participated in interactive bookreading training improved in ToM abilities to a greater extent than children in the control condition (see Table 1), including understanding of belief-desire ($p < .01$), appearance/reality distinction ($p < .05$), active deception ($p < .05$), and Overall ToM score ($p < .01$) (see Table 1). No *Age* x *Time* interactions were observed in any of these models.

Results only partially supported the hypothesis that the presence of mental state themes would impact ToM outcomes. Children who were read mental state books improved to a greater extent on active deception abilities than children who were read non-mental state books (Pre *Mms* = 1.79, Post *Mms* = 3.00; Pre *Mnms* = 2.07, Post *Mnms* = 2.48, $p < .05$; see Table 1). The presence of mental state themes had no impact however on belief-desire and appearance-reality, nor on the Overall ToM score.

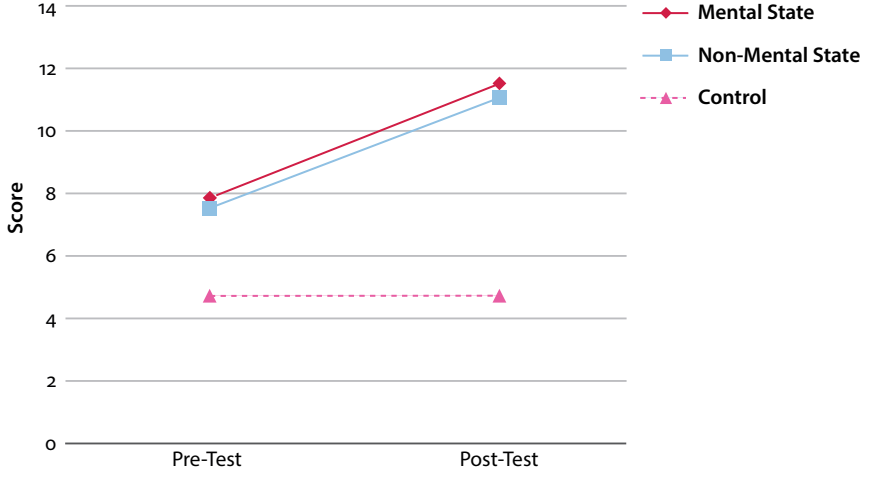


**Figure 1.** Overall theory of mind change from pre- to post-test for experimental and control groups

To explore the possibility that improvements in ToM skills obtained by the bookreading training groups were impacted (or influenced) by the presence of mental state language (e.g., think, know, figure, wonder) in storybooks, the frequency of mental state language in the storybooks used in both bookreading conditions was analyzed. While books in both conditions included mental state language, those used in the mental state theme condition, perhaps not surprisingly, included a significantly higher mean percentage of cognitive mental state words, and marginally more perceptual state words, than books in the non-mental state theme bookreading condition (see Table 2).

**Table 2.** Incidence of mental state language in mental state and non-mental state theme books

| **Booktype** | **Mental state theme** *M* **(SD)** *M***% of Total words** | **Non-mental state theme** *M* **(SD)** *M***% of Total words** |
|---|---|---|
| Cognitive Words (think, know)** | 11.83 (8.33) | 1.83 (1.47) |
| | 3.54% | 0.46% |
| Emotion State Words | 1.17 (1.17) | 1.67 (1.63) |
| | 0.33% | 0.39% |
| Desire Words (Object) | 0.17 (0.41) | 0.83 (0.75) |
| | 0.05% | 0.21% |
| Desire Words (Representational) | 0.33 (0.52) | 0.33 (0.52) |
| | 0.08% | 0.10% |
| Perceptual Words (see, look)$^{t}$ | 7.50 (5.01) | 3.33 (4.23) |
| | 2.63% | 0.79% |

*$p < .05$, **$p < .01$, ***$p < .001$, $^{t}p < .10$

## Discussion

The current study had two main goals: (1) to determine, in the context of a training study, whether participation in interactive bookreading could promote ToM abilities in low-income preschoolers; and (2) whether the presence of mental state themes within storybooks differentially impacted gains in ToM abilities over time. Results indicated that children who participated in interactive bookreading training improved in ToM abilities, including understanding of belief-desire, appearance-reality distinction, active deception, and in overall ToM score, to a greater extent than children in the control condition. Results, however, provided only partial support for the impact of mental state themes on ToM outcomes.

While children who were read mental state books improved to a greater extent in active deception abilities than children who were read non-mental state books, the presence of mental state themes in the storybooks did not affect belief-desire and appearance-reality outcomes, nor the Overall ToM score.

This study adds to the literature about the impact of narrative on ToM by providing evidence from a training study that interactive bookreading experience, with and without mental state themes, is effective in promoting ToM abilities in preschool-aged children. These findings are consistent with theories advanced by Bruner, Nelson, and Hutto (mentioned earlier) and suggest that, through active participation in narrative experiences, such as interactive bookreading, low-income children make gains in their ToM skills.

These findings also replicate and extend the findings from the narrative training study reviewed earlier. While Guajardo and Watson (2002) showed improvements in young children's ToM abilities when working with individual children, the current study promoted ToM abilities using small groups of preschoolers, and thus may have greater practical applicability in the classroom. Though it cannot be determined from the current study, it is possible that the success of our narrative intervention in the group setting may have been due to the repeated readings of a small number of books, with potential implications for child engagement and story comprehension (Goodsitt, Raitan, & Perlmutter, 1988; Phillips & McNaughton, 1990).

The present study also demonstrates that narrative experience can promote ToM for a low-income preschool population, who may be at risk for developing ToM understanding 1 to 2 years later than middle-class children (Cole & Mitchell, 2001; Holmes et al., 1996). Peskin and Astington (2004) also investigated a low-income population and provided evidence that bookreading resulted in enhanced ToM abilities. However, as their primary interest was the effect of explicit mental state language in stories, they did not include a non-narrative control group in their study. Findings from the current study therefore support and extend their finding that narrative training can enhance low-income preschoolers' ToM development. However, our results need to be considered in light of two limitations. First, the control group was approximately four to six months younger than the experimental groups. This age difference may imply different developmental propensities in improving ToM skills over the course of the study, independently of the training. To minimize this possibility, age was controlled in all analyses by including it as a covariate. Second, the control group in this study did not engage in any reading of books or 'coordinated' interactions outside their normal classroom activities. Therefore, it is possible that the greater gains in ToM obtained by the experimental children were due to participation in a greater member of coordinated back-and-forth interactions rather than to specific participation in bookreading. Further research is needed to investigate these alternative possibilities.

*Effect of mental state themes in storybooks*

A key aspect of this study was to examine whether the presence of *mental state themes* determined the extent of the narratives' impact on gains in ToM abilities. As mentioned, only deception abilities improved for children who were read mental state books. One of the reasons might be that the deception task is mastered earlier than other ToM tasks, as suggested by Chandler et al. (1989). They found that as young as 2 ½ years, middle-class children were able to demonstrate some ability to deceive someone else when playing a similar active "hide and seek" board game task, even though these children did not pass other ToM tasks, such as classic false belief tasks. It is also possible that children were more engaged in storybooks that included deception themes rather than appearance-reality or false belief, although this did not appear to be the case since the children seemed enthusiastic about all of the books, as demonstrated by their active participation in all the bookreading interactions.

*Other aspects of bookreading: Mental state language, mental state concepts, and character perspectives*

It may also be that other aspects related to storybook content, such as the frequency of mental state language in story text, which was not controlled for in this study, may have contributed to the absence of differential effects of the two bookreading conditions on the ToM abilities studied here. As mentioned above, we explored this possibility by analyzing the frequency of mental state language in the two bookreading conditions and found that the books used in the mental state theme condition included more cognitive mental state words and marginally more perceptual state words than those used in the non-mental state theme condition. In this respect, then, the results of this study are consistent with those by Peskin and Astington (2004) who found that greater mental state language in story texts is not associated with greater gains in ToM development. Our results seem to indicate that regardless of the frequency of explicit mental state language involved, narrative (at least in the context of story texts) is a special form of discourse, whose concern with the mental landscape of characters makes it a powerful medium for advancing young children's understanding of mind.

It is also possible that the structure of the books we selected, while different in terms of overarching themes, was similar in other ways, which may explain why ToM abilities were promoted in both training conditions. Close inspection of the storybooks used reveals that, although the non-mental state books did not have mental state themes and included less mental state language, they still involved instances of *mental state concepts*, that is, the use of a mentalistic explanation of

characters' actions in local episodes that do not necessarily permeate the entire book, as do mental state themes. For example, in *Spence is Small* (Chevalier, 1987), one of the books chosen for the non-mental state theme condition, a small boy uses multiple strategies to reach his crayons on top of the refrigerator (which is too high for him). This story centers on a *problem-solving* theme, which despite not being related to characters engaged in false belief, deception, or appearance-reality, involves characters with intentions engaged in goal-directed behaviors. Question-answer exchanges about such mental state concepts, regardless of the overarching book theme, may have been responsible for promoting perspective-taking and invoking mentalistic interpretations about characters' behaviors in the books, thus possibly leading to enhanced performance on ToM tasks.

An additional aspect of the story texts which may also have been important for promoting ToM development, but which was unexplored in the current study, was the degree to which the stories necessitated the coordination of characters' perspectives. As mentioned above, to equalize across conditions, books chosen for the mental and non-mental state bookreading conditions involved two characters or two groups of characters, with two main perspectives represented in the stories. For example, in *Spence is Small*, Spence's attempts to reach his crayons are juxtaposed with his mother's attempts to reach her earring under the couch (which she is too big to succeed). Luckily, the characters are able to coordinate their perspectives to solve both problems so that Spence's mom can reach the crayons while Spence can help to retrieve the lost earring. It is plausible that such coordination of characters' perspectives is critical for advancing ToM through bookreading. Support for this is embedded in Harris' (2006) discussion of the critical role of situation models in text comprehension, which are mental models involving the use of spatio-temporal frameworks to track characters engaged in goal directed pursuits within narratives. A key factor in the creation of a situation model about a story text is the perspective from which it is imagined. Accordingly, we might expect that books presenting different characters' perspectives (independent of mental state themes or language) may provide children with enhanced experience in creating and updating situation models, lending practice to taking the point of view of others (Rall & Harris, 2000), which could play an important role in the developing understanding of mind. Further research is needed to explore the different explanations offered here as to which components of bookreading or combination of them may be a driving force for ToM development, both as measured by experimental tasks as in this study, but also as demonstrated by children's understanding of the inner worlds of self and others that guide everyday actions and interactions.

## Conclusions and future directions

In sum, the current study explored the feasibility of using bookreading in classrooms to promote ToM development for groups of low-income preschoolers. It also provided evidence that *mental state themes* may play a role in at least some aspects of ToM development, as measured by experimental false belief, appearance-reality, and deception tasks. However, our finding that mental state themes had no impact on several of the ToM abilities tested indicates that further research is needed to delineate the factors playing a role in narratives' impact on ToM development. For instance, research needs to clarify the relative impact of storybook content and quality of explanatory conversational interactions around storybooks in young children's ToM development, which is a goal for future analyses using this dataset. In particular, our results clearly demonstrate that further studies are needed to disentangle the impact of *mental state language*, *mental state themes,* and *mental state concepts* present in books, as well as to determine whether the number of contrasting characters' perspectives may be another key element of narratives' effect on ToM development.

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CHAPTER 7

# Using narrative thinking in argumentative writing

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Narrative skills emerge in early childhood and are enhanced by exposure to oral traditions, bookreading, and caregiver questioning. Less is known about how argumentation skills develop, a question of increasing importance given that current standards specify that students should produce written claims with supportive evidence by the middle grades. In this chapter, we posit that narrative skills may be a transferable resource that facilitates students' emerging argumentation, as both are extended discourse forms that depend on a sophisticated understanding of the social world. Two embedded studies draw on argumentative essays written by 4th–7th grade students during the implementation of an innovative, discussion-based curriculum to explore the question of how students use narrative thinking in their argumentative writing. In Study 1 we identified three emerging patterns in student writing: using narrative thinking in warrants, rebuttals, and qualifications. In Study 2 we found that in a random sample of essays, 7th graders were significantly more likely than 4th graders to exhibit narrative thinking in their argumentative essays. Our findings suggest that narrative, sometimes thought to be an early-developing genre of little importance beyond the early grades, may in fact play an integral role in students' acquisition of sophisticated argumentation skills.

**Keywords:** narrative thinking, argumentation, discussion, genre, middle grade students

## Introduction

Many analyses of how children develop extended discourse abilities start by analyzing their narratives. These narratives include the stories of personal experience told by children as young as two, often with considerable adult support (e.g.,

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Uccelli, 2009), as well as the acted-out fantasy narratives that become frequent toward the end of the third year and for some children constitute prominent resources for solitary and peer play (e.g., Kyratzis, 2004; Nicolopoulou, this volume). In literate, middle-class households, parents and other caregivers nurture children's narrative propensities by eliciting reports of the day's events at the dinner table (Blum-Kulka, 1997), as well as by reading storybooks aloud and eliciting retellings, both at home (Mol, Bus, De Jong, & Smeets, 2008) and in preschool settings (Mol, Bus, & De Jong, 2009). In many social groups oral storytelling is a leisure-time activity (McCabe, 1997) as well as a mechanism for passing on crucial cultural understandings. There is no doubt that narrative experiences are ubiquitous in the environments of young children, and are represented very early in their own productions. In the words of Jerome Bruner (1991), "narrative comprehension is among the earliest powers of mind to appear in the young child and among the most widely used forms of organizing human experience" (p. 9). It is thus reasonable to hypothesize that, as children move into middle childhood and their narrative skills become more sophisticated, those skills might be a resource transferrable to other extended discourse genres, or even that narrative thinking becomes a tool useful in supporting performance in non-narrative tasks.

Though narratives predominate in young children's environments, several studies have pointed to the early emergence of genre differentiation in children's discourse. For example, children as young as three mark scripts linguistically in ways that distinguish them from personal narratives (Hudson & Shapiro, 1991), using generic forms of pronouns/nouns and timeless present verbs in scripts. Similarly, three- and four-year-olds conform to the cultural preferences of their families in their patterns of elicitation and production of explanations versus narratives (Aukrust & Snow, 1998). Slightly older children differentiate exposition from narrative in their writings (Berman & Nir-Sagiv, 2004), while clearly even very young children are capable of defending their positions and preferences, though typically with somewhat unsophisticated argumentative resources (see Scinto, 1986). Thus, though narrative forms may dominate the genres provided in input to young children, and though children's own narratives have been far more intensively studied than their other early extended discourse forms, there is no strong reason to think that alternative genres are beyond children's reach.

With the introduction in recent years of new educational standards defining expectations that middle grade students will produce claims buttressed by evidence and a logical chain of reasoning, these argumentation skills have moved to the center of discussion about curricular focus in the U.S. Those expectations are not, it should be noted, based on any solid body of evidence establishing the age at which children have the cognitive and linguistic resources to produce argumentation. Furthermore, they confront established educational practices that

focus almost exclusively on the comprehension and production of narrative texts by young students. Nonetheless, they do call for a more systematic analysis of how children develop the ability to argue, and how arguments differentiate themselves from narratives and other early-emerging genres.

The narrative bias of texts used in U.S. primary education (grades K-3, ages 5–9) has been somewhat tempered in recent years by attacks from several directions: evidence suggesting that narratives are not easier to comprehend than other genres (Pappas, 1993), that some students (a high percentage of boys, in particular) prefer to read and produce expository texts over narratives, and that narratives provide little preparation for the literacy tasks of the higher grades, when students will be expected to grapple with expository science and history readings (Duke, 2000). These findings have led to students being assigned a somewhat higher percentage of non-narrative reading, beginning in the earliest grades, a shift intensified and currently being accelerated by the pressure of the Common Core State Standards (Common Core State Standards Initiative, 2010).

However, this raises the question whether it is simply the increased exposure to expository texts that increases students' capacity to understand and produce non-narrative genres. In particular, does an increase in access to informational text shift students toward using facts rather than anecdotes when they are asked to argue for particular claims? An implicit assumption in these policy-driven questions is that time spent developing narrative skills is either irrelevant or detrimental to the goal of developing more sophisticated genre skills, including argumentation. But is that assumption evidence-based? In this chapter, we posit that the opposite may be true: narrative skills may enhance students' emerging argumentation by giving them ready access to the evidence of personal experience, which in turn provides content usable in formulating relatively sophisticated arguments. In other words, many claims can be defended with recourse to the kind of sophisticated understanding of the social world that narrative also requires.

The two modest studies we present here are a first effort to understand how students naturally construct arguments in writing, and to what degree they rely on narrative thinking in doing so. We know from the work of Kuhn and Crowell (2011) that students in middle school (ages 11–14, U.S. grades 5–8) can develop impressive argumentation skills if given recurrent opportunities to practice, collaborate, critique, and anticipate counterarguments on particular topics. In our study, students in grades 4 through 7 were asked to provide evidence in written essays to defend a position after only a small amount of instruction in the construction of arguments, but with exposure to a variety of expository and narrative resources relevant to the topic about which they were arguing.

In the first study, we report emerging patterns we found in the use of narrative thinking in argumentative essays written by students in the fourth and sixth

grades during the implementation of an innovative, discussion-based curriculum. In the second study, we look for evidence of narrative thinking in 60 randomly selected argumentative essays written by students in grade 4 (ages 9–10) and grade 7 (ages 12–13) from the same curriculum. We use these analyses to cast light on a few questions about the development of argumentation, and in particular whether there is any role for narrative in that development:

1. How do students use narrative thinking in their argumentative writing?
2. How prevalent is evidence of narrative thinking in students' argumentative writing in grades 4 and 7?
3. What reliance is there on narrative thinking in argumentative writing across grades?

## Setting for the studies

The data reported here were collected in the context of a curricular innovation developed by the *Catalyzing Comprehension through Discussion and Debate* (CCDD) research project, a large-scale school-level cluster randomized evaluation of the impact of classroom discussion and debate on middle grade students' reading comprehension. In the larger study, the curriculum was implemented in U.S. 4th through 8th grade classrooms serving students in both urban and semi-urban schools. The curriculum introduced into the classroom, called *Word Generation,* organizes the reading, writing, and word study activities of each unit around a guiding question or dilemma. Each unit-based question is designed to have no correct answer, as a mechanism for ensuring opportunities for students to debate it without recourse to the teacher as an authority, and as an incentive to students to read the materials provided in order to collect evidence in support of the position each of them formulates on the question.

The original version of Word Generation (Snow, Lawrence, & White, 2009) was designed as a brief (15 minute) daily enrichment activity for students in grades 6–8 (ages 11–14) (Lawrence, Capotosto, Branum-Martin, White, & Snow, 2012; Lawrence, Crosson, Paré-Blagoev, & Snow, 2015). The materials used in that version, now called WordGen Weeklies, continue to be used in grades 6–8 in conjunction with the science and social studies units described below. The data we present here derive from the more elaborated second-generation version of the program (Duhaylongsod, Snow, Selman, & Donovan, 2015; Snow et al., 2009), which extended the model by developing 10-day units meant to be implemented for 45 minutes per day in grades 4 and 5 (WordGen Elementary), and 5-day social studies (SoGen) and science (SciGen) units designed for use in 45–60 min classes

for 6 weeks each in 6th, 7th, and 8th grades (all the curricular materials produced are available at wordgen.serpmedia.org). Both the elementary and the middle school versions prescribe a sequence of activities that culminates on the second to last day of each unit with a debate on the unit's dilemma, and on the final day in each unit with a 'taking a stand' essay in which students were asked to argue for their own position on the dilemma, drawing on the evidence accumulated over the course of the unit. It is these final argumentative essays that we analyze here.

The written essays were typically produced in a period of 15 to 20 minutes. They are first drafts, written as 'think pieces' rather than polished essays. The essays were not typically graded or commented on by the classroom teacher; in many cases they were not even read by the teacher. Thus, these are low-stakes student products, and the degree of effort students invested in them reflected their level of engagement with the topic of the unit more than interest in getting a good grade.

The enhanced Word Generation program was implemented in 12 schools in four different school districts; the writing samples analyzed here were collected from classrooms in five schools in three districts, in which essays from a total of 951 students were available for the 2012–2013 school year. In classes where the program was being implemented, 29% of the students were Black and 20% Latino, 13% were English Language Learners, 23% eligible for special education, and 66% eligible for free or reduced price lunch. Teachers in these classrooms had received varying amounts of professional development, and were all visited regularly by a coach whose responsibility was to provide support and guidance in implementation.

## Study 1

For the first study, we started by reading through hundreds of argumentative essays written by 4th and 6th-graders whose classrooms were implementing Word Generation. We focused on identifying evidence of narrative thinking in these essays, coding passages as containing narrative thinking if they included: (1) at least one character or generalized group; (2) a real or imagined situation or scenario; and (3) at least one real or imagined event that leads to a resolution or outcome. Here we describe three emerging patterns we found: the use of narrative thinking in warrants, rebuttals, and qualifications.

### Evidence of narrative thinking in warrants

One pattern that emerged was evidence of narrative thinking in students' presentation of warrants – lines of reasoning or principles that connect evidence or reasons

to a claim (Toulmin, 2003), as seen in the following essay example written by a 6th-grader. This essay was produced at the end of a unit entitled 'Should school be a place for debate?' Spelling and punctuation are uncorrected in this and all other student examples.

> Example 1.
> My perspective is that debates should be allowd in school but not only debates. You should be able to have a grade in written asements too. You should have debates because you might have a bias over something like wareing a seatbelt well driving a car. When you have a debate like this you first might think not wareing a seat belt is ok but with a debate you can finaly have a different opin over something. You also have written asements too because debateing takes up a lot of time so if you spend time learing how to speak outloud you will miss out on important stuff like math and reading and science. You need this stuff in life too not only speaking out loud. If you have the perspective about only written asesments I have one thing for you the kids that have to do this will be borede all the time and with debates kids have a little fun in class.

One possible interpretation of the argument's structure is as follows:

> Claim: debates in school are good but should be used in conjunction with written assessments
> Grounds for having debates: you might have a bias
> Warrant connecting grounds for debates and claim: debates can enable you to get over your bias
> Grounds for having written assessments: debating takes up a lot of time
> Warrant connecting grounds for written assessments and claim: if you spend all your time debating, you'll miss out on important subjects
> Response to anticipated counterargument: kids will be bored all the time if they only do written assessments, whereas having debates (along with writing) allows kids to have fun.

The first warrant in the example above (*you first might think not wareing a seat belt is ok but with a debate you can finaly have a different opin over something*) contains evidence of narrative thinking, as we have defined it. The use of *you* indicates a generalized group. The imagined situation is having a debate about seatbelts, and the outcome from the debate is *you* having a different opinion about seatbelts. (Note that the instructional materials for this unit made no reference at all to seatbelts; this specific example came from the student's own experience.)

This next essay, written by a 4th-grader, displays even more clearly than Example 1 the use of narrative thinking in warrants. It was produced at the end of a unit entitled *What is fair?* that focused on the social issue of inclusion vs. exclusion. The specific writing prompt asked students to produce a response explaining

why they agreed or disagreed with one of three tweeted positions. Each of the positions was elaborated in a brief (more than 140 character!) essay:

> @iluvbacon: Equal treatment for everybody!
> @tacojello: We have the right to decide!
> @qtpie: Kids need to make the rules!

Words taught in the unit were *decision, chosen, exclusion, discuss,* and *suggest.* Since the students were encouraged to incorporate these words into their essays, they are used in this essay in slightly unconventional formulations.

> Example 2.
> I think that qtpie is right because when you discuss to people what you think you can solve a problem. Let's say that your slow and small so your excluded from mosed games. But sometimes you do get to play and then your chosen to be the tager. That's not fair! Because every one knows that your slow. So now your sad and you want exclusion to stop. Well you can get in a group with some people that feel the same way and some people that don't. but at the end you come up with some great decisions and help exclusion stop.

The warrant in Example 2 could be rewritten as a full-blown narrative:

> Example 2a.
> Lee was slow and small. He got excluded from most games. Every once in a while he would get chosen for a game of tag, but only to be the tagger, which was humiliating because he could never catch anyone! When this happened Lee suffered from the unfairness of the situation and vowed to fight social exclusion! One day, he decided to join up with other kids in his class – some who were slow like him, and some who weren't. Together they discussed the issue and made some rules that reduced playground exclusion.

Alternatively, the essay could be rewritten as a traditional argument:

> Example 2b.
> Discussion is the best method for solving social problems like playground exclusion. Many children are excluded from active games because they lack athletic talent, or are included only to serve as easy prey for larger, faster players. The unfairness of this situation can be addressed by forming a diverse discussion group in the context of which solutions can be sought.

We realize that these two 'rewritings' of the original essay (Example 2a for the narrative 'rewriting' and Example 2b for the argumentative 'rewriting') are 'rich interpretations' of the original essay (Example 2). Nonetheless, while these alternative versions are more genre-true, and more conventionally correct, than the student's original version, they do not expand in any way on the information or line of

argument presented in the original. The fact that the original essay can be rewritten as **either** narrative or argument shows how intertwined those two elements are in the original student essay; the line of thinking in the essay is expressed through the embedded, generic social scenario, thus undercutting the discursive purity of both narrative and argumentative genres.

## Evidence of narrative thinking in rebuttals

The second pattern that emerged is evidence of narrative thinking in another element of argumentation: exception to a claim, what Toulmin (2003) refers to as a rebuttal. To illustrate, this next example was drawn from the same prompt as Example 2.

> Example 3.
> Just because a lot of people ask you "do you want to play." You don't have to play with all of them. You choose who you want to play with. It's not their decision who you play with. Like for example one day you're playing with some friend that you promised that day you would play with only them. Then someone [asked] you "hey can I play?" But you promised your friends. So if you have to discuss it with them. Tell them that you promised your friends that you would only play with them. So suggest "would you like to play with me tomorrow?"

In this essay, a fourth-grader very cleverly comes up with an exception to the claim that kids should never exclude others. The student displays evidence of narrative thinking by describing a social scenario: Two kids are playing together, a third kid asks to join in, one of the original two kids explains the promise he made to play only with the friend he's currently playing with, then the kid who made the promise asks the third kid to play tomorrow. Though this scenario appears to be quite simple, it demonstrates rather sophisticated thinking by the young writer, given young students' tendency to agree that excluding others, at least those who do not demonstrate meanness or bossiness, is always bad (Killen & Rutland, 2011). Through the narrative-like sequence, the student author brings values into play – a promise made to a friend takes precedence over including a nice kid in a game one is playing. And, of course, with the introduction of values comes many more opportunities for rich and compelling arguments.

## Evidence of narrative thinking in qualifications

A third pattern was evidence of narrative thinking in the presentation of qualifications, elements of argumentation that specify the limits to a claim (Toulmin, 2003).

This next and last example, which illustrates a qualification containing narrative thinking, was written by a 6th grader on the debate topic *Should students be paid to do well in school?*

> Example 4.
> I think being paid in school is a good implement to do well in school. Money is a great incentive that helps motivate kids to want to undertake more tasks. I think kids should be paid to do well in school but not for test grades but for effort and conduct. Say a kid has all A's but doesn't try like he leaves all his homework on the counter at home has all the answers but talks out in class. But a kid with all D's and F's brings in his homework always raises his hand but has all wrong answers. That kid would probably stop trying give up as they watch everybody else get money and they do not that is not fair.

One interpretation of this argument is that the student claims that being paid to do well in school is a good idea, but she goes on to specify what they should be paid for and what they should not be paid for. She then backs her qualification with an imagined scenario featuring two different kids: the lazy "A" student and the hard-working "D/F" student. This scenario allows the writer to demonstrate how getting paid for good grades can be very unfair for a subset of students, and thus they should be paid for effort and conduct instead. Such scenarios may also lead students into more advanced integrative arguments where students are weighing the positives and negatives of each side, i.e., whether a good student should be defined as the one who gets good grades or the one who works hard, when these do not coincide.

The qualitative approach undertaken here illustrates how students in grades 4 and 6 go beyond genre boundaries by incorporating narrative thinking into their argumentative essays. They formulate specific warrants, rebuttals and qualifications as quasi-narratives – narratives that lack the specificity of particular characters or events, but that nonetheless draw on the rich folk knowledge of human psychology already acquired by students as young as ten. Formulating those same elements of argumentation in the abstract terms that might be expected in a sophisticated argument is likely more challenging, and perhaps less effective, than relying on shared knowledge about human behavior to make the points.

## Study 2

The examples in Study 1 provide intriguing evidence of how students display narrative thinking to support, rebut, and provide qualification in their written arguments about the actions and choices of other (fictional) students like themselves.

But how widespread is this phenomenon, and how might it differ by age? In Study 2, we undertook a quantitative approach to examine how frequently we see evidence of younger and older students relying on narrative thinking in their argumentative writing.

## Methods

### *Sample selection*

In order to compare evidence of narrative thinking in arguments written by younger students (grade 4) with those written by older students (grade 7), we selected essays with prompts that were very similar. As seen in Table 1, two of the topics from each grade (on school uniforms and on learning a second language) are directly comparable across grade levels. In order to expand the number of essays in our dataset and explore whether the same developmental patterns held with different essay prompts, an additional topic was chosen for each grade level that shared superficial similarities (on safety and toxic chemicals in grade 4 and on legalizing drugs in grade 7) but proved to elicit very different responses, as described below. One hundred sixty-four essays[1] on the six selected topics, all from one of the school districts in the larger study, had been previously transcribed using Computerized Language Analysis (CLAN) software available through the Child Language Data Exchange System (CHILDES; MacWhinney, 1991). From the 164, we randomly selected 10 essays on each topic with no two essays written by the same student, for a final sample containing 60 essays by 60 unique students.

**Table 1.** Essays selected by grade and essay topic (n = 60)

| **4th Grade Topics** | | **7th Grade Topics** | |
|---|---|---|---|
| *Does arguing make you smarter? The case of school uniforms* | (n = 10) | *School dress codes: Not strict enough?* | (n = 10) |
| *Should everyone learn a second language?* | (n = 10) | *Should American students be required to learn a second language?* | (n = 10) |
| *Who gets to decide what's safe?* | (n = 10) | *Should drugs be legalized?* | (n = 10) |

1. Essays containing 15 words or less were determined to be too short to be included, as they were either unfinished or did not attempt to address the writing task.

*Participants*

Sixty-two percent of the students in the sample were female and 48% qualified for free or reduced lunch. Thirty percent were racial minorities, 10% did not speak English at home, and 18.33% received special education services. We also compared the background characteristics of the sample by grade level, to be sure that there were no significant differences between the two age groups. Although there were some small imbalances between the grade 4 and grade 7 participant demographics, a series of Chi-square tests showed no significant differences (see Table 2).

**Table 2.** Background characteristics of participants by grade

| | **4th grade (n = 30)** | **7th grade (n = 30)** | **Chi square (1)** | **P-value** |
|---|---|---|---|---|
| Female | 70% | 53.33% | 1.7626 | $p = .184$ |
| Low SES background* | 50% | 46.67% | .0667 | $p = .796$ |
| Minority ethnicity | 36.67% | 23.33% | 1.2698 | $p = .260$ |
| Not English at home | 13.33% | 6.67% | .7407 | $p = .389$ |
| Receive SPED services | 13.33% | 23.33% | 1.0019 | $p = .317$ |

* Receiving free or reduced lunch

*Defining narrative thinking*

For this analysis, we used the same criteria for identifying evidence of narrative thinking as applied in Study 1. This broader definition was required because unlike the personal narratives described by Labov (1997) and Berman and Nir-Sagiv (2007), and the fictional narratives collected by Berman and Slobin (1994) in their seminal Frog-Story project, the story-like passages within the argumentative essays in this sample rarely referred to specific events told in past tense about specific characters. Instead, most were hypothetical scenarios that described imagined outcomes. Longobardi, Spataro, Renna, and Rossi-Arnaud (2014) found that 3rd-5th graders wrote more sophisticated hypothetical than personal narratives, suggesting that such narratives are a good site for sophisticated thinking. In this study hypothetical narratives were often offered as evidence for taking a particular stance on the topic (see Figure 1 for examples).

"If you legalized drugs people will want to do drugs because they can. Also if drugs were legalized people would start getting addicted. … If people get addicted they will want everyone to try it. … If they legalize it, then in about a decade everyone would probably be doing drugs."

"I think that students should learn a second language because if they do, they can interact with more people. If someone is multicultural and they know all they have to know on their home language, they should learn a third, distinct, language because if they take a class with a language they already know, they won't learn anything."

**Figure 1.** Examples of passages containing evidence of narrative thinking from two different 7th grade essays

### *Inter-rater reliability*

All 60 essays were coded by the first author. Two research assistants (both blind to the research question) coded a subset of the essays. We selected fifteen percent of the sample at random to be coded by the first author and the two research assistants, who coded together as a team. An 89% agreement among raters was reached on whether an essay contained one or more passages with evidence of narrative thinking (K = 0.77).

## Results

### *Overall trends*

Thirty-five percent of the 60 essays (n = 21) contained at least one passage with evidence of narrative thinking, and of these, 86% (n = 18) described hypothetical scenarios and only 14% described a personal experience (n = 3). Additionally, two essays described personal experiences but did not meet the requirements for narrative thinking as defined in this study. Overall, it appeared that the students seldom called on specific personal experiences as examples within their argumentative essays, but about a third of them did deploy narrative thinking to play out potential outcomes in the form of hypothetical scenarios. This finding is consistent with the patterns found in the examples from Study 1, in which students used hypothetical narratives as elements of argumentation. It is important to note that the majority of the 60 essays (65%, n = 39) did not contain narrative thinking, suggesting that in the middle grades, most students seem to adhere to the perceived constraints of the non-narrative genres they are asked to produce.

*Differences by grade*

We found a statistically significant difference between students in grade 4 and those in grade 7 in the frequency with which they included at least one passage showing evidence of narrative thinking in their essays ($X^2$ *(1, n = 60) = 8.86, p < .01.*) Figure 2 shows that while only 16.67% of 4th grade essays contained these narrative-like bursts, this proportion was 53.33% for the 7th grade essays. These findings suggest that older middle grade students are more likely to use narrative thinking in their argumentative writing than younger ones. While there are many plausible explanations for this shift, including increased fluency with writing and argumentation more generally, it runs counter to any expectation that younger students would initially rely more heavily on narratives to buttress their inchoate argumentation skills. Instead, it echoes Berman and Nir-Sagiv's (2007) finding that, with age, students tend to relax rigid boundaries between genres and incorporate more narrative-like passages in their expository texts, recapitulating Werner's (1948) observation that differentiation precedes integration.

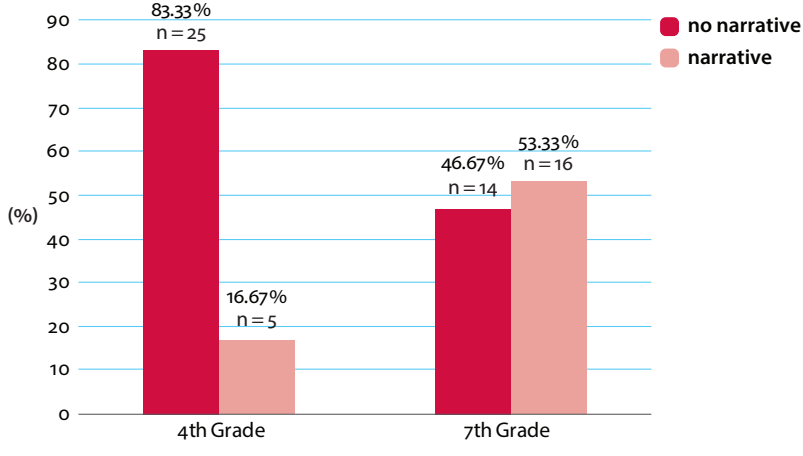


**Figure 2.** Percentage of essays that contain no evidence of narrative thinking compared with essays that contained evidence of narrative thinking, by grade

*Differences by topic*

When the topics for each grade were examined, it appeared that the 7th grade topic *Should drugs be legalized?* was dramatically more likely to generate narrative thinking (see Figure 3). Ninety percent of the essays written on this topic contained one or more narrative passages, compared to only 10% of essays written on the 4th grade prompt "Who gets to decide what's safe?" When essays written on *Should drugs be legalized?* were not included in the sample, the observed difference

between 4th and 7th graders' use of narrative thinking persisted (16.66% vs. 35%) but it was much smaller and no longer statistically significant at the .05 level ($p = 0.137$). This finding calls into question whether age explains differences in the use of narrative thinking in students' argumentative writing, or if a sufficiently engaging and personally relevant topic would elicit a similar use of narrative thinking from students of any age. Future studies with matched prompts across grades should consider investigating the possibility of an interaction between topic and age to see if certain topics elicit more narrative thinking in the older students' argumentative writing compared to younger students.

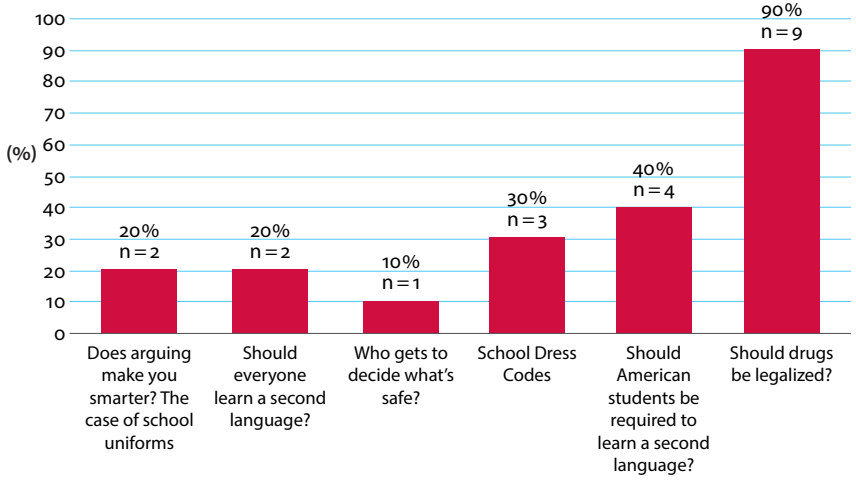


**Figure 3.** Percentage of essays with evidence of narrative thinking by grade and by topic

## Discussion

The findings of these two studies help illuminate how narrative modes of thought are deployed for purposes of argumentation by 4th to 7th grade students. In Study 1, the patterns we uncovered revealed that narrative thinking underpinned **different elements** of argumentation, often enhancing students' emerging argumentation. In Study 2, we found that grade 7 students are significantly more likely to use narrative thinking in their argumentative writing than grade 4 students. These findings suggest that, rather than simply reflecting the heavy exposure to narrative in early elementary instruction, students' use of narrative thinking in their argumentative writing may signify a developing sophistication, in which they leverage narrative skills to begin producing effective elements of argumentation.

In a cross-sectional study, Crammond (1998) found that warrants (connections between claims and evidence that appear frequently in the arguments of

expert writers) are generally absent from the argumentative writing of grade 6 students, and that their occurrence increases only slightly in grades 8 and 10. The same holds true for warrants in the oral argumentation of 4th, 6th and 9th graders, in the subjects of literature, history, and science, respectively (Anderson, Chinn, Chang, Waggoner, & Yi, 1997; Jimenez-Aleixandre, Rodriguez, & Duschl, 2000; MacArthur, Ferretti, & Okolo, 2002). This notable absence of warrants may be explained by a failure to know when a warrant is needed (Matsuhashi & Gordon, 1985), a lack of background knowledge (Berland & Reiser, 2009), or the sheer difficulty of making a logical connection between a claim and the evidence used to support it. The findings of this study suggest that students can more easily generate warrants through narratives. Because students readily follow the logic of stories, their ability to choose the best evidence for a claim is enhanced within narrative settings. Thus, as students' understanding of the need for solid warrants in argumentation increases with age, their exploitation of narrative thinking may also increase.

Similarly, Crammond (1998) found that students' use of rebuttals (exceptions to claims) in argumentative writing also increased as students advanced through the grade levels. Rebuttals in writing often require students to imagine another's opposition to their arguments. As suggested by the findings of this study, students' command of narratives allows them to imagine entire scenarios or cases in which their original claim does not hold. Thus, if students' use of rebuttals increases with age, as research suggests, then the use of narrative thinking as one source for those rebuttals might also be expected to increase.

So, the question arises, is this evidence of narrative thinking in argumentative writing an indicator of inadequate control over the argumentative genre? Or is it an indicator of sophistication in narrative, in that students are abstracting away from traditional narratives by using narrative-like social scenarios in their argumentation? We think it is probably a bit of both. Students need to learn how to write traditional arguments that are concise, articulating complex lines of reasoning in just a few words. But until this skill is taught explicitly, using narrative thinking simplifies the task of making sophisticated argumentative links between claims and evidence, and generating and articulating rebuttals and qualifications.

Reforms in education are more often reactive than visionary, and not always based on research findings. Nevertheless, they sadly capture attention, demonstrate initial success, and ultimately take hold through widespread, perhaps even mandated implementation. The widespread implementation reveals the limitations of the approach, and then rather than analyzing where it works and where it needs to be improved, it is swept away as another approach – too often its direct opposite – is embraced. In the field of literacy instruction, the swings of the pedagogical pendulum have been particularly violent, as seen in the whole language

versus phonics debate that raged throughout the 20th century (see Snow & Juel, 2005 for a review).

One of the most radical shifts within the *Common Core State Standards* is the requirement that half the reading materials assigned in the primary grades be informational, with the proportion growing to 80% by high school, and that student writing assignments from early on be analytic (argumentative, for all intents and purposes) rather than narrative. In light of the findings from this study, we believe this shift away from narrative in early literacy instruction is an overreaction. We see considerable value to balancing narrative and argumentative writing in the early grades, as narrative can be a powerful entry point to the abstract reasoning that is required for effective argumentation. Corollary claims, all of which could be tested, include the hypotheses that students' analytic thinking is more sophisticated about problems presented with human-psychological rather than sociological or physical content and that narrative representations of conflicting positions on issues are more effective in promoting comprehension of the conflict than expository representation of those positions.

It is important to emphasize that we are not promoting narrative over argumentation here. Argumentation is a key skill for literacy, citizenship, and participation in adult life. Furthermore, while we recognize the value of a salient anecdote in underscoring one's position in a debate, we are not endorsing the notion that unqualified anecdotes are evidence or that a sequence of anecdotes makes a good argument. Rather, we are proposing that developing sophisticated and nuanced views of certain issues may be easier if narrative resources are brought to bear, for a number of possible reasons. First, personal experience encapsulated in narratives can be a source of evidence and of warrants for many kinds of claims. Second, narrative thinking allows the utilization of analytic skills that have been well honed in interaction with others, where alternative points of view often need to be negotiated. Finally, of course, narratives can be effective rhetorical devices when appropriately integrated into arguments. Thus, we are hypothesizing that the student essay writers in our sample were using narrative **for thinking** in sophisticated, analytic ways.

As educators undertake to improve students' argumentation skills earlier than ever before, they should be careful not to denigrate the use of narrative in the elementary and middle grades. We found that students as young as 9 or 10 employed narrative thinking in elements of argumentation, and that evidence of narrative thinking within argumentative writing increased over the course of the middle grades. These findings suggest that, rather than being simply an early emerging, default genre, narrative writing may be used by students in sophisticated ways to begin producing the more cognitively demanding argumentative writing emphasized in the Common Core. This implies that rather than a violent swing of the

pendulum away from narrative forms, we should instead reexamine how students' narrative abilities can be strengthened and leveraged to improve their argumentation skills in the long term.

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PART II

# Promoting narrative skills

CHAPTER 8

# New frontiers in facilitating narrative skills in children and adolescents

## A dynamic systems account incorporating eight narrative developmental stages

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Despite evidence that early narrative abilities are predictive of school-age literacy skills and academic achievement, only limited progress has been made in understanding how these narrative skills can be promoted. One theoretical framework that discusses the contextual conditions which are especially crucial for learning to take place is *dynamic systems* theory (Nelson et al., 2001; Thelen & Smith, 2006) which emphasizes the nonlinear dynamic convergence of multiple aspects. It has been suggested that cognitive, perceptual, motor, social, emotional, motivational, structural challenges, dialogic patterns, and current neural network conditions must all reach threshold levels of convergence to support advances in language (Nelson & Arkenberg, 2008). The current chapter utilizes this framework to provide a detailed account of the mechanisms that support advances in narrative skills in early childhood through adolescence. The detailed account of the eight stages of narrative development incorporates prior descriptive research on children's storytelling and story retelling skills as well as intervention work examining the effectiveness of explicit teaching of story structure on narrative outcomes. This section further extends the literature by including a discussion of the skills and conditions that are expected to support highly proficient and expert narrative performance. The chapter concludes with a discussion on how theoretically-derived refinements in teaching procedures could facilitate narrative skill acquisition and lead to sufficient advances in preschool children to support higher levels of school-age language, literacy, math, and science achievements.

**Keywords:** narrative, development, stages, intervention, non-linear dynamic convergence, storytelling skills, teaching procedures

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## Importance of narrative

Learning to produce one's own narrative and comprehend the narratives of others is fundamental to children's success in social relationships and shows critical links to early literacy skills (McCabe & Rollins, 1994; Reese, Suggate, Long, & Schaughency, 2010) and academic achievement (Curenton & Justice, 2004; Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Fazio, Naremore, & Connell, 1996; Paris & Paris, 2003; Peterson & McCabe, 1994; Snow, 2007; Tabors, Snow, & Dickinson, 2001). For academic progress, it is essential that children learn to comprehend many varied academic text narratives. One way of preparing children for these narrative-related challenges could be through exposure to engaging and challenging oral narratives. Yet, serious attention to teaching narrative skills has been lacking in curricula and teaching procedures at both the preschool and early elementary school levels. The current chapter will review the prior literature on narrative interventions that have been causally effective and identify the features of these interventions that appear to support and facilitate narrative development in children. We will use these empirical findings to expand on our previous writings and provide a more elaborated account of the mechanisms by which children advance in their narrative ability. In addition to presenting a more differentiated account of the stages of narrative complexity across childhood, we will also specify the successful "dynamic mixes" of socio-emotional, cognitive, linguistic, perspective-taking, and interactive conditions that either limit or promote children's advances in narrative skills. We will conclude with a discussion of promising new directions for innovative narrative intervention approaches.

### *A profound puzzle*

Children in modern westernized societies typically are given massive exposure to narratives between one and six years of age. This exposure includes countless books, parents' personal narratives, videos, films, television shows, and multimedia. Despite all of this exposure, research to date indicates that most children by age six have only modest skill in telling or comprehending complex narratives. This paradoxical outcome leaves us with the deep puzzle of why children do not more readily acquire narrative complexity by hearing and/or viewing thousands or more narratives at home, preschool, and kindergarten.

One wedge toward understanding what kinds of interactions actually scaffold children's advances in narrative skills comes through a small number of rigorous intervention studies that are explicit about children's pre-test skill levels, the types of interactive intervention procedures employed, and the specific gains made as a result of the intervention. The majority of prior intervention studies have been

lacking in terms of explicit teaching of story structure or in assessing gains in complexity of story structure across the course of the intervention (Bowyer-Crane et al., 2008; Gillam, McFadden, & Van Kleeck, 1995; Feagans & Farran, 1994; Peterson, Jesso, & McCabe, 1999; Zevenbergen & Whitehurst, 2003). These studies have, however, shown selective improvement in narrative production abilities, particularly in terms of length of the narratives generated and increased competency in the use of linguistic devices such as temporal references and references to characters' emotions. When repeated exposure to stories is combined with explicit instruction regarding story components or "story grammar" (Mandler & Johnson, 1977; Stein & Glenn, 1979), this can provide a powerful scaffold for children in their active construction of story schemas. This technique has been utilized successfully by only a handful of intervention studies with preschoolers (Hayward & Schneider, 2000; Khan, Nelson & Whyte, 2014; Xuan, 2006, described in more detail in a later section in this chapter).

## A new theoretical model for narrative development

Our theoretical framework is influenced by a dynamic systems perspective (e.g., Thelen & Smith, 2006). More specifically, we see all domains of language as emerging from nonlinear interactions between multiple cognitive, social, emotional, and contextual conditions. This perspective has had the heuristic effect of helping to create new narrative intervention conditions and will be used in this chapter to guide proposals for new interventions. In line with this perspective, we seek to identify particular conditions of cognitive readiness and particular conditions of learner-tutor interactions that dynamically converge at a high level with social and emotional factors to scaffold high rates of acquisition in the narrative domain.

### *Processes underlying narrative development and narrative level attainment across early childhood*

Before we outline a theoretical model of narrative development and describe the discrete stages of narrative development that children need to progress through in order to attain proficiency in narrative skills, it would be useful to examine the processes underlying narrative abilities. Producing a coherent narrative requires individuals to set up a hierarchical goal structure consistent with the event structure in the story, and to plan and monitor the organization of their narrated events. Some of the developmental literature indicates that the most rapid pace of developing story grammar knowledge and competence occurs between 4 to 8 years of age (Berman & Slobin, 1994; Schneider, Hayward, & Dubé, 2006), with 5-year-olds

including more story components in their narrations compared to 4-year-olds (Munoz, Gillam, Pena, & Gulley-Faehnle, 2003; Price, Roberts, & Jackson, 2006). A common feature of 3- to 4-year-old children's narratives is that they tend to lack causal connections between events, and when character states or outcomes are identified, these tend not to be linked to the main plot line. Sustained plans of actions are sometimes present in 5-year-old children's narratives, indicating an increasing ability to structure and organize higher level goals. Lynch et al. (2008), for instance, demonstrated that 6-year-olds recall a greater number of story events that had more causal connections to other parts of the story compared to 4-year-olds. This sensitivity to causal structure, that is, being more likely to recall events that have more causal connections than other events, is present in both children and adults (Lynch et al., 2008; van den Broek, Lorch, & Thurlow, 1996), but adults include more complete episodes in their narratives overall. The difference in child and adult narrative event content can be explained by multiple processing and developmental constraints.

First, children are still acquiring the ability to deal with representational complexity. Some cognitive developmental theorists (Case & Okamoto, 1996; Demetriou, Christou, Spanoudis, & Platsidou, 2002; Halford, Wilson, & Phillips, 1998) conceptualize this constraint in terms of a limit on the number of operations that can be processed in parallel. Others such as Frye, Zelazo, and Burack (1998) view this constraint as a limitation in the complexity of rules that a child can formulate and use for problem solving. Rules that have multiple embeddings, such as "If the character is successful on a particular attempt, then refer back to initial goal formation and provide resolution and conclusion for main episode; otherwise, proceed to subsequent attempt" would be categorized as highly complex according to this Cognitive Complexity and Control Theory. Such operations would necessarily draw on children's cognitive resources, such as working memory capacity, processing speed, and more complex executive function skills such as planning, monitoring, and shifting attention.

Another developmental phenomenon that might account for children's narrative performance is their ability to understand intentionality and glean, or infer, information about goals and goal plans. More specifically, children have to gain knowledge about event relations and cause-and-effect contingencies in order to be able to transform and manipulate event sequences successfully in their narratives (Slackman, Hudson, & Fivush, 1986). On a related note, processing and encoding a well specified story event map and constructing a narrative retelling requires planning abilities as well as dynamic online monitoring of story events to check if character attempts are successful and that events and outcomes are related back to a conceptual plan of action on the part of the protagonist. Case and Okamoto (1996), in their discussion of the emergence of central conceptual structures

specific to narrative skills, suggest that young children are actively developing a new form of "psycho-logic" between the ages of 4 and 7 years as they integrate rudimentary theory-of-mind abilities with narrative abilities. This emergence of "psycho-logic" is identified as being the key mechanism which enables children to link story events with character motivations and narrate stories that are goal-based or plan-based in nature.

Finally, the ability to establish internal discourse cohesion is only gradually developed across childhood. In particular, the ability to flexibly deploy linguistic devices to mark character reference and perspective, and to maintain these references throughout the story telling process, is incrementally acquired through childhood and even during adolescence. Referential adequacy, which has been measured as clear and unambiguous reference to the character/s throughout the story improves from 3 to 5 to 8 years of age. Reintroduction of a particular character and maintenance of a character's perspective in particular has been shown to be more difficult than simply introducing a character or set of characters for young children (Berman & Slobin, 1994; Chen & Pan, 2009; Colozzo & Whitely, 2014; Wong & Johnston, 2004). In addition to appropriate nominal and pronominal use (Bamberg, 1987: Berman, 2004), a variety of linguistic forms serve the function of creating cohesion within and between sentences, including but not limited to: complex coordinate sentences, tense/aspect/modality markers, temporal adverbs, switch reference devices, voice shifts (Jisa, Reilly, Verhoeven, Baruch, & Rosado, 2002), relative clauses, nouns, pronouns, ellipsis, locatives, and indefinite determiners (Hickmann, 2004; Kail & Hickmann, 1992). The cognitive and planning burdens associated with narrative lexical density and diversity may take as late as late adolescence to reach fruition (Strömqvist & Verhoeven, 2004). Successful use of evaluatives, and in particular the use of evaluative devices to signal the hierarchical organization of a linear sequence of events, is also acquired gradually across childhood. Karmiloff-Smith (1986) and Karmiloff and Karmiloff-Smith (2001) demonstrated that when young children between the ages of 5 and 7 years were edging into slightly more advanced levels of narrative production, they often showed temporary regressions in the levels of syntactical and lexical sophistication of their narratives. This regression likely reflects some overloads on processing capacities along with the re-organization of their approach towards how narratives should be structured from a more bottom-up approach (with a greater focus on discrete components such as an overreliance on subject pronominal use) to a more top-down approach (with a greater focus on thematic content). The final stage in the development of narrative cohesion is successful integration of both sentence-level and narrative-level structures but this stage is typically not attained until late childhood. Bamberg and Damrad-Frye (1991) examined preschoolers' narratives for evaluative devices and found that that even though 5- and

9-year-old children include more references to characters' emotions compared to adults when constructing a narrative using the "Frog, Where are You" picture book, these were local, evaluative perspectives rather than integrations across the larger episode/s. In general, using linguistic devices to establish connections that require integration across a lot of information or distance in the story tends to be especially difficult for young children.

It should be noted that a limitation in understanding the true capacities of children in the narrative domain comes from the absence of a sophisticated narrative assessment tool with high construct and face validity. The predominant methods of assessing narrative skill have relied upon quite short, simple stories. For example, narrative skill tests look at just the number of sentences and number of episodes for The Frog Book series (Mayer, 1967), or the amount of information recalled from a 168-word script in the case of the Renfrew Bus Story (Renfrew, 1977). Despite these simple complexity levels of the most-researched stories, most of the 4 to 8 years old children are far below mastery of the narrative structures and events.

Next, we will summarize across multiple studies by age levels. Because results are highly similar for children at pre-test before they participate in intervention and for children who are in entirely naturalistic, non-intervention studies, this summary draws from and integrates results from both types of studies (Chang & McCabe, 2013; Feagans & Farran, 1994; Johnson, 1983; Khan et al., 2014; Lai, 2013; Lynch et al., 2008; Nicolopoulou & Richner, 2007; Peña et al., 2006; Peterson & McCabe, 1994; Peterson et al., 1999; Price et al., 2006; Sah, 2013; Trabasso & Rodkin, 1994; van den Broek et al., 1996; Veneziano & Hudelot, 2009; Veneziano, Hudelot, & Nir, 2014; Veneziano & Plumet, this volume; Xuan, 2006; Zevenbergen & Whitehurst, 2003). At each level, Table 1 summarizes modal results from multiple studies that utilized one of these or similar stories: The Frog Story (Mayer,

**Table 1.** Synthesis of narrative performance across multiple studies by age level

| Age | Narrative skill index | Performance |
|---|---|---|
| 3–4 years | Story Content | 40% |
| | Causality & Linkages | 7% |
| 5 years | Story Content | 49% |
| | Causality & Linkages | 20% |
| 6 years | Story Content | 54% |
| | Causality & Linkages | 17% |
| 7–9 years | Story Content | 60% |
| | Causality & Linkages | 42% |

1967) and Bus Story (Renfrew, 1977). In order to provide general estimates of narrative skill for the different age groups across diverse studies, we integrated somewhat diverse specific measures.

## Stages of narrative development and conditions that support acquisition

### *Stage 1: Younger than 3 years of age*

*Context.* At this stage, children produce simple, non-causally marked sequences which are typically observed within dramatic play or with books, props, and external supports.

*Structural model.* Absent

*Memory and executive function capacities.* Working memory capacity is limited at this stage, with an average span for sequences of numbers, pictures, and other non-narrative content consisting of 2–3 items. Executive function abilities in terms of planning and coordination are evident only for simple plans of a few events and complex executive functions are virtually absent. Information processing speed is low at this stage.

*Integration across domains of narrative skills.* According to a comprehensive account of language acquisition, the rare event learning mechanism (RELM, Nelson, 1989), much language learning is based on rare events, or isolated moments of understanding, which arise from localized "hot spots" of intellectual realignment. According to this theory, children proceed through stages of preparation, analysis, assessment, and finally consolidation of new language structures. A "hot spot" for narrative acquisition evident at this stage involves converting some dramatic play sequences to very simple oral narrative beginnings. There is also limited evidence for the construction of maps of relations between different narrative exemplars.

*Language complexity.* The complexity and variation in grammatical structures serving narrative complexity is restricted to simple active sentences.

*Perspective-taking abilities.* Children's perspective-taking skills, as evidenced by theory-of-mind tasks such as the Sally-Anne task (e.g., Baron-Cohen, Leslie, & Frith, 1985) assessing the ability to attribute false beliefs to others, are below or at the first-order (i.e., they may recognize that others have different beliefs than they do, but have trouble identifying the beliefs of others regarding other individuals' beliefs).

*Stage 2: 3:0 to 3;11*

*Context.* At this stage, there is an introduction of some causally marked sequences in children's narratives, which are now observed beyond dramatic play in the form of short oral narratives. These oral narratives may be elicited without books, props, or other external support.

*Structural model.* Three story grammar components at most are typically observed in children's narratives. A general pattern is that narratives at this stage describe isolated character states and actions rather than organizing them by a goal or theme. The major part of children's narratives consists of state changes or what Trabasso and Nickels (1994) refer to as "neutral outcomes." There is also typically very little explicit sequencing of events, and it is rare to see a sequence of a goal-attempt-outcome episode. Additionally, there is no inclusion of the overall goal or first-order goal in their story telling.

*Memory and executive function capacities.* Long-term resources of narrative exemplars are expanding, but still variably retrieved. Working memory capacities are now expanded to an ability to recall and perform operations on 3–4 items of sequences of numbers, pictures, and other non-narrative material. Simple executive function capacities are evident for simple plans for 3–5 events and complex executive function demands are very low. There are modest advances in speed of processing, which assist in emerging narrative skills.

*Integration across domains of narrative skills.* There is evidence for active acquisition of specific causal markers (e.g., then, because) and character introduction. In terms of the acquisition of maps of relations between different narrative exemplars and types, there is now some simple mapping between storybook-supported individual narratives.

*Language complexity.* The complexity and variation in grammatical structures serving narrative complexity is restricted to simple active sentences. Additionally, narratives at this stage reveal "juvenile connectivity" with most utterances not being connected to adjacent utterances lexically or syntactically (Berman & Slobin, 1994). If connections exist at all, these exist for sequences within an episode, but no between-episode connections are evident.

*Perspective-taking abilities.* Theory-of-mind skills are still basic, and at the level of first-order theory-of-mind tasks. In terms of providing character orientation information, characters are usually identified but information about how they are related to one another is typically absent at this stage. There are also few, if any, references to character motivation or intentions. Using Nicolopoulou and Richner's

(2007) typology for character representation, children at this stage conceptualize characters as "actors" or non-mentalistic characters as is evident from their description of only the external characteristics and actions of story characters.

*Stage 3: 4;0 to 4;11*

*Context.* A hallmark of this stage is the introduction of a partial narrative plot. Oral narratives tend to be pretty short and choppy. Berman and Slobin (1994) provide a fairly classical example of a narrative at this stage:

"A owl's flying. Snow in there. **And** the boy tried to climb up it**. And** he did. **And** the dog is going away. A deer trying, jumping over, **and** a dog's running away with the deer. **And** the boy on top of the deer." (p. 177).

*Structural model.* Children are able to produce on average about four story grammar components in their narratives. Subordinate goals emerge at this stage; some children will include actions that are relevant to a goal plan in their narratives, but will not explicitly link these actions to a plan or purpose. This is reflective of limited understanding about character motivations or intentionality which is very poor at this stage. In the case of the narratives generated from wordless picture books (such as the "Frog Where Are You" book series), children's story telling at this stage may include references to goal plans, but only if the information is perceptually available.

*Memory and executive function capacities.* Long-term resources for storage of narrative exemplars are now expanding but still variably retrievable. Working memory capacities allow for retrieval and processing of 4–5 items from sequences of numbers, pictures, and other non-narrative material. Simple executive function capacities allow for management of simple plans for 3–5 events. Complex executive function abilities are still very low. There is another modest increase in speed of processing abilities.

*Integration across domains of narrative skills.* Hot spots of acquisition are evident for specific causal markers, new connectives, first simple hierarchies, and character motivations. In terms of developing maps of relations between different narrative exemplars, children now show high rates of mapping between different storybook-supported individual narratives.

*Language complexity.* Some advances in complexity and variation in grammatical structures include appropriate tense marking, simple conjunctions, and simple modifiers (e.g., adverbs).

*Perspective-taking abilities.* Theory-of-mind abilities at this stage advance to the point where children are able to pass simple second-order belief tasks. Character references are clearer at this stage, insofar as children will introduce characters and their relation to one another.

Based on Nicolopoulou and Richner's (2007) classification of character representations, children at this stage are able to describe characters as "agents" with more information than previously on psychological capacities such as feeling, communicating, and responding to events or to other characters in the story.

*Stage 4: 5;0 to 5;11*

*Context.* Children at this stage produce simple narratives, containing inconsistent character introductions and switches between character referents, a high number of simple causal connectives, and some weak integration across episodes.

*Structural model.* Models of story grammar are not complete at this stage, and there is still a lack of structural models for different narrative genres, contexts, listeners, and purposes.

Hierarchical organization of goal plans begins to emerge at this stage. Children will orient the listener to shifts in the story, new attempts in an episode sequence, and begin to provide reasons or a rationale for the characters' actions. Some children at this stage will frame the story in terms of the overarching goal or at least identify the main goal of the story. Additionally, cross-episode or between-episode connections begin to emerge.

*Memory and executive function capacities.* Many dozens of narrative exemplars have now been stored in long-term memory, but are not systematically retrievable. There is a corresponding increase in working memory to now include about six items. Simple executive function capacities are now crucial for supporting new levels of simple narrative success. Complex executive functions in comparison are present but very weak. A slight increase in speed of processing helps support narrative performance.

*Integration across domains of narrative skills.* The first simple levels of seeking maps of relations between different narrative exemplars and types are now evident.

*Language complexity.* At this stage, character introduction/ re-introduction and maintenance across different utterances is being refined. In order to clearly maintain reference to characters throughout a story, or switch reference between characters, children need to be able to flexibly use nominal and pronominal forms (Colozzo & Whitely, 2014; Hickmann, Hendriks, Roland, & Liang, 1996;

Schneider & Hayward, 2010; Wong & Johnston, 2004). Some concurrently developing language abilities that have been theorized to support this increase in referential adequacy include development of more precise vocabulary, multiple-clause sentences, and use of noun phrase elaborations to more clearly specify the referent. Some researchers additionally acknowledge the link to changes in cognitive resources, such as working memory capacity, and in cognitive control (Case & Okamoto, 1996; Just & Carpenter, 1992; Montgomery, Polunenko, & Marinellie, 2009; Nelson, Craven, Xuan, & Arkenberg, 2004; Whitely & Colozzo, 2013) as allowing for greater control and flexibility during discourse production.

*Perspective-taking abilities.* This is the first stage where character motivations start to be identified. Using Nicolopoulou and Richner's (2007) categories for character representation development, children are now able to envision characters as being "persons" who are differentiated and have more complex representational beliefs, desires, intentions, and emotions that motivate or direct action.

### *Stage 5: Around 6–7 years of age*

*Context.* Modestly complex narratives are now observed with multiple subplots, better character introductions and switches between character perspectives, more explicit causal relations specified, and frequent integration across multiple episodes.

*Structural model.* The story grammar model is now complete, but it is not yet smoothly coordinated and integrated. Children now begin to use slightly different structural models for different narratives for different contexts, listeners, and purposes.

*Memory and executive function capacities.* Long-term storage of narrative exemplars now expands to hundreds, which are more rapidly retrievable. Working memory supports retrieval and processing of about seven items. Simple executive function skills dynamically contribute to narrative performance, and complex executive function skills are recruited to support planning, monitoring, editing, switching, and integration during storytelling. There is also an associated modest increase in speed of processing.

*Integration across domains of narrative skills.* At this stage, there is the first instance of occasional, top-down seeking of maps of relations between different narrative exemplars and types. There is an associated increase in parallel pattern abstraction for problems and resolutions, causality, character emotions, attitudes, and reactions.

*Language complexity.* In terms of complexity and variation in grammatical structures, there is development in the use of sophisticated syntax to convey causal connectedness between story events. Examples of such syntactic constructions include coordinated conjunctions ("If the bear climbs the ladder, then he will be able to reach the honey") and embedded clauses ("Michelle screamed when she saw the spider that dangled from the tree branch").

*Perspective-taking abilities.* Children achieve modest skills in integrating multiple plot lines and character perspectives in their story telling. According to Case & Okamoto (1996), this is achieved by the development of a new central conceptual narrative structure that allows for the comprehension and production of multidimensional narratives.

### *Stage 6: Proficient narrators*

*Context.* Proficient narrators plan from top-down and incorporate a wide range of flexible devices for local cohesion as well as overall coherence. Their narrative is thematically motivated from one or more thematic perspectives. They coordinate and subordinate appropriately and are highly mindful of listener and context (Berman & Slobin, 1994; Hickmann, 2004; Karmiloff-Smith, 1986; Karmiloff & Karmiloff-Smith, 2001). Their narratives contain multiple sub-plots with unambiguous character introductions and switches between character perspectives, explicit causal relations, and integration across many episodes of varying type.

*Structural model.* Story grammar models are complete and fully specified with multiple reiterations stored in long-term memory. There is an awareness and use of different structural models for different narrative contexts, listeners, and purposes.

*Memory and executive function capacities.* There is long-term storage of many hundreds of narrative exemplars which are rapidly retrievable. There are modest increases in working memory. Simple executive function skills help support narrative performance, but complex executive function skills are now recruited more heavily to enable high levels of planning, monitoring, editing, switching, and integration. Speed of processing increases substantially at this stage.

*Integration across domains of narrative skills.* In terms of "hot spots" of acquisition, there is very active top-down seeking of maps of relations between different narrative exemplars and types, including identification of many different structural models. There are also more extensive parallel pattern abstractions for problems and resolutions, plot and episodes, causality, references outside narrative,

adequacy of character introduction and tracking of emotions, attitudes, reactions, and evaluation of characters.

*Language complexity.* Many multiple clause sentences are utilized by narrators, including embeddings, relative clauses, coordinate terms, full range of tenses, introductions to character speech, as well as hierarchical coordination and integration of events.

*Perspective-taking abilities.* Advances in these abilities allow for tracking of three or more viewpoints and reactions within episodes as well as relation-building across episodes for theory-of-mind states to be established for each character.

### *Stage 7: Expert level for narratives*

*Context.* At this stage, there are high levels of advanced pre-planning of narrative with editing to refine characters, dramas, local cohesions, and consistent coherence. There are also high levels of hierarchical packaging of events, episodes, and sub-plots. Narratives contain multiple sub-plots with unambiguous character introductions and switching of perspectives, detailed characterization and differentiation of character voices and tones, explicit causal relations, highly differentiated goals, plans, and resolutions, and integration across multiple episodes of varying type. Explicit summaries and integrations are now present at the end of narratives.

This, and every preceding stage, can be achieved without literacy and mastery of written narrative comprehension and production. However, in most modern cultures, such mastery of written narrative comprehension and production will strongly scaffold advanced stages of oral narratives.

*Structural model.* Further increases are observed in awareness and use of different, highly complex structural models for narratives for different contexts, listeners, and purposes.

*Memory and executive function capacities.* There is long-term storage of many hundreds of narrative exemplars, which are rapidly retrievable and subject to parallel processing. Working memory increases in functional terms, that is, multiple buffers work in parallel and cooperation to achieve substantial increases in functional working memory capacity and abilities to abstract and plan complex patterns. Simple executive function skills dynamically contribute to narrative performance but are less crucial than in previous stages. In terms of complex executive function skills, there are very high levels of planning, monitoring, editing, switching, manipulation and comparison of possible narrative sequences, as well as integration and management of multiple sub-plots. These play out somewhat

differently in written narratives, oral narratives, and hybrids of these. Speed of processing increases even more substantially, primarily due to narrative-specific practice-based improvements in parallel retrieval and parallel storage processes. The efficient use of multiple buffers further supports these processes.

*Integration across domains of narrative skills.* There is extremely active and mindful top-down seeking of maps of relations between different narrative exemplars and types. Many "hot spots" of acquisition are noticeable, including identification of different structural models, as well as tracking of multiple authors and narrative sources.

*Language complexity.* Stacking of multiple connectivity devices is evident at this stage. There is also a corresponding dense hierarchical layering of story grammar components, themes/ subthemes, plots/ subplots, contexts and circumstances, as well as tones and shifts in tones. In terms of complexity and variation in grammatical structures, there are now many multiple clause sentences and some embedded "paragraph-like episodes", including rich embeddings, relative clauses of all types, coordinate terms, complex locatives, introductions to character speech, variations in character speech style and tone, narrator commentaries and interpretations of characters and events, and causal markers.

*Perspective-taking abilities.* Advances support tracking of multiple characters' viewpoints and diverse reactions to single story episodes along with monitoring of changes in reactions across multiple episodes of a narrative.

### *Stage 8: High expert level in narrative*

*Context.* Exceptionally high levels of advanced pre-planning of narrative is evident at this stage, with attention to editing in order to refine characters, dramas, local cohesions, and sub-plots. High levels of hierarchical packaging of events, episodes, and sub plots are also evident. Now some remarkable language, cultural, and contextual specialties are observed in high expert narratives. To experience just a few such variations, visit the prose poems of Mary Oliver (1997), the travel/ nature/meditation writing of Peter Matthiessen (1986), and the nature writing of Sy Montgomery (2010). Narratives consist of multiple interwoven and coherent sub-plots with unambiguous character introductions and switching, detailed characterization and differentiation of character voices and tones, explicit causal relations, highly differentiated goals, plans, and resolutions, and integration across many episodes of varying type. Explicit summaries and integrations appear near the end of narratives and at selected earlier points.

*Structural model.* Includes all story grammar components with multiple reiterations; high awareness and use of different structural models for narratives for different contexts, listeners, and purposes.

*Memory and executive function capacities.* Long-term storage of many thousands of narrative exemplars, which are rapidly retrievable. Working memory operates with multiples. Simple executive function is now a small dynamic part of high levels of narrative production, comprehension, and reflection skills. In contrast, complex executive functions are now recruited in the form of extremely high levels of planning, monitoring, editing, switching, extension/elaboration, surprise/drama/humor, and integration. Speed of processing increases beyond stage seven based upon extensive practice effects as well as further functional reorganization in the brain.

*Integration across domains of narrative skills.* There is mindful orientation to new types of narrative and new variations on already-known types. Maps of relations between different narrative exemplars are very extensive and include identification of different structural models and plots, storyboards, and plans, but are also continually being updated at behind-the-scene parallel levels. There is consequently a high awareness now of many genres and specialties and very high expertise in subsets of particular interest for the narrator.

*Language complexity.* Complexity and variation in grammatical structures include many multiple clause sentences and precisely coordinated events and sub-plots, including very rich embeddings, highly complex relative clauses, very diverse, coordinate terms, explicit references back to specific prior episodes, explicit introductions to character speech, oral narratives so clearly marked for transitions that a transcript would encode paragraph transitions.

*Perspective-taking abilities.* Theory-of-mind and many varied perspective-taking skills are sophisticated and central in the creation, comprehension, and enjoyment of narratives.

## Theory-based proposals for innovations in narrative teaching

According to our review of the literature and our detailed new stage account of narrative development, it is evident that for children at 3 to 6 years of age we should expect that very few children will have learned to produce or comprehend narratives of high complexity. This holds true for most children in the different cultures studied thus far (e.g., Gutiérrez-Clellen & Quinn, 1993; Peña, 2007; Wang, Leichtman, & Davies, 2000).

Yet, at the same time we must consider the possibility that if children were given dramatically different learning opportunities in the preschool period, most children would be able to handle fairly high-complexity narratives. Our dynamic-systems stage account provides many clues to how newly-effective mixes of learning conditions could be arranged to promote narrative skills. Additionally, a handful of studies have successfully created more optimal learning conditions by considering individual differences in children's learning styles. The "hybrid" narrative and language intervention conducted by Xuan (2006) is an excellent example of using theoretical work to generate new sets of conditions which might support and facilitate language acquisition to inform the design of an intervention study. The teaching strategy employed in this study was three-pronged: (1) story grammar was taught by having children match story components to the appropriate story-structure labels and organizing them in the correct temporal sequence, (2) character evaluative (e.g., emotional, perspective, attitudinal) information gains were supported by the use of the dialogic reading techniques of open-ended questions and back-channeling (Zevenbergen & Whitehurst, 2003), and (3) syntactic challenges were introduced to the children by using the recasting method (Nelson, 1987; Nelson & Arkenberg, 2008; Nelson et al., 2004). Thirty 4- to 5-year olds were randomly assigned to either the six-week hybrid intervention or a control condition and were well-matched on pre-test language skills and narrative ability. The story components that were focused on in this study were settings, initiating events, attempts, internal responses, consequences and reactions. After the intervention, children included more evaluative information in their narrative compared to the control group, with a large effect size of 0.77. The structure of the intervention group narratives was also more complex, containing more story grammar components and more complete episodes (i.e., complete sequences of initiating events, attempts and consequences; cf. Stein & Albro, 1997; Stein & Glenn, 1979). Finally, language skills (sentence recalling skills and vocabulary) were found to be moderately correlated with narrative skill, ranging from 0.38 to 0.56. It should be noted, however, that given this emphasis on teaching children the meaning of story grammar components, there was less emphasis on the structural sequence of these components. Further instruction and clarification on how story components are linked together to form locally coherent and globally cohesive narratives are expected to result in more complete episodes and an increased percentage of more sophisticated narratives, that is, narratives with multiple episodes and integration of different character perspectives.

A recent study by Veneziano, Hudelot, and Nir (2014) similarly provides rigorous specification of teaching/scaffolding activities and changes in children's narrative skills from pre-intervention to post-intervention. Control, non-intervention children made few gains but children at 6, 7 and 8 years of age all increased their

narrative skills through participation in a conversational scaffolding procedure with an emphasis on causal understanding and the importance of providing explanations for events and character reactions. Narrative coherence for simple stories advanced for intervention children at all ages as did the deployment of more clauses with embedding and with subordination to help carry the increased narrative clarity on causality. The authors conclude that the conversational exploration of causes successfully led the children to significant advances in narrative structure understanding and in deploying more sophisticated French language syntactic devices in the service of telling better-structured stories.

Another recent narrative intervention examining the impact of strategic placement of choices – at points in the story corresponding to critical story components – on preschoolers' narrative abilities (Khan et al., 2014) provides some empirical validation for the notion that exposing the causal structure of stories to children may have important consequences for narrative skills' development. This study tested the effectiveness of a novel narrative teaching strategy with 26 preschoolers aged between 3 and 5 years. Children were either assigned to an "active-choice" condition in which they were allowed to choose between two picture cards for each of the six story components highlighted (including character, setting, initiating event, problem, solution, and resolution) or a "no-choice" condition in which component sequences were pre-selected by the experimenter to mimic those from active-choice participants. After eight sessions, children in the active-choice group showed significantly higher narrative comprehension and reasoning abilities and included more episodes in their narratives elicited using the wordless "Frog, Where are You?" picture book series compared to the no-choice children. The active-choice group also outperformed their peers on a standardized story retelling task. The additional gains in narrative comprehension and production made by the active-choice group may be attributed to increased motivation and engagement with the story materials. In line with previous findings that allowing children choices and control over some aspects of a learning activity results in increased task persistence and intrinsic motivation (Cordova & Lepper, 1996; Nelson, Welsh, Camarata, & Tjus, 2001), the increased engagement with story materials for the active-choice group may have enabled these children to pay greater attention to the causal sequence of story components. This increased salience of story components and how they connect and influence other components in the story trajectory would in turn allow for abstraction of a more specified map of how particular problems impact or cause subsequent solutions and resolutions. Along the same line of reasoning, it is hypothesized that future research utilizing strategic choice placement in teaching more complex story structure, that is, stories with multiple embedded episodes or converging story lines and subplots, will scaffold children's narrative abilities to an even more sophisticated level of proficiency.

In generating guiding principles for developing narrative interventions based on the Dynamic Tricky Mix (Nelson et al., 2004) model, it is important to ensure that children's encounters with complex narrative examples are arranged in multiple, converging ways to allow mixing of scaffolds for planning, monitoring, shifting, elaborating, hierarchical, and integrative processes with scaffolds for unusually positive emotional, attentional, and social engagement.

## Five new strategies for raising narrative skills in children and adolescents

Below, we propose five broad innovative strategies with some specification on the types of methodological innovations that hold promise for improving narrative skills in children and adolescents. All of these are rooted in the above review of the small number of interactive, dynamic systems-based interventions that have so far proved effective. They are rooted further in the preceding specification of the eight stages of narrative skill development.

### *Scaffolding executive functions*

Interventions could aim to promote the necessary cognitive executive function skills that support high levels of narrative. If this could be achieved in the normal course of children's encounters with narrative material, then children could be expected to abstract and generalize new levels of narrative structure. For example, procedures could be added that would dynamically support planning, shifting, appropriate inhibition, and monitoring within particular narrative exploration episodes. Perhaps, children could be asked to adopt a character role, track the character's moods, and anticipate their reactions during the story.

A recent analysis from our lab highlights the notion that higher-order cognitive skills are likely key foundations for children's abstraction and use of complex narrative structures. Four-year-olds who ranked in the top quartile for narrative skills showed strikingly, significantly higher scores of cognitive executive functions (EF) than 4-year-olds in the bottom quartile. Specifically, the children with more advanced narrative skills were significantly higher on Tower of Hanoi planning skills ($t(45) = 3.12$, $p < 0.01$), verbal fluency skills ($t(45) = 4.54$, $p < 0.01$), task switching skills ($t(45) = 4.90$, $p < 0.01$), sentence completion and recall span skills ($t(45) = 5.35$, $p < 0.01$), and backward digit span skills ($t(45) = 3.07$, $p < 0.05$).

### *Dealing with cognitive overload from memory limitations and plotline complexity*

Interventions could utilize strategies of narrative presentation, discussion, and manipulation that explicitly aim to keep the challenge to the children's cognitive resources from the narrative material considerably simpler than in any interventions to date. Under these new mixes of conditions, children may make good narrative skills progress without waiting for advances in general planning, monitoring, integrating, and shifting skills. Repeated reading and exploration of the same narrative has been used as one strategy for helping struggling readers to better analyze the relations between spoken words and written words. This could be adapted to help children at stages 3 and 4, with relatively limited working memory and complex executive function skills, build up representations over repetitions of the same narrative. Such a gradual increase in the adequacy and sophistication of the long-term memory representations would allow the children to capture causal relationships, plot relationships, and story grammar patterns that would facilitate their progress toward narrative stages 4 and 5.

### *Supporting understanding of characters' motivations and goal structures*

Playful variations on characters' speech/actions could include illustrations of greater character/plot sophistication as well as invite the child to attempt more explanations of events and of characters' perspectives (cf. Veneziano & Hudelot, 2009; Veneziano et al., 2014). Interactive teaching mixes thus might wisely include request/repeat/recast sequences, as in the following questions asked just after a character utterance or action:

"You did *what*?" "*But why* did you do/say that?" "What might the character do/say next?"

### *Teaching causality*

Rather than sticking with one version of a narrative, mentors could guide the children toward exploring dynamic variations on a narrative. The children could learn to play with and analyze 'broken' narratives where particular components are omitted or scrambled. Learning to recognize and 'repair' such narratives (cf. Hickmann, 2004) could powerfully engage the children's pattern abstraction mechanisms and their motivation for narrative improvements generally. Interventions could jointly deploy the procedural steps specified above and go further to combine those dynamically with support from spatial models that visually scaffold story events, sequences, and reactions. These spatial models would

sometimes be 2-dimensional and sometimes 3-dimensional, and vary in their completeness and complexity according to each child's developmental level in understanding maps and models (cf. Troseth, Bloom, & Deloache, 2007). After some trial explorations of such models it is expected that spatial models would further ease the burden of a narrative on cognitive resources by laying out visually and spatially both the sequence of problems, attempts, reactions, and resolutions along with pictorial reminders of characters, actions, contexts, and events at each key 'node' in a story. Some scaffolding from visual/spatial models could be deployed in teaching interactions at any of the narrative stages 2 to 7. Possible advantages for narrative processing from the visual displays versus a purely oral narrative include: redundant information, seeing explicit sequences of events in a simultaneous visual format, and an ease of 'back-tracking' to remind oneself about what has happened before the current event in the oral narrative.

In some respects, these models would resemble some popular children's games in which each player's character moves along a physical board or map and encounters a mix of positive and negative events (cf. *The Game of Life,* 1985, The Milton Bradley Co.). If such models do indeed help a child attend to, abstract, and remember new levels of story complexity and new levels of nested hierarchies while the model is present, after multiple experiences of such learning a child would be expected to use more sophisticated planning and monitoring and more sophisticated storytelling even without the scaffold of a visual model.

### *Embedding linguistic complexity in narrative teaching*

Individual differences in children's mastery of complex syntactic structures such as coordinative conjunctions, locatives, relative clauses, embeddings, and passives might be woven into individualized plans for facilitating children's progress in narrative skills. Questioning and recasting by a mentor could layer examples of complex syntax (again, tailored to each child's syntactic profile) into a mix of other interactions that are helping the child to analyze and remember narrative plot, theme, causality, and story grammar (cf. Xuan, 2006). At the same time, and within some of the same interactive child/adult episodes, other components of a positive Dynamic Tricky Mix such as humor, high positive mood, and high attention could also be added as dynamic facilitators of processing of new challenges in narrative and syntax. Indeed, new procedures for engaging children in analyzing more complex syntactic structures led children at 3 to 6 years of age to acquire complex structures they lacked, such as full passives, tag questions, and complex relative clauses over the course of only 10 to 20 hours of intervention (e.g., Nelson, 2000; Nelson & Arkenberg, 2008; Nelson et al., 2004). This rapid developmental progress under new mixes of challenging conditions gave proof that the children

already had in place sufficiently powerful pattern abstraction, working memory, long-term memory, and planning structures for supporting acquisition of these complex syntactic structures. However, their actual acquisition awaited the arrival of engaging conversational episodes that smoothly converged the challenging syntax with supportive back-and-forth exchanges and positive socio-emotional states (Baker & Nelson, 1984; Camarata & Nelson, 2006; Nelson 1987; Nelson et al., 2004).

## Summary and conclusions: Children's shockingly low narrative skills at 4 to 8 years of age

Young children in the literature reviewed above demonstrate remarkably low narrative skills. We highlight three main concerns regarding children's narrative skill development. First, in most studies around the world, children at 4 to 8 years encountering or inventing a new, unfamiliar, unpracticed story demonstrate only very limited understanding of these fundamental narrative components: an integrated story structure, plot, sophisticated internal and mental states, causality, differentiated perspectives, and inference.

Second, although many scholars recognize the high value of sophisticated narrative skills as a foundation for academic as well as social skills, schools and preschools allow low narrative skills to go unaddressed in their curricular activities and their assessments. For children whose language and literacy environment is impoverished, such as those from low socio-economic backgrounds, any way of raising narrative skills before school entry could have far reaching positive impacts on the futures of these children. As Lai (2013) notes in the context of Taiwan:

> The finding that structural development of working-class children was significantly less advanced than their middle-class counterparts raises an important issue regarding multicultural education in Taiwan. The knowledge of how events need to be organized is critical not only for communication in schools but also for later literacy development. (p. 135)

Third, there are shockingly few rigorous narrative intervention studies at ages 4 to 8 years. Yet, those that are available converge in indicating that modestly challenging and quite brief interventions that address causality, internal states, story structure and/or new syntactic structures to carry story sophistication do indeed promote advances in narrative skills. Further, there are multiple clues pointing toward more ambitious interventions that could likely raise children's narrative skills before school entry to levels that would ensure children's mainstream success in literacy, math, and other academic domains. Such interventions surely

would need to reach greater than 20 hours of narrative interactive teaching and also incorporate multiple genres of narratives along with levels of plot and story structure that are markedly more complex than those so far explored in interventions. Script or story grammar structures should be targeted along with particular components of discourse cohesion and coherence that needs to emerge in a narrative (cf. Hickmann, 2004). Success of the interventions, from a dynamic systems theoretical perspective, would also be greatly enhanced by directly addressing individual differences in a range of cognitive skills including processing speed and executive function skills of planning, shifting, monitoring and perspective-taking, with some tailoring of intervention procedures both to the child's current narrative stage level and to their cognitive profile.

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CHAPTER 9

# Precursors of narrative abilities

## Non-present talk, temporality development and topic elaboration in early parent-child interaction

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It is important to pinpoint precursors that predict later narrative skills. This study explores and attempts to clarify the role of three aspects assumed to be relevant for later narrative abilities. Data of three middle class Dutch children are analyzed. The design combines the assessment of narrative abilities at age seven with the analysis of spontaneous parent-child interaction between the ages of 1;9 and 3;9. Results suggest specific relationships between on the one hand parental verbal behavior in non-present talk (NPT) and one facet of narrative abilities, that is *narrative productivity*; and on the other hand between child factors, such as initiating behavior and early temporality development, and another facet of narrative abilities: *complex narrative language.* The study suggests implications for working with children with a language delay such as using NPT to elicit child initiatives in NPT, and stimulate children's topic elaboration.

**Keywords:** precursors, narrative abilities, parent-child interaction, non-present talk

### Introduction

Oral narratives are generally regarded as the gateway to literacy and a strong predictor of academic performance (Curenton & Lucas, 2007; New Standards, 2001; Scarborough, 2009; Scheele, Leseman, Mayo & Elbers, 2012; Snow, Burns & Griffin, 1998; Tannock, Purvis & Schachlar, 1993). Children who have good oral narrative skills have been shown to develop better reading abilities than those with a lower level of oral narrative skills (Bishop & Edmundson, 1987; Chang, 2006). Moreover, as Wenner, Burch, Lynch and Bauer (2008) argue, the assessment of oral narrative skills is a window on children's expressive language development. In research on language impairment and multilingualism, narratives also form an important

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component of assessment (Duinmeijer, de Jong & Scheper, 2012; Gagarina et al., 2012, this volume; Pearson, 2002; Uccelli & Paez, 2007). Considering the crucial position of narrative ability it becomes clear how relevant it is to describe narrative development in detail and to pinpoint those aspects of early development that contribute to the emergence of good narrative skills. Most research on precursors of narrative skills is based on two main sources: the research by Snow and colleagues (Ninio & Snow, 1996; Snow et al., 1998; Uccelli, 2009; Uccelli, Hemphill, Pan & Snow, 2005) and the research by Reese and colleagues. (Fivush, Haden & Reese, 2006; Reese, 1995).

This chapter will discuss potential precursors of later narrative development zooming in on three areas that, in previous research, have been found to predict later narrative ability: (1) engagement in non-present talk (Ninio & Snow, 1996; Uccelli et al., 2005); (2) temporality development, that is, the ability to mark tense and position an utterance in time (Uccelli, 2009); and (3) elaboration of topics involving past events in oral conversation as investigated by Reese (1995) and Nelson and Fivush (2004).

The theoretical framework for the role of non-present talk (NPT) – that is, talk directed at the non-here-and-now – in the development of later narrative ability, was presented by Ninio and Snow (1996). These authors claimed the following (Ninio & Snow, 1996, p. 172):

"Young children are capable of participating in connected discourse because of the nurturant support of adult conversational partners; tiny units of topic-centered discussions that emerge from discussions of joint foci of attention develop in length and complexity and eventually support a shift to discussions of more remote topics – topics related to the present, non-present topics, fantasy play, and abstract and hypothetical topics. Ultimately, these conversationally embedded stretches of discourse also free themselves from conversational support, and children develop the capacity to produce several turns in a row without prodding or feedback from the interlocutor; eventually, they are able to tell stories, give explanations, make arguments, and generate other forms of autonomous extended discourse."

Thus, according to this framework, NPT in spontaneous speech can be regarded as a precursor of narrative abilities.

Uccelli et al. (2005) investigated in an experimental setting the relation between NPT interaction of mother-child dyads at age 1;8 and 2;8 and the production of two narrative genres at age five. It appeared that the more children were engaged in NPT at 1;8 and 2;8, the better narrators of personal experience they tended to be at age five. The same was true for fictional narratives. Beals (2001) found that the amount of (present and non-present) talk engaged in at home by three- and four-year old children and their parents was related to children's initiatives in telling their own narratives at age five.

In the present study, we therefore decided to further explore NPT as a precursor of narrative abilities and to investigate whether the frequency and initiation of NPT during early development (age 1;9–3;9) was related to narrative abilities at 7 years of age.

Temporality is inherent to narratives, and all definitions of narratives refer to temporality. Labov and Waletzky (1967) defined a minimal narrative as a sequence of two restricted independent clauses that are temporally ordered. Peterson and McCabe (1983) defined narratives as distinct from other kinds of discourse in that they relate events distributed over time. Berman and Slobin (1994, p. 1) define events as 'dynamic interactions over time, between animate beings, in physical settings'. Ninio and Snow (1996) provide a broader definition that includes temporality but also the explicit link between events: in narratives at least two different events are described such that the relationship between them (temporal, causal, contrastive or other) becomes clear.

Children's expression of temporality is thus crucial for their producing narratives (Berman & Slobin, 1994) and these two aspects are closely related in their development. Temporality in language can be expressed in many different ways. Some languages mark temporality using grammatical morphemes such as tense/aspect marking on verbs. For example in the English sentence *yesterday he went to bed as soon as he came home and now he is still sleeping* the form *went* is marked for past tense and *is sleeping* indicates a continuous ongoing event. Languages also can use lexical items such as temporal/aspectual adverbs (e.g., *yesterday*), connectives and expressions (e.g., *and then, when we'll be home*). Another possibility is the use of discourse strategies, such as the sequential ordering of events which implies a temporal ordering. Even though most languages make use of all of these grammatical, lexical, and discourse devices, the mappings between temporal notions and linguistic forms vary from language to language, making the development of temporality language-specific (Berman & Slobin, 1994; Blankenstijn & Scheper, 2003; Hickmann, 2003).

The means to express temporality develop quite early on. Veneziano and Sinclair (1995) found references to past events in spontaneous interaction even before the age of two, while their French-speaking children were still in the one-word stage. Uccelli (2009) studied the early acquisition of temporality in spontaneously occurring mother–child narrative interaction at home in two Spanish speaking children from age two to three. She found that initially the frequency with which past tense verbs were used increased at a slow pace, with low frequencies of past tense verbs and verb stems. A salient change in the production of verbs marked for past tense was found starting at ages 2;9–2;10: the verb form types marked for past tense also increased considerably. Uccelli (2009) interpreted these findings as indicating that before age three these children had mastered the tense

marking skills needed to produce narratives. On the other hand, the ability to use the devices in narratives develops more slowly. Berman and Slobin (1994) showed that half of the three-year-olds across all five languages studied evidenced 'mixed' tense usage, veering back and forth from present to past. Three-year-olds have not yet established a unified narrative thread in which grammatical tense serves to establish text cohesion and coherence, providing a temporal anchoring which is consistently distinct from the speech time. Five-year-old children in that study largely favored one tense, either present or past. In the present study the linguistic expression of temporality was therefore selected as a precursor of narrative abilities.

Parental topic elaboration in past event talk is also argued to be an important precursor of narrative abilities. Two- and three-year-old children need external scaffolding from the adult in order to talk about memories of events (Nelson & Fivush, 2004; Veneziano & Sinclair, 1995). Reese (1995) claimed that exposure to reminiscence by adults supports the children's ability to tell and understand narratives. Past event talk in parent–child interaction at ages 3;4, 3;10 and 4;10 was found to be a strong predictor of oral story comprehension at 5;10. Reese and Newcombe (2007) also found that parents' highly elaborative reminiscing style had a facilitating effect on children's narrative abilities: parents who used a topic-extending approach when reminiscing with their children at age 2;5 had children who, a year later, told more detailed stories to an experimenter. The importance of the role of the child and the impact of individual variety in children have not however been investigated in depth. Topic elaboration – in parents' talk as well as in children's talk – was therefore also selected for the present study as a potential precursor of narrative abilities.

As this brief summary has indicated, various studies have demonstrated that there are relations between, on the one hand, non-present parent-child talk, the development of children's expression of temporality, and parental topic elaboration in past event talk and, on the other hand, children's later narrative skills. These studies were, however, group studies which did not consider these relations at the level of individual differences. The current study will therefore investigate these relations further in three Dutch children. Specifically it will examine how the three aspects – *NPT development*, *the development of the expression of temporality* and *topic elaboration* – relate to three components of narrative abilities (*productivity, story structure* and *complex language*) in the same three Dutch children at age seven. Based on previous research, it was predicted that the amount of NPT the children were involved in and parental topic elaboration in the early years would relate to all three aspects of their narrative abilities at the later age. The early development of the expression of temporality was hypothesized to relate to later complex language in their narratives.

## Method

The present study analyzed data of three children obtained from an in-depth longitudinal study of two monolingual, middle class Dutch families (De Blauw 2015).[1] The children, two non-identical twin sisters, Hazel and Floor, and one boy, Stijn, were video-recorded in spontaneous interaction with their parents, in different settings for one to two hours per session. The design combined the assessment of narrative abilities at age seven with the analysis of spontaneous parent-child interaction observed at three months interval between the ages of 1;9 and 3;9 (1;9, 2;0, 2;3; 2;6, 2;9, 3;0, 3;3, and 3;9).

Three types of narration were assessed around age seven: (1) a story generation task, using *the Frog story* (Mayer, 1969); (2) a story retelling task, using the *Renfrew Bus* story (Renfrew, 1991; Dutch: Jansonius–Schultheiss & Borgers, 2009); and (3) narratives produced in spontaneous conversation.

There is no standard analytical procedure for looking at narratives in spontaneous speech, since, apart from Beals (2001), little research has been done on such narratives for children of this age range. Spontaneous speech of the children was recorded on videotape at home in interaction with the parents and/or the investigator. The narratives were produced spontaneously or elicited in a natural way. For example, the investigator sometimes asked about their school- and sport-activities. Sometimes the parents stimulated the children to tell the investigator about new developments that would interest her. Over a period of six months (6;9–7;3), 180 minutes were selected for Hazel and Floor and 113 minutes for Stijn (see Table 4). The selection was based on the definition of a narrative given by Ninio and Snow (1996) as discussed earlier, that is, a narrative is a linguistic formulation of at least two different events such that the relationship between them (temporal, causal, contrastive or other) is clear.

The *Frog Story* has been studied extensively resulting in various analytical schemas. The *Bus Story* has been standardized for Dutch. For the spontaneous narratives, four narrative genres were defined: a script, a personal narrative, a fictional narrative, and the retelling of a fictional narrative.

For the analysis of narrative skills, a multilevel approach was taken, focusing on three components: *narrative productivity, narrative story structure* and *narrative complex language* in elicited and spontaneous narratives. *Narrative productivity* was operationalized in three measures: the length of the elicited narratives, the number of spontaneous narratives and their length measured in terms of the

1. The data were taken from a longitudinal database of recordings of the children from 0;3 to 10 years.

average number of utterances[2] per narrative. *Narrative story structure* refers to the ability to produce a comprehensible, cohesive and well-structured story. The maximum score was 48 (Pearson (2002). *Narrative complex language* is operationalized in this study, following Pearson's (2002) 'language score', as the use of specific lexical items, morphosyntactic accuracy, the number of complex clauses, the mean length of utterance of the five longest utterances (MLU5), and the type token ratio (TTR). The maximum score here was also 48.

Each narration was analyzed with respect to the above three aspects of narrative abilities. The measurement of narrative abilities at age seven was performed in order to consider its relation with early aspects of interaction. The emphasis was specifically on the relative differences between the three children. Their results on the various measures were ranked from 1 (highest) to 3 (lowest) on each variable.

For the analysis of NPT within the earlier spontaneous parent-child interaction, all NPT segments were analyzed from the recordings. In this study, NPT was defined as a topic-specific discussion that relates to the not-here-and-not-now, that is, what cannot be seen and/or heard and/or touched. Four categories of NPT were distinguished: 'discussing past events' (e.g., 'zoo'. 'yes, we have been there yesterday'), 'discussing future events' (e.g., 'will he give me presents?' 'well, wait and see what happens!'), 'fantasy talk' (e.g., 'I will cook you a pizza.' 'mmmm, mummy loves pizza!'), and 'other', including xyz (e.g., 'what do we call this?' 'snowman.' 'yes, a snowman.'). The frequency of NPT segments (adult and child taken together) was measured. The number of child initiations of NPT was also counted in relation to the number of adult initiations.

In order to chart the development in children's expression of temporality all NPT segments were analyzed. Firstly the extent of verb use in the children was measured since this is essential for morphological marking. Verb marking was analyzed for the different tenses. Temporal/aspectual markers (TAMs) were counted in the children. Parental exposure to these aspects was also considered.

Topic elaboration in NPT was analyzed for the parents following Reese (1995). In two subcategories of NPT, NPT Past (talking about past events) and NPT Know (talking about knowledge), the parental utterances were analyzed for the proportion of elaborative utterances. Children's topic elaboration in NPT was measured using a newly developed coding system. Four types of children's contributions to discourse were distinguished: (1) nonverbal contributions, (2) yes/no replies and repetitions of preceding adult utterances, (3) responses to the ongoing conversation, and (4) elaborations of the ongoing conversation.

**2.** The definition of utterance was that used in standard spontaneous language analysis procedures, thus excluding minor and unfinished clauses.

## Results

### *Narrative abilities at age seven*

The results of the *Frog* and *Bus* tasks indicated that at age seven all three children were performing at the high end of the normal range, the norms being taken from other studies with Dutch children (De Blauw, 2015). The production of spontaneous narratives could not be compared to other studies because these have not been investigated to date for Dutch. The frequency of spontaneously produced narratives varied considerably between the three children, ranging from only one narrative produced by Hazel to twelve narratives produced by Stijn (see Example 1 below). Of the four genres the personal narrative was the most frequent. The children did not produce any fictional narratives, and only a few scripts.

Example 1. Personal narrative in the spontaneous speech of Stijn (7;3) who talks about an excursion to a museum

Setting: In the living room after lunch, in conversation with Investigator.

Stijn: *eerst gingen we naar de mummies. En eigenlijk als je er was, dan zag je gewoon stenen muren, net alsof je buiten was. Alleen hadden ze er een dak overheen gemaakt*
'first we went to the mummies. And actually when you got there, you just saw stone walls, as if you were outdoors. Only they had put a roof over it all'

Investigator: *en waren die mummies echt?*
'and were they real mummies?'

Stijn: *echt. Die waren echt*
'real. They were real'

Investigator: *echte Egyptische mummies*
'real Egyptian mummies'

Stijn: *ja. Die waren opgegraven in Egypte. En toen, toen zijn we naar Asterix en Obelix gegaan. En dan moest je die hondenpootjes volgen en dat was heel leuk. Je kon proefjes doen en je kon ook vragen beantwoorden. […] en toen we terug gingen konden we met een busje mee. Dat was gratis. Hoefden we niet te lopen*
'yes. They had been dug up in Egypt. And then, then we went to Asterix and Obelix. You had to follow the dog paw prints and that was fun. You could do experiments and you could answer questions […] and when we went home, we could go on a bus. It was free. We didn't have to walk'

The three components of narrative abilities (*narrative productivity, narrative story structure*, and *narrative complex language*) differentiated the three children. In terms of *narrative productivity* Stijn ranked highest due to the fact that he produced the most and the longest narratives in spontaneous speech and in one of the two elicited tasks. Floor ranked highest on *narrative story structure*, followed by Hazel and then Stijn. She excelled in telling a clear and coherent story to the listener. Hazel ranked highest on the narrative measures that reflect *narrative complex language:* specific lexicon, morphosyntactic accuracy, number of complex clauses, MLU5, and TTR. Hazel produced far fewer narratives in spontaneous speech, indicating that high complex language ability does not necessarily imply high narrative productivity. In sum, the three children had different relative strengths that might be related to the variables measured at an earlier age.

### *Development of NPT between age 1;9 and 3;9 in relation to narrative abilities at age seven*

Before addressing the relationship with narrative abilities at age seven, a brief description will be given of the development of NPT in these three children up to age 3;9. All NPT segments of the three children up to age 3;9 were coded for setting. Five main categories of setting were distinguished: (1) eating-drinking; (2) body care; (3) toy play; (4) parent-child routines; (5) other. About 28% of all parent-child

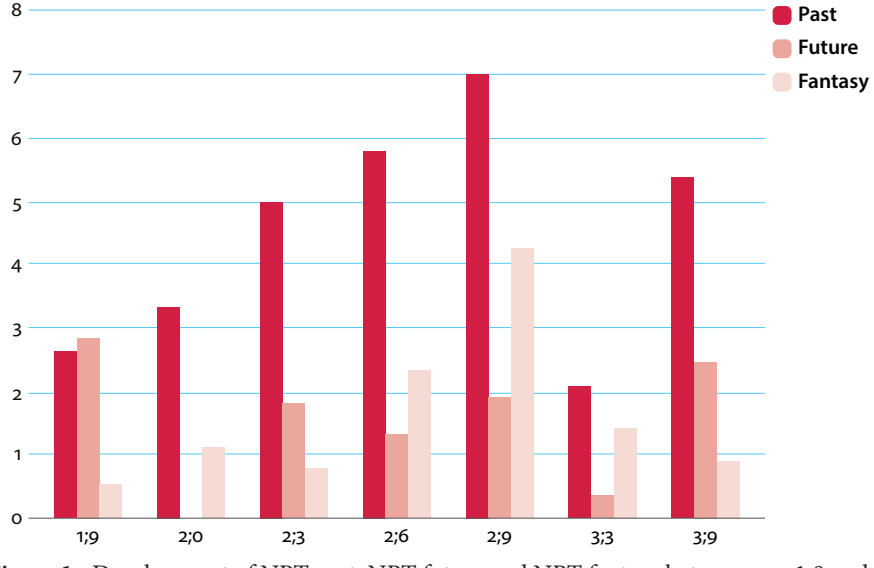


**Figure 1.** Development of NPT past, NPT future and NPT fantasy between age 1;9 and 3;9: Mean scores in the two families

NPT occurred while sitting together for meals or drinks, as Dickinson and Tabors (2001) also found in their American study. As shown in Figure 1, between age 1;9 and 3;9 the category NPT Past, measured in number of NPT segments in the language of the adult and the child, occurred almost three times more frequently than NPT Future and NPT Fantasy. NPT Past was found already at 1;9, whereas NPT Fantasy and NPT Future appeared later. An exception to this general pattern of development occurred at age 3;3. This is likely due to the fact that, in both families at that session, most interaction involved hands-on activities involving linguistic descriptions in the present tense.

From age 1;9 onwards, references to the past gradually moved further away from the here-and-now to more distant times (see Figure 2).

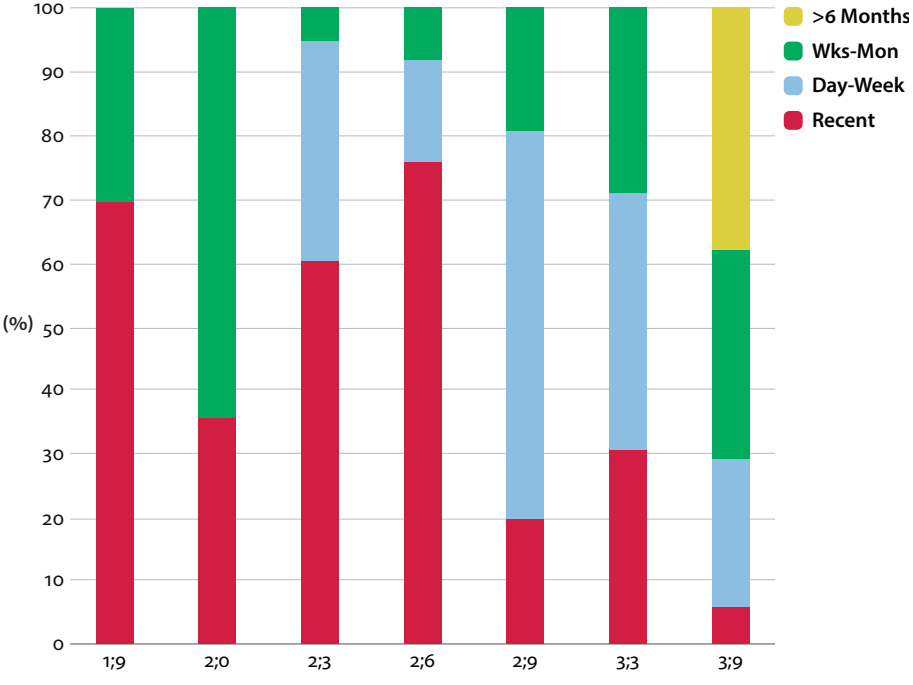


**Figure 2.** Mean percentages, across all children, of the four subcategories NPT past, between 1;9 and 3;9, from recent past to more than 6 months

At age 1;9 most past events discussed were restricted to the recent past (see Example 2 below). At 2;9 most were related to what had happened on the preceding days of the week (see Example 3). At 3;9, events from more than 6 months earlier were referred to for the first time, as shown in Example 4.

Example 2. NPT past: Recent
Setting: Floor (1;9) was in the paddling pool ten minutes earlier.
Mother: *het was lekker in het water heh?*
'the water was good, wasn't it?'
Floor: [points]

Example 3. NPT past: Last week/previous days
Setting: Hazel (2;9) and her family had returned from their summer holidays a few days earlier.
Mother: *hadden ze in Frankrijk ook karnemelk?*
'did they have buttermilk in France?'
Hazel: *nee*
'no'
Mother: *nee, gek he!*
'no, isn't that strange!'

Example 4. NPT past: more than 6 months earlier
Setting: Hazel and Floor (3;9) look at photos taken in the childcare center in their former home town. They had moved out 18 months earlier.
Hazel: *Floor ging de fiets overeind zetten, want ze was van de fiets gevallen*
'Floor picked up the bike, because she had fallen off the bike'
Floor: *nee, nee, niet daar. Thuis*
'no, no, not there. At home

NPT Future occurred less frequently in comparison to NPT Past. Up to 2;9, all NPT Future referred to the immediate future, close to the here-and-now. Moreover it was most often the parent, not the child, who initiated this talk (see Example 5). From age 2;9 on, discussing events that will occur in future weeks or even months (see Example 6) increased. From this time point on, the children initiated this kind of talk like the adults. As described above, the results at time point 3;3 are slightly different; this point will be returned to in the discussion.

Example 5. NPT future: immediate future
Setting: Father and Stijn (1;9) are playing together on the ground floor of the house.
Father: *zullen we naar boven gaan, naar mamma?*
'shall we go upstairs, to mummy?'
Stijn: [walks in the direction of the stairs]

Example 6. NPT future: next weeks/months

Setting: Stijn (3;9) and parents are sitting on the couch having coffee.

Father: *wat gaan we doen binnenkort? Maar het duurt nog wel even hoor. Als Sinterklaas al weer weg is. En dan nog een hele tijd. Waar gaan we dan naar toe?*
'What are we going to do soon? It will take a while. When Saint Nicholas has already gone. And then quite a long time. Where will we go then?'

Stijn: *naar De Efteling*
'to De Efteling' [an amusement park]

Father: *naar de Efteling*
'to De Efteling'

Stijn: *naar Nijntje en Doornroosje en de sprookjesbos*
'to Miffy and Sleeping Beauty and the fairy tale forest'

As shown in Figure 3, the children were involved in NPT interactions for about 4 to 24 times per hour. At most data points it was Stijn who was most frequently engaged in NPT (peaking at 2;9), followed by Hazel, and then Floor, who was the least actively involved.

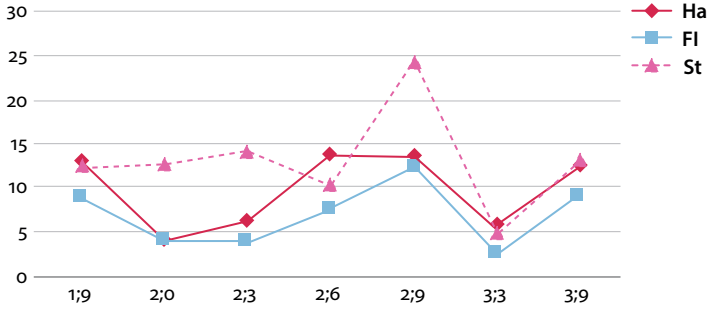


**Figure 3.** Number of NPT segments (per hour) in which the children were engaged between 1;9 and 3;9, by child

Concerning the initiation of the NPT segments (adult or child), up to age 2;6, in the Hazel-Floor family, more initiatives were taken by the adults than by the two children (counted together[3]) but this changed in the later recordings. There was no such change in Stijn's family, although the percentage of the adults' initiations gradually decreased and those of Stijn increased.

By splitting the results for the two girls, it was possible to compare the percentage of initiations taken individually by the three children between 2;6 and 3;9. Hazel took far more initiating moves than her sister (Figure 4), and more than

3. The twins were filmed together with their parents.

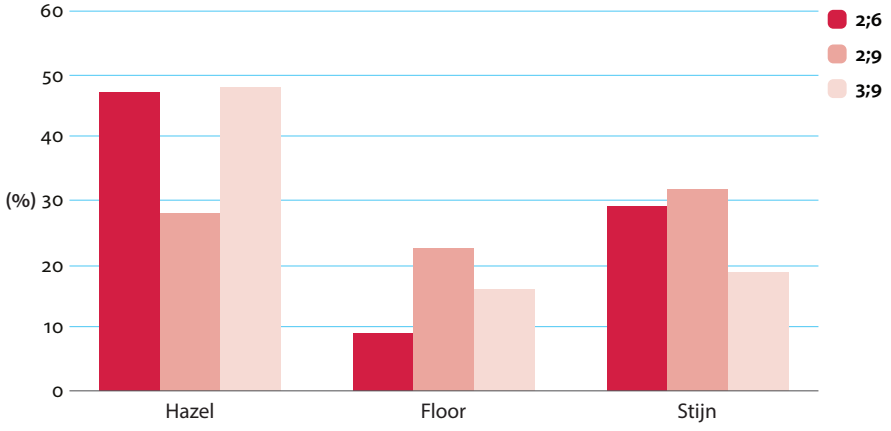


**Figure 4.** Percentage of NPT initiated by children, at 2;6, 2;9 and 3;9

Stijn, showing the highest initiating behavior in NPT, followed by Stijn and then by Floor. In sum, while Stijn was engaged in the largest number of NPT sequences, Hazel demonstrated the highest amount of initiating behavior in NPT.

Based on previous research, a relationship between engagement in NPT at early ages and later narrative abilities was expected (Reese, 1995; Uccelli et al., 2005). In the current study this also appears to be the case but for only one component of narrative abilities, *narrative productivity*. Stijn scored highest on involvement in early NPT and scored highest on *narrative productivity* at age seven (Table 1). It does not seem, however, the case that this early involvement is associated with the highest scores in *narrative story structure*, or *narrative complex language*. There also seems to be a relation between initiating NPT at early ages and *narrative complex language* at age 7, as could have been expected on the basis of earlier work (e.g., Ninio & Snow, 1996). In the current study the child who had the highest amount of initiating behavior of NPT between 1;9 and 3;9 (Hazel), excelled at age seven on *narrative complex language* (Table 1). The relation between NPT and *narrative story structure* is less apparent. These findings suggest two candidate precursors of later narrative abilities in the use of NPT: the amount of engagement in NPT and the child's ability to initiate NPT. These precursors, however, seem to be related to different components of narrative abilities at age seven, respectively *narrative productivity* and *narrative complex language*.

**Table 1.** Raw scores (raw) and ranking (rank) Frog story task, Bus story task, narratives in spontaneous speech; comparative differences. In parentheses: Results based on one narrative

| **Narrative component** | **Hazel** | | **Floor** | | **Stijn** | |
|---|---|---|---|---|---|---|
| **NARRATIVE PRODUCTIVITY** | raw | rank | raw | rank | raw | rank |
| Frog: Total no. Utterances | 57 | 1 | 49 | 2 | 45 | 3 |
| Bus: Total Utterances | 204 | 2 | 193 | 3 | 211 | 1 |
| Spon. sp: mean TU/ per narrative | (8) | (3) | 11.4 | 2 | 12.3 | 1 |
| Spon. sp: number of narratives | 1 | 3 | 7 | 2 | 12 | 1 |
| **Mean ranking** | | **2.3** | | **2.3** | | **1.5** |
| **NARRATIVE STORY STRUCTURE** | | | | | | |
| Frog: story score | 33 | 2 | 36 | 1 | 32 | 3 |
| Frog: planning components | 16 | 1.5 | 16 | 1.5 | 15 | 3 |
| Bus: planning components | 19 | 2 | 20 | 1 | 17 | 3 |
| **Mean ranking** | | **1.8** | | **1.2** | | **3** |
| **NARRATIVE COMPLEX LANGUAGE** | | | | | | |
| Frog: language score | 42 | 1 | 33 | 2 | 32 | 3 |
| Frog: MLU5 | 14 | 1 | 8.8 | 2 | 8.6 | 3 |
| Bus: MLU5 | 14.2 | 1 | 9.6 | 3 | 11.6 | 2 |
| Spon: MLU5 | (8) | (3) | 18.4 | 1 | 17.4 | 2 |
| Frog: Subordinate clauses | 4 | 1 | 0 | 2.5 | 0 | 2.5 |
| Bus: Subordinate clauses | 9 | 1 | 2 | 3 | 6 | 2 |
| Spon: Subordinate clauses | (3) | (1) | 2 | 2 | 1.1 | 3 |
| Frog: TTR | 0.29 | 2.5 | 0.37 | 1 | 0.29 | 2.5 |
| Bus: TTR | 0.36 | 1 | 0.33 | 3 | 0.35 | 2 |
| Spon: TTR | (0.78) | (1) | 0.67 | 2 | 0.50 | 3 |
| **Mean ranking** | | **1.4** | | **2.2** | | **2.5** |
| **Overall mean ranking** | | **1.8** | | **1.9** | | **2.3** |

**Table 2.** Percentage of adult- and child-initiating behavior in NPT, in the two families (child-initiating behavior is in parentheses)

| Age | Hazel-Floor family | | Stijn-family | |
|---|---|---|---|---|
| | **Adult** | **(children)** | **Adult** | **(child)** |
| **1;9** | 54 | (46) | 60 | (40) |
| **2;0** | 90 | (10) | 69 | (31) |
| **2;3** | 71 | (29) | 71 | (29) |
| **2;6** | 39 | (61) | 71 | (29) |
| **2;9** | 49 | (51) | 53 | (47) |
| **3;3** | 45 | (55) | 55 | (45) |
| **3;9** | 24 | (76) | 88 | (12) |

*Development of the expression of temporality between 1;9 and 3;9 in relation to narrative abilities at age seven*

Before relating narrative abilities at age seven to the development of temporality, a brief description of this development will be given. As shown in Table 3, between 1;9 and 3;9 the percentage of NPT utterances containing a verb increased considerably for all three children, and most sharply between 1;9 and 2;9. Despite this general developmental pattern, there was individual variation between the three children.

**Table 3.** Percentage of children's utterances with a verb relative to all analyzed child utterances in NPT at 1;9, 2;9 and 3;9, by child

| | **Hazel** | **Floor** | **Stijn** |
|---|---|---|---|
| **+ VERB** | | | |
| **1;9** | 8.7 | 13.3 | 0.8 |
| **2;9** | 52.1 | 49.7 | 44.7 |
| **3;9** | 74.6 | 68.2 | 35.5 |
| **mean** | 45.1 | 43.7 | 27.0 |

Stijn continued to produce the fewest verbs. If verb use is taken as a measure of temporality development, the two girls were more advanced than the boy. The general order of emergence of the first spontaneous use of five Dutch tenses in NPT utterances over the period of the two years was: Present tense < Present perfect < Past simple < Past perfect < Future tense, a development similar to that reported by De Houwer and Gillis (1998). Hazel was the first to master most of these tenses. The ability to use the correct form also developed between 2;6 and

3;9. Floor was the first to use the correct form in past tense marking. An analysis of the language of the parents in the NPT sequences showed that the children were equally exposed to the different tense forms (De Blauw 2015).

The temporal/aspectual markers (TAMs) produced by the children showed little variety up to age 2;6. From 1;9 to 2;9 the only types of TAM were aspectual markers and temporal adverbs. The aspectual marker *nog een keer* 'again' was prominent as was the temporal adverb *nu* 'now', marking the present moment (see Example 7). This was true for all three children.

Example 7. Stijn (2;3) using the temporal adverb nu ('now').
Setting: Stijn starts walking toward the bathroom.
Stijn: *nu bad*
'now bath'
Father: *ja nu gaan we in bad*
'yes now we 'll take a bath'

At 2;9 the variety in types of temporal adverbs and aspectual markers increased and temporal markers of anteriority, posteriority and simultaneity appeared (see Example 8):

Example 8. Floor (2;9) using temporal marker first ….and then.
Setting: fantasy play, cooking spinach with plasticine.
Floor: *eerst moet het koken en dan wordt het klaar*
'first it has to boil, and then it will be done'

One year later, at age 3;9, general sequencers such as *and then, and then* and longer expressions of time reference appeared for the first time, as illustrated in Example 9:

Example 9. Hazel (3;9) using general sequencers (and then, and then).
Setting: telling what happened to her and her aunt's dog some weeks earlier.
Hazel: *die had ik van Anneke gekregen, want toen had ik Sam geaaid. Toen hield Anneke mij vast en toen kon ik toch Sam voor de eerste keer aaien. En toen kreeg ik dat flesje*
'I had got that one from Anneke because I had stroked Sam then. Then Anneke held me tight and then I could stroke Sam for the first time. And then I got that little bottle'

These results are similar to those found by Uccelli (2009) for Spanish where the most common TAMs were temporal relations of posteriority, anteriority and simultaneity as well as aspectual markers of recurrence ('again') and completion ('already').

At 1;9, mainly temporal adverbs close to the here-and-now (*zometeen* 'in a minute', *binnenkort* 'soon', *zonet* 'just now') were found. At 2;0 the parents started to use other temporal markers: *toen daarna …* 'then after …', *en toen …* 'and then', *en dan* 'and then'. At age 2;3, months before the children produced these markers, the first more specific type of temporal adverbs appeared (*donderdag* 'Thursday', *'s ochtends* 'in the morning', *'s middags* 'in the afternoon', *vorige week* 'last week'). At 2;9, the production of specific temporal adverbs (*gister* 'yesterday', *vanmiddag* 'this afternoon', *vanavond* 'this evening') as well as longer expressions of time reference, with more than two words, such as *toen ik ziek was* 'when I was ill', increased.

As can be seen in Figure 5, where the data are pooled across the two families, up to age 2;6 the children's production of TAMs lagged far behind that of the parents. After 2;6, however, the number of TAMs produced by the children increased considerably.

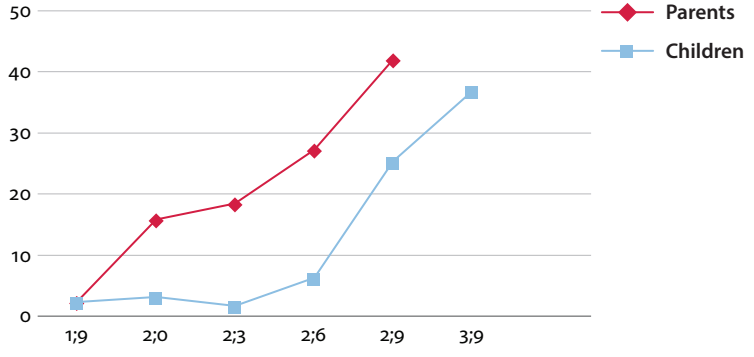


**Figure 5.** Number of parental and children's production of tense aspect markers (TAMs) over the period 1;9–3;9

Hazel and Floor performed comparably on the different temporality measures, while Stijn was behind them on all the measures, with the exception of the use of longer expressions of TAMs. From previous research (Uccelli, 2009), we expected a relationship between temporality expression in NPT at 1;9–3;9 and later narrative abilities. The results of this study support this expectation and make the relationship more specific. Hazel's relatively fast development in verb use and tense marking at 1;9–3;9 can be linked to her high scores on the *narrative complex language* component at age seven, but not to the other two components of narrative abilities, *narrative story structure* and *narrative productivity* (see Table 1).

### *Topic elaboration in relation to narrative abilities at age seven*

Both parental and child elaborations were measured. The difference in the number of parental utterances calculated per hour in the two NPT sub-categories selected

for this analysis, NPT Past and NPT Know, was large (see Figure 6). As might be expected from the general findings on the frequency of NPT engagement, Stijn was the child most engaged in these two sub-categories of NPT.

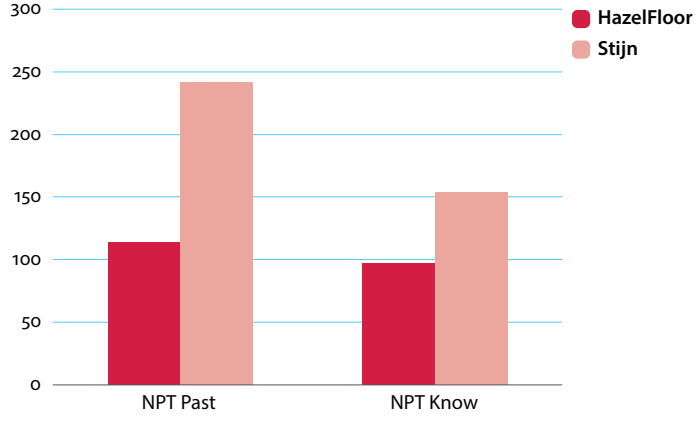


**Figure 6.** Total number of NPT past and NPT know segments, produced by the parents per hour between 1;9 and 3;3, in the two families

Topic elaboration in both types of NPT appeared to be higher in the Stijn family than in the Hazel-Floor family. For NPT Past as well as for NPT Know the mean topic elaboration in the Stijn family was 52%; that is, in 52% of the parental utterances the current topic of conversation was elaborated on. The mean topic elaboration score in the family of the girls was lower; it varied according to the type: 39% for NPT Past and 49% for NPT Know. In the Hazel-Floor family there appeared to be a preference for topic elaboration in NPT Know above NPT Past. In the Stijn family this difference was not found: the parents elaborated equally in both categories of NPT.

Considerable differences were observed in the children's topic elaboration in NPT. As mentioned earlier, the children's utterances were divided into four categories: (1) non-verbal contributions, (2) minimal verbal contributions, (3) verbal contributions, (4) elaborations of the conversation, with category 4 being the relevant category here. 'Engagement in NPT' and 'topic elaboration' were not related. The total number of NPT utterances per hour from Stijn was four times higher than that of Floor and more than double that of Hazel, but Stijn did not stand out on 'topic elaboration'. In contrast, Floor had the highest elaboration score (category 4). Although she did not often participate in NPT conversations, when she did participate, her contributions were often expansions of the current topic. Stijn ranked first on the number of utterances (per hour) in NPT, while Floor ranked first on topic elaboration in NPT Past and NPT Know: Floor elaborated 19.3% of her utterances, Hazel 18.5% and Stijn 17.4%.

On the basis of previous research findings (Reese 1995; Sparks & Reese, 2013) we expected that parents who were most elaborative in NPT would have a child with the highest narrative abilities scores at age seven. This expectation appeared to be supported for only one narrative component, *narrative productivity*. Stijn's parents were most elaborative in early NPT and Stijn had the highest score on *narrative productivity* in spontaneous speech at age seven. No relations seemed to be present with the other components. We also expected that children with a high level of topic elaboration in NPT would have high narrative abilities at age seven. Also for this variable the expectation appeared to be supported for only one component: Floor had the highest proportion of elaborations and scored highest on *narrative story structure* at age seven.

Thus, high parental elaboration in NPT at an early time seems to be related to *narrative productivity* at age seven, and high child topic elaboration in NPT in the early years, to *narrative story structure* at age seven.

## Discussion

This chapter addressed the relationship between early development in parent-child interaction and later narrative abilities. The goal was to look for precursors of narrative abilities and on the basis of the literature it focused on three areas: the impact of engagement in NPT in parent-child interaction, children's ability to express temporality, and topic elaboration. Previous research had shown a general relationship between these three areas and later narrative abilities. For a more detailed exploration of this relationship, in this study, we considered three components of narrative abilities: *narrative productivity, narrative story structure* and *narrative complex language*. As summarized in Table 4, several relations emerged that can be seen as potential precursors for narrative abilities. The three aspects of early interaction seem to be related to one or other of the three components of narrative abilities considered here. The amount of parental elaboration in NPT seems to be related to *narrative productivity*. Although no statistical analysis was possible, the impression is that the more NPT parents offer, and the more they elaborate on topics in their interaction with their children, the more narratives the children produce and on the whole the longer the narratives are. This result confirms previous findings on the general role of input on children's narrative production (e.g., McCabe & Peterson, 1991; Peterson & McCabe, 2004). Finally, the child who in early development displayed the highest level of topic elaboration had a relatively high score on *narrative story structure*. This result suggests that a child who demonstrates at an early age the ability to elaborate coherently on a discussed topic is developing skills that are necessary for later

**Table 4.** Potential precursors of narrative abilities at age seven: NPT between 1;9 and 3;9

| Components of narrative ability | Parental factors | Child factors |
|---|---|---|
| Narrative productivity | Amount of NPT | Engagement in NPT |
| | High elaboration in NPT | |
| Narrative story structure | | Topic elaboration |
| | | Initiation of NPT |
| Narrative complex language | | Early development of tense marking |
| | | Production of TAMs |

good story structure, that is, the ability to produce a comprehensible, cohesive and well-structured story.

*Narrative complex language* at age seven appears to be associated with three child behaviors in early Non-Present Talk (NPT): child initiation of NPT, early verbal tense marking and a high production of Tense/Aspect Markers (TAMs). It is plausible that a child who demonstrates at an early age the ability to engage in NPT, and to mark past events, will later demonstrate these skills in later narrative production. No relation with parental behaviors was found.

How do the results of the present study relate to previous studies on narrative development? Uccelli et al. (2005) found that the amount of NPT the children were engaged in at age 1;8 and 2;8 was related to narrative abilities at age 5;0. Beals (2001) found that the amount of talk children and parents were engaged in related to children's narrative initiations at age five. This study supports that result. The child who was most engaged in early NPT produced the highest number of spontaneous narratives around age seven. With respect to the linguistic expression of temporality this study is consistent with Uccelli (2009) in that both studies found a salient change in the production of verbs with past tense marking around age 2;9. Berman and Slobin (1994) found that half of the three-year-olds in their study showed 'mixed' (present and past) tense usage and similarly the present study found individual differences at age 3;9: the two girls showed very few mistakes in producing the correct verb tense, while the boy was still struggling with producing the past tense at the same developmental period.

An important aspect of this study relates to the role of child variables. Most research has focused on how parental variables influence children's narrative skills. This study, however, also considered some child variables (see Table 4) and showed that these were relevant for some aspects of later narrative abilities. The results also showed that the children differed on the specific narrative component in which they excelled, supporting the view that a multidimensional approach is needed to get a comprehensive overview of children's narrative skills.

This in-depth study of three Dutch-speaking children searched for precursors of narrative abilities in the NPT interactions occurring in two monolingual middle class families in the Netherlands, and found indications that these precursors might indeed exist. The two families were comparable on variables such as cultural background, monolingualism, SES and in their beliefs on parenting and upbringing of children in Dutch society. If the results of this study should be confirmed in larger scale studies, then there would be important implications for children with language delay or language disorders. Parents could then be encouraged to use NPT talk, to elicit child initiatives and to stimulate children's topic elaboration.

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CHAPTER 10

# Enriching parent-child discourse during book sharing

## The impact on children's story comprehension and narrative skills

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The chapter describes a study that assessed the efficacy of an intervention designed to enrich the discourse between parents and preschool children during shared reading, and thereby enhance children's story comprehension and narrative skills. Participants were Parent-child dyads from low socio-economic backgrounds. During the study, parents in both the intervention and the control groups were given one new book weekly for six weeks, and were instructed to read each book four times per week to their children. Parents in the intervention group were instructed to read the books interactively according to a structured model, which was based on Bruner's (1986) "dual landscape" model. The first "landscape" is the action level, which refers to the plot and focuses on characters' behaviors. The second "landscape" is the consciousness level, which refers to the mental states that underlie characters' behaviors. Results show that children in the intervention group referred more often to both levels compared to children in the control group. When retelling the story, they referred to characters' mental states significantly more than their counterparts did, and were better able to answer open-ended questions regarding the plot and the vocabulary used. They also showed a better understanding of the characters' emotions and thoughts, as well as the reasons that led to those mental states. The chapter emphasizes the importance of the direct guidance of parents in effective shared bookreading.

**Keywords:** early intervention, shared bookreading, Theory of Mind, vocabulary, low SES, home based intervention, preschool

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## Introduction

Rich mental state discourse between adults and children can contribute to children's social cognition (e.g., Denham, Zoller, & Couchoud, 1994; Jenkins, Turrell, Kogushi, Lollis, & Ross, 2003; Meins et al., 2002; Symons, Fossum, & Collins, 2006). During such discourse, the adult explains life events by relating people's behaviors to internal motives, using concepts of cause and effect and highlighting different points of view (e.g., Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Garner, Jones, Gaddy, & Rennie, 1997). Thus, the adult promotes the child's ability to grasp psychological terms that affect people's behavior and interactions (e.g., de Rosnay & Hughes, 2006).

Shared bookreading can serve as a natural context for Parent-child discourse. For many years, research on shared reading focused on its contribution to children's language and literacy development (e.g., Bus, van IJzendoorn, & Pellegrini, 1995, Raikes et al., 2006). Indeed, meta-analyses emphasized the effectiveness of rich bookreading interactions for promoting children's literacy (Mol, Bus, & de Jong, 2009; Mol, Bus, de Jong, & Smeets, 2008). However, shared bookreading has the potential to promote children's development beyond language and literacy. Since interpersonal relationships and references to the motives underlying characters' behaviors are an integral part of children's literature (e.g., Cassidy et al., 1998; Dyer, Shatz, & Wellman, 2000), it is only natural that recent studies have begun to look into the development of children's social cognition within the context of storybook reading (e.g., Adrian, Clemente, & Villanueva, 2007; Aram & Aviram, 2009; Aram & Shapira, 2013; Curenton & Craig, 2011; Symons, Peterson, Slaughter, Roche, & Doyle, 2005). Research has shown that mere exposure to social situations and mental state terms in a story is not sufficient to promote children's social cognition, and that adults' scaffolding is necessary to ensure young children's understanding of the characters' thoughts, emotions, intentions, and desires (e.g., Grazzani & Ornaghi, 2011; Peskin, 1996; Peskin & Astington, 2004).

Beyond this, Parent-child discourse during shared reading, where the parent asks questions, explains situations, and discusses the story's central themes with the child, is a rich context that has the potential to promote children's narrative skills (e.g., Lever & Sénéchal, 2011; Sénéchal, Pagan, Lever, & Ouellette, 2008). Discourse about books is natural for children, because stories represent events that are similar to real life (Nelson, 1999). When children learn to tell stories, they learn to identify the sequence of events, as well as the causes and consequences of those events. They also learn how the motives, purposes, attitudes, values, and feelings of characters relate to the events in which the characters are engaged (e.g., Harkins, Koch, & Michel, 1994). It is important to note that there are many ways to tell and discuss a story (Bruner, 1991) and parents tell and interpret the stories'

events and the characters' mental states according to their experience and culture and to the developmental level of their children.

The nature of parent-child discourse during shared bookreading is related to preschoolers' narrative skills. For example, Harkins et al. (1994) found a correlation between the number of evaluative devices used by mothers (such as references to mental states of characters or commenting on one's own emotional reaction to the story) while telling stories to their children, and the number of utterances and evaluative devices used by their children while retelling the stories. Kang, Kim, and Pan (2009) found that the number of questions produced by mothers while reading to their children predicted the children's narrative structure, evaluative devices, and linguistic form when retelling the story. Furthermore, intervention programs that encourage adults to talk with children during shared reading promote children's narrative skills. For example, Zevenbergen, Whitehurst, and Zevenbergen (2003) found that an intervention in which parents and teachers learned to read books dialogically with children, involving the children in the conversation via questions, was effective in promoting children's references to mental states when retelling the story. Similarly, Lever and Sénéchal (2011) found that an intervention in which parents were taught to read books to their children dialogically was more efficient in promoting 5- to 6-year-old children's narrative skills, mainly their story structure and references to characters' mental states, than an alternative intervention that focused on phonological awareness.

Shared bookreading thus has the potential to promote children's language, social cognition, and narrative skills. The current study aimed to test an intervention program designed to teach parents from a low socioeconomic status (SES) how to conduct rich conversations with their children during shared bookreading in order to promote these skills.

Children from a low SES tend to lag behind their counterparts from a middle or high SES in their literacy (e.g., Fernald & Weisleder, 2011) and social cognition skills from a young age (e.g., Hughes et al. 2005). Their narratives are also less structured in terms of the temporal sequence of events and causality (e.g., Peterson, 1994). Although awareness of the importance of shared reading in low SES families appears to be growing (e.g., Korat & Levin, 2001; Raikes et al., 2006; Storch Bracken & Fischel, 2008), research thus far seems to question whether parents from a low SES use the opportunity afforded by reading interactions to converse with their children. For example, two studies conducted in Israel (Korat, Klein, & Segal-Drori, 2007; Korat, Ron, & Klein, 2008) videotaped and compared the nature of Parent-child shared bookreading interactions of parents from a middle SES versus a low SES. They reported that parents from a low SES presented a lower level of Parent-child discourse than parents from a middle SES. Whereas parents from a middle SES more frequently elaborated on issues that go beyond

the text, parents from a low SES mainly paraphrased the text while pointing to the illustrations.

Several studies analyzed changes in mother-child verbal exchanges during reading, after training mothers from a low SES in interactive reading. For example, Levin and Aram (2012) found that a seven-week tri-weekly structured dyadic shared bookreading intervention program significantly enhanced the quality of mothers' reading and dialogue. The mothers were guided to ask open-ended questions focusing on the plot, word meaning and story grammar. After the intervention, the mothers tripled the number of dialogues they initiated and doubled the number of enhancing dialogues, thereby greatly increasing their children's discourse during reading. Following the intervention, the children participated more in the interactions and there was an increase in the number of their questions and requests for clarification.

Based on previous studies that showed that enriching Parent-child discourse during shared reading has the potential to promote preschoolers' narrative skills, we describe an intervention program aimed at improving Parent-child discourse surrounding language and socio-cognitive themes during repeated shared reading in families from a low SES background. The parents learned how to enrich their book-related interactions with children in order to enhance children's understanding and bridge the gap between their own understanding of the story and the way their children understand it.

We controlled for the children's vocabulary and social cognition since previous research has found that the nature of the Parent-child shared reading interaction is linked to children's vocabulary (e.g., Mol et al., 2009) as well as to children's social cognition (e.g., Ensor & Hughes, 2008). We expected the intervention to promote children's participation in the discourse as well as increase their story comprehension and narrative skills beyond the children's vocabulary and social cognition.

## The study

The intervention program implemented four repeated readings. Parents and children naturally read and discuss the same book repeatedly. Previous studies have shown that repeated reading of the same book promotes children's involvement in the interaction and participation in the conversation (e.g., McArthur, Adamson, & Deckner, 2005; McDonnell, Fariel-Patti, & Rollins, 2003; Ratner & Olver, 1998). Zoran, Shapira and Aram (2012) found that during the second and third reading of the same book, parents elaborate more, ask their children more questions, and enable them to participate more in the interaction, and that children contribute more to the conversation after the first reading. Moreover, during the second and

the third readings, parents and children refer more to emotions and mental states (Shapira, 2014).

In the present four repeated readings model, parents received guidance in reading the books interactively with their children in line with Bruner's (1986) structure of the complete storybook reading experience. Bruner presented a "dual landscape" model of the storybook reading experience: The first "landscape" refers to the *action level*, which involves the plot and focuses on characters' behaviors. The second "landscape" refers to the *consciousness level*, which involves the thoughts, beliefs, desires, emotions, and intentions that underlie characters' behaviors. Young children are capable of understanding a character's actions before they can relate to a character's thoughts or consciousness (e.g., Curenton, 2010; Pelletier & Astington, 2004). Similarly, children's ability to tell stories that refer to the action level precedes their ability to refer to the consciousness level (e.g., Curenton, 2004). In line with Bruner's model and previous research findings, we initiated a four readings model in which parents were first guided to establish the children's understanding of the plot, clarify the sequence of events and the meaning of difficult words (action landscape). Only then were the parents encouraged to move on to clarify characters' mental states (thoughts and feelings), highlight different points of view, and connect the story to their children's lives (consciousness landscape).

### *The four repeated readings model*

We chose six illustrated, age-appropriate children's books, which were not familiar to the children or to their parents (by presentation sequence: "Frog is frog," Velthuijs, 2000a; "Jonnie," Van Genechten, 2003; "An invitation for dinner," Peles, 1994; "Oscar's rotten birthday," Elliott, 1981; "Fly's day out on the beach," Elkivity, 1997; "Frog in a very special day," Velthuijs, 2000b). All the books included a central theme focusing on the understanding of social situations and different viewpoints (e.g., celebrating a birthday, deceit). The books were given to the parents in the same order, one per week. We established a reading program for each of the books, which was based on a fixed structural model of four readings per book. In addition, as an indicator of whether the story was indeed read four times, each reading was accompanied by an assignment that the child had to complete with the parent's guidance. The model implements and combines effective practices from studies on early literacy (e.g., Aram, 2006; Levin & Aram, 2012) and on social cognition (e.g., Pelletier & Astington, 2004; Ruffman, Slade, & Crowe, 2002; Symons et al., 2005).

*First reading – the book's plot*

The parents were asked to read the book themselves and understand the story before reading it to their children. The aim of the first reading with the children was to clarify the plot. The parents were guided to read the book's title and the author's name. They were asked to tell their child that it is important to be attentive and were instructed to make sure that the child understood the sequence of events during the story and how the characters react to different situations. The parents were asked to read through the story and to stop and explain four selected vocabulary words that were considered less well-known but were essential for understanding the plot. After reading the story, the parents were asked, together with their child, to briefly retell the plot and explain the main points that we had defined as important for plot comprehension. The children were then asked to arrange illustrations from the book in the right order.

*Second reading – socio-cognitive themes*

In the second reading, the parents were asked to focus on the socio-cognitive themes raised in the story. The aim was to raise the parents' awareness of the importance of expanding their children's understanding of the characters' mental states in order to achieve a full understanding of the story. They were asked to stop reading at specific points and discuss the characters' thoughts and feelings with their child. For example, parents were guided to ask: "How did Frog feel?" or "Why is Frog sad?" After this reading, children were asked to distinguish between what the characters thought and what really happened, using pictures with thought bubbles.

*Third reading – correspondence to the child's life*

In the third reading, the parents were directed to tell their child that during this reading, they would read the story and see how the child would feel if something similar had happened to him/her. They were guided to read the story, stop at specific points, and discuss how the story's events and the characters' mental states could personally relate to the child. The importance of highlighting the close relation often found between the story's events and the child's own life was emphasized in order to enhance the child's participation in the reading interaction (e.g., Hockenberger, Goldstein, & Haas, 1999), as well as enrich the parent's participation in the child's everyday experiences. After the reading, the children were asked to draw a picture of their own feelings in relation to the story narrative (for example, how would the child feel on his/her own birthday).

*Fourth reading – child retells the story*

The last reading served two purposes. The first purpose was to summarize the previous readings by reviewing the main points from the prior three reading sessions. Second, in line with dialogic reading principles (e.g., Whitehurst et al., 1988), the parent became the listener and the audience for the child and helped the child become the narrator. The parents learned to help their child retell the story by asking open questions about the plot, the relationships between the characters, and the characters' emotions, intentions, desires, and thoughts. The children's retelling of the story served as a tool to enhance their narrative skills through practicing language, sequencing of events, and explaining cause and effect. The parent wrote down the child's narrative verbatim.

## Method

### *Participants*

The participants included 58 Parent-child dyads recruited from low-SES neighborhoods in Israel. The children were randomly assigned to the intervention or control group. Both groups comprised 4- to 5-year-old children (30 in the intervention and 28 in the control group). The groups did not statistically differ from each other in any demographic or socio-economic parameters: children's age; birth order; number of children in the family; percentage of intact families; mothers' and fathers' age, education, and profession.

### *The intervention program*

The four readings model was presented to the parents of the intervention group in a special workshop during which we described the principles underlying high-quality parental mediation (Feuerstein, 1998) and emphasized the importance of parental sensitivity to the child's perspective and attention span. The parents were then taught about the contribution of shared reading to children's language and socio-emotional skills. Finally, we presented the program, explained that the parents would receive a new book each week for the following four weeks, and that they would be asked to read it to their children four times a week according to detailed guidelines. The four readings of the first book were then demonstrated and discussed.

A detailed example of the application of our model to one storybook is given in the Appendix.

After the workshop, each family was assigned a coach who visited the family at home once a week for four weeks to talk with the parent about the previous book and introduce the next one. The coach inquired about each of the four readings, asking the parents questions on the various steps, discussing any difficulties that may have arisen, and ascertaining whether the parents complied with the instructions. Next, she presented the new book, read it with the parent, gave the detailed written instructions for the week's four readings, and discussed them with the parent.

In the control group, each family was also assigned a coach who visited the family weekly to give the family the book of that week and talk with the parent about the previous book. She gave the parents the same books as those received by parents in the intervention group, but only asked them to read each book to their child four times during the week, with no further guidelines.

The study lasted about six weeks. Two assessment books were used for the pre-test and post-test. These were drawn from a Dutch series translated into Hebrew (Velthuijs, 2000a, 2000b). Both books describe the same characters, Frog and his friends, as they experience a variety of social situations. In the pre-test as well as the post-test assessments, all parents (in both the intervention and the control group) received the test book one week before a videotaped assessment session at their home and were asked to read the book four times to their children during that week. In the assessment, we first asked the parent to read the book to the child and videotaped these interactions. The coach then asked the child six questions to assess his/her comprehension of the story. Finally, the child was asked to retell the story.

### *Coding of the children's participation in the shared reading interaction*

The pre-test and post-test videotapes were transcribed and coded. The basic coding unit for the children's input was an utterance – a piece of verbal output that could be defined behaviorally by its intonational contours, irrespective of whether it was grammatically well formed or syntactically complete (Berman & Lustigman, 2012). For example, "Frog was desperate" was analyzed as one utterance, whereas "Frog was desperate, he didn't know what to do" was analyzed as two utterances. Each utterance was coded to one of the following categories, and the total number of utterances in the category was the category score.

#### *Action level*

*Total number of utterances.* The number of children's utterances during the reading interaction.

*Meaning of difficult words.* The number of children's references to the meaning of words. For example, the parent asked, "What is the meaning of "warmly"?" and the child answered, "Warmly is with love."

*Sequence of events and story structure.* The number of children's references to events and to characters' actions in the story. For example, "There were green, yellow and red flags," or, "Who did it – Frog or someone else?". Each of the examples is coded as one reference to the story's events.

### *Consciousness level*

*Mental state terms.* The number of children's utterances related to emotions, desires, intentions, and thoughts. For example, "The mouse was confused" or "Why is she happy?"

*Mental causality.* The number of children's utterances relating to a mental state (e.g., emotion) in order to explain a particular behavior. For example, "You (Duck) are confusing the whole world because you don't know."

*References to the child's life.* For example, while reading "Frog on a Very Special Day", about a frog who imagined his birthday party, the mother asked, "How do you imagine your own birthday party?" and the child answered, "With flags, decorations, chocolate cakes."

*Reference to the central mental state theme.* Each story had a main mental theme. For example, in "Frog on a Very Special Day," Frog is trying to figure out why today is a special day, until he discovers that it is his birthday and his friends are giving him a surprise party. We scored the extent of each child's involvement in the discussion about the central mental state theme: (1) no discussion, (2) only the parent refers to the theme, (3) the parent refers to the theme and the child agrees, (4) the parent refers to the theme and the child shows understanding and expands the discussion.

### *Coding reliability*

To assess reliability, two independent coders (school counseling MA students) analyzed 10% of the pre-test and 10% of the post-test protocols of Parent-child interactions and children's narratives (half from the intervention group and half from the control group). Cohen's kappa was .81, indicating adequate agreement between raters.

*Story comprehension and narrative skills measures*

*Story comprehension*

After the parent had finished reading the pre-test/post-test book to the child, the coach asked the child six open-ended questions about the story. The questions assessed both language and social cognition understanding. One question was about the vocabulary, one question about the sequence of events, and the remaining four questions related to Frog's emotions and thoughts. The story comprehension score was the number of correct answers (range 0–6).

*Narrative skills*

After the child had finished answering the questions, the coach gave the book to the child and asked him/her to narrate it while looking at the pictures. The child was instructed to "tell what happened in the story and also what Frog and his friends thought and felt." The child's telling of the book was transcribed. The percentage of utterances that included a mental state term was calculated out of the total number of utterances in the retold story. We focused on the mental state utterances because we were interested in the potential of shared bookreading to promote children's awareness and understanding of mental states and thus chose books whose central theme was mental.

*Control measures*

*Receptive vocabulary (PPVT)*

The Peabody Vocabulary Test (3rd edition) adapted to Hebrew (Solberg & Nevo, 1979) was used to assess the children's vocabulary. The PPVT score was the sum of correct items.

*Social cognition.* The children's social cognition was tested using three tasks: (a) affective perspective taking task (Denham, 1986) – children's understanding that someone else's emotions may differ from their own emotions; (b) false belief task (Wellman & Liu, 2004) – children's understanding of a protagonist's false belief about the location of an object that has undergone a change in location during the protagonist's absence. This task is the most common task for assessing children's theory of mind, e.g., the understanding of their own and others' conflicting mental states, and (c) real and apparent emotions (Harris, Donnelly, Guz, & Pitt-Watson, 1986) – children's ability to distinguish between what a protagonist really feels and the emotion that the protagonist's facial expression reveals. In each type of task, the children listened to two short stories while little dolls and toy objects were used to enact the stories, as is common in ToM studies (e.g., Peterson, Wellman, & Slaughter, 2012; Symons et al., 2005). The children were then asked

one or two control questions to ensure that they remembered and understood the story, followed by one forced-choice test question about each of the six stories. The children chose between two possible answers for each question, thus yielding a binary score (0/1) for each test question. The child could therefore obtain a maximum raw score of six across the six stories.

## Results

We will first present the descriptive statistics for the intervention and control groups' pre-test measures and the results of preliminary analyses examining pre-test differences between the groups. We will then present the findings regarding the intervention's effects on children's participation during shared reading interactions. This will be followed by findings regarding the intervention's effects on children's story comprehension and narrative skills.

### *Preliminary analyses*

A series of t-tests were conducted in order to ensure that there were no differences between the two groups prior to the intervention. Table 1 presents the children's pre-test scores for both groups. Because of the large standard deviations found across all shared reading measures (except reference to the central mental state theme), the preliminary analyses of these measures were performed on logarithmic transformations of the variables based on the following equation (Howell, 2010): Value = log10 (variable + 1).

As can be seen from Table 1, there were no statistically significant differences at the pre-test between the two groups on any of the assessed measures, with one exception. While the number of children's references to mental causality at the pre-test was nearly zero, the children in the intervention group produced slightly more utterances that referred to mental causality ($M = 0.13$, $SD = 0.35$) compared to those in the control group ($M = 0.00$, $SD = 0.00$).

### *Children's involvement in the interaction, story comprehension, and narrative skills*

A series of repeated measures MANOVAs – with one between factor (intervention vs. control) and one within factor (pre-post) were conducted in order to examine the intervention's effects on children's involvement in the shared reading interactions. As shown in Table 2, all analyses indicated significant time x group interactions. Post hoc Bonferroni analyses demonstrated that children from the

**Table 1.** Mean scores and standard deviations for children's pre-test assessments and results of the t-tests between intervention and control groups (N = 58)

| | | Intervention (n = 30) | | Control (n = 28) | | t(56) |
|---|---|---|---|---|---|---|
| | | M | SD | M | SD | |
| **Children's elaborations during shared reading interaction** | | | | | | |
| **Action level** | Total number of utterances | 20.57 | 23.15 | 10.50 | 14.15 | 1.61 |
| | Difficult words | 0.63 | 1.70 | 0.21 | 0.50 | 0.96 |
| | Sequence of events and story structure | 5.57 | 10.37 | 3.00 | 4.88 | 1.16 |
| **Consciousness level** | Mental states | 1.13 | 1.83 | 0.68 | 1.54 | 1.22 |
| | Mental causality | 0.13 | 0.35 | 0.00 | 0.00 | 2.04* |
| **Child's story comprehension and narrative skills** | | | | | | |
| Story comprehension | | 2.30 | 1.02 | 2.25 | 1.04 | 0.22 |
| Mental states while retelling the story[1] | | 13.30 | 8.64 | 13.66 | 10.21 | 0.15 |
| **Control measures** | | | | | | |
| Receptive vocabulary – PPVT | | 38.63 | 5.89 | 36.17 | 5.58 | 1.64 |
| Social cognition – TOM | | 2.28 | 1.88 | 2.30 | 1.36 | 0.68 |

* $p < .05$ ** $p < .01$ *** $p < .001$

[1] Percentage of the total number of utterances.

intervention group progressed on all measures, while their counterparts from the control group did not show significant progress on any measure.

Regarding the action level, children from the intervention group participated in the reading interaction to a greater extent, with more utterances in general than children in the control group (for example, "She laughed at him," and "Today is his birthday."). They also referred to difficult words more than children in the control group (e.g., "To ponder is to think in the head") and to the sequence of events (e.g., "Is he going to Pig now?").

On the consciousness level, children from the intervention group referred to the characters' mental states (for example, "Frog was angry"), explained the causes of mental states ("Frog was desperate because nobody told him the truth"), and related the story events to their own life ("I cried "surprise!" at my brother's birthday party") more than children in the control group. Children from the intervention group also demonstrated a greater understanding of the story's main mental state theme than children in the control group. For example:

Parent: *Why didn't Duck tell him?*
Child: *She just said that today is Monday.*
Parent: *Yes. But why didn't she tell him?*
Child: *Because it is a surprise!*

**Table 2.** Mean scores (and standard deviations) for children's pre-test and post-test measures and results of the repeated measures multivariate analysis interaction effect between the two groups (N = 58)

| | | Intervention (n = 30) | | Control (n = 28) | | Time X group F(1,56) |
|---|---|---|---|---|---|---|
| | | Pre-test M(SD) | Post-test M(SD) | Pre-test M(SD) | Post-test M(SD) | |
| **Children's elaborations during shared reading interaction** | | | | | | |
| **Action level** | Total number of utterances | 20.57 | 55.97 | 10.50 | 11.75 | 12.60** |
| | | (23.15) | (41.95) | (14.15) | (17.07) | |
| | Difficult words | 0.63 | 2.57 | 0.21 | 0.61 | 11.07** |
| | | (1.70) | (2.85) | (0.50) | (1.93) | |
| | Sequence of events and story structure | 5.57 | 14.60 | 3.00 | 3.36 | 8.68** |
| | | (10.37) | (16.03) | (4.88) | (5.67) | |
| **Consciousness level** | Mental states | 1.13 | 7.53 | 0.68 | 0.82 | 26.47*** |
| | | (1.83) | (7.50) | (1.54) | (1.91) | |
| | Mental causality | 0.13 | 0.53 | 0.00 | 0.00 | 4.07* |
| | | (0.35) | (0.94) | (0.00) | (0.00) | |
| | Reference to child's life | 1.47 | 4.00 | 0.54 | 0.79 | 4.23* |
| | | (3.38) | (4.79) | (1.26) | (1.77) | |
| | Central mental state theme | 1.13 | 1.67 | 1.18 | 1.18 | 4.32* |
| | | (0.57) | (1.15) | (0.55) | (0.61) | |
| **Child's story comprehension and narrative skills** | | | | | | |
| Story comprehension | | 2.30 | 3.33 | 2.25 | 2.64 | 3.89^ |
| | | (1.02) | (1.37) | (1.04) | (1.19) | |
| Mental states while retelling the story[1] | | 13.30 | 18.83 | 13.66 | 11.94 | 2.23* |
| | | (8.64) | (14.77) | (10.21) | (7.49) | |

^ $p = .05$
* $p < .05$
** $p < .01$
*** $p < .001$
[1] Percentage of the total number of utterances.

Similarly, analysis of the child's story comprehension and narrative skills (percent of mental state utterances while retelling the story) showed a significant time X group interaction. Post hoc Bonferroni analysis indicated that children from the intervention group showed progress on both measures, while their counterparts from the control group did not show significant progress on any of these measures.

For example, a child from the intervention group retold the story and described what Frog felt and thought:

> "…And then he went to the (Rabbit's) house, but he didn't know what was written in the note (on his door). He just knew it was about a party. He didn't know what else was written … and then he came to his own house but he thought that there was a thief in his house. "Who put a flag on my house?" "Surprise! Happy birthday to you, happy birthday to Frog!" and then he saw many flags and balloons and the Frog and the Rabbit were very content and they danced and they were happy, how nice it was for them! And then he (Frog) thought it was a really nice day, and then he went to sleep."

Regarding the story comprehension task, when asked: "What did Frog think when he saw the note on Rabbit's door?" a child from the intervention group answered: "He thought that today is someone's birthday and he (Frog) wasn't invited."

## Discussion

The chapter describes a study that assessed the efficacy of an intervention program, which was designed to enrich the discourse between parents and preschool children during shared reading. Taken together, the findings show that the intervention promoted children's language, understanding of the books' social cognition aspects, and narrative skills. The intervention was based on Bruner's (1986) "dual landscape" model of the shared reading experience. Specifically, the parents were guided initially to refer to the action level, which includes explaining the meaning of difficult words and relating to the sequence of events and story structure. Only afterwards were parents guided to clarify characters' mental states, discuss characters' thoughts and emotions in terms of cause and effect, and connect the story to the child's life (consciousness level). The findings show that after completing the program, children in the intervention group referred more often to both levels –action and consciousness– compared to children in the control group.

As predicted, repeated readings in which the parents encourage their children to take part in the interaction, promoted children's narrative skills. As in other intervention programs (e.g., Lever & Sénéchal, 2011; Zevenbergen et al., 2003), when parents in the current study learned how to converse with their children during shared reading – asking them questions, encouraging them to talk about their feelings and relating the story to their life – the results were positive. The narrative skills of the children in the intervention group progressed significantly during a relatively short time. During the post-test shared reading session, children in the intervention group participated actively. When retelling the story,

they referred to characters' mental states significantly more than their control counterparts did. Furthermore, children from the intervention group showed a better understanding of the story's language, plot, and social-cognitive themes. Specifically, they were better able to answer open-ended questions regarding the meaning of difficult words and the sequence of events. They also showed a better understanding of the characters' emotions and thoughts, as well as of the reasons that led to those mental states. Our results support previous research, which showed that good comprehension of a narrative is a prerequisite for retelling a story coherently (e.g., Wagner, Sahlén, & Nettelbladt, 1999).

These findings highlight the importance and efficacy of guiding parents in how to read books to children. As in previous studies (e.g., Grazzani & Ornaghi, 2011; Peskin & Astington, 2004), simply reading the story several times did not promote children's comprehension of the mental aspects of the story. In order to promote such understanding, the adult should discuss both the action and consciousness landscapes of the story with the child. The advantage of the reading model presented here lies in its clear hierarchical structure, which directs the adult to first establish the child's understanding of the action level, and only after reaching this understanding to move on to discussing characters' mental states and different points of view and connecting the story to the child's life.

The following example demonstrates post-test interaction between a parent and child from the intervention group that includes the mother's clarification of the meaning of a difficult word, followed by the child's spontaneous reference to his own life:

Mom: What do you think "A special day" is?
Child: A special day?
Mom: Yes
Child: A very special day
Mom: Right. But what does "special" mean?
Child: Beautiful
Mom: Similar to other days or different from other days?
Child: Different
Mom: Different from other days
Child: Thursday is going to be a special day
Mom: That is right. Thursday is going to be a special day for us. Why?
Child: Because we are going to the Sea of Galilee

The findings support previous research that showed that rich shared reading discourse between parents and children relates to children's language (e.g., Mol et al., 2009; Mol et al., 2008), social cognition (e.g., Le Sourn-Bissaoui & Hooge-Lespagnol, 2006), and narrative skills (e.g., Lever & Sénéchal, 2011; Zevenbergen

et al., 2003) and highlight the potential of an intervention to improve the quality of this significant interaction. Importantly, the four repeated readings model was simple to teach parents and simple for them to apply, as demonstrated in their reading of the post-test story. The model's clear logical sequence seems to provide parents with helpful guidelines for reading and discussing books with their children in a manner that encourages children's participation and results in a gain in their vocabulary learning and story comprehension (understanding of the plot and the characters' mental states). While regularly applying such a model might seem to prevent flexibility and spontaneity of the discussion, we believe that it can provide parents with an anchor that can be personalized and used more flexibly. Parents should be encouraged to remain attuned to their children's interests and needs while applying the model in order to ensure that the child is attentive, curious, and enjoys the interaction (see the Appendix for an example of the application of our model).

## Suggestions for future research

When reading this chapter, one has to bear in mind the study's limitations. First, because the intervention lasted only six weeks, changes in children's theory of mind and receptive language were not expected. Future research should examine the effect of a longer intervention program on these measures. Second, we chose to intervene among families from low-SES backgrounds. To strengthen the validity of the intervention, it is important to assess its impact on children from other backgrounds as well. Finally, most of the parents in the present study were mothers; an intervention with both mothers and fathers would enable possible gender differences in shared reading interactions to be explored.

## Conclusion

The four repeated readings model can help adults enrich their shared bookreading discourse with children, while enhancing children's participation and simultaneously promoting their language, social cognition, and narrative skills. We recommend that parents, as well as educational professionals, apply the model using various books and adapt it to the books' topics and to children's unique characteristics, interests, and desires. In this way, the parent/educator can stay, in Bruner's terms "on the growing edge of the child's competence" (Bruner, 1986), scaffolding the child's understanding and skills, and promoting his/her development.

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## Appendix. Applying the four repeated readings model

To conclude our chapter, we will illustrate the application of our model to one storybook, "The Very Busy Spider" by Eric Carle (1995). The story can be read and discussed with children between the ages of 2 to 5 years. Whereas the current chapter focused on parents' shared bookreading with children, the model is also appropriate for shared bookreading of teachers with small groups of children in preschool and kindergarten. As can be seen in this example, the adult can flexibly apply the model, taking the child's age, knowledge, and other individual variables into account.

The story is about a spider that flies in the wind and comes to rest on a fence near a farm. She begins to spin a web. All the animals on the farm invite the spider to do different things with them, but the spider does not answer any of them, because she is busy spinning her web. When the web is complete, the rooster invites the spider to catch a fly. The spider catches the fly easily using the web, and goes to sleep. Some major messages that can be discussed are: (1) Significant investment yields results; or alternatively, in order to achieve something, one needs to work hard; (2) sometimes there is a simple reason that explains why a person does not answer us or seems unfriendly – he is busy, or perhaps we suggested something that he cannot do or that does not interest him; (3) if we want someone to spend time with us, we should consider offering something that is enjoyable for him and that both of us can do together.

Here are a few questions and topics for discussion in each of the four readings:

### *First reading:*

- Read the name of the author and illustrator.
- Read the story and explain the meaning of difficult words and expressions (for example, "spinning a web").
- While reading the story, it is recommended to feel the illustration – both the thread and the spider are raised. Adults should encourage children to do the same throughout the remainder of the book, and feel how the web is growing. The spider is working very hard.
- When reaching the end of the story the adult can ask, "Where did the fly come from?" and then return to the beginning of the book and draw the child's attention to the fact that the fly appears in each of the illustrations. The adult can use the search for the fly to confirm that the child understands the sequence of events and to encourage the child to name the animals that the spider meets.

### *Second reading:*

Although the book does not directly mention emotions or thoughts, several socio-cognitive topics can be discussed:

- Read the book and discuss with the child how the animals feel when the spider does not answer them, and essentially ignores their suggestions. Are they sad? Hurt? Disappointed?
- Discuss how the spider feels when she is unable to participate in the activities that the animals are suggesting.
- Discuss how the spider feels at the end when she catches the fly.
- With 4- to 5-year-old children: Discuss why the spider does not answer the other animals. There may be two possibilities. First, the spider is concentrating – she is busy. In this case, adults can assist their children in drawing the distinction between what the animals might think (that the spider is ignoring them) and the actual reason for the spider's silence (she is occupied). Second, the animals propose activities that *they* like best (e.g., running, rolling in the mud), and not activities that are appropriate for the spider.

### *Third reading:*

- The adult can ask the child whether s/he ever experienced a situation in which s/he tried to talk to someone who did not answer him/her. How did the child feel? With younger children, the adult can help the child recall such events and recognize the emotion the child felt.
- The animals keep suggesting activities that the spider cannot do (like swimming). Ask the child how s/he would feel if his/her friends suggested doing things s/he could not do. Has it ever happened to him/her? What could be done differently?

### *Fourth reading:*

In the last reading, after the child has gained a good understanding of the story, we recommend that the adult encourage the child to become the narrator, and use the book's illustration to tell the story by him/herself. The adult can help by prompting, for example, "What happened next?" "How did she feel?"

CHAPTER 11

# Investigating the effectiveness of the *Our Story* App to increase children's narrative skills

## Lessons learnt from one English preschool classroom

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[1]University of Stavanger / [2]The Open University

This chapter outlines a classroom-based intervention which consisted of using the *Our Story* iPad app to improve children's narrative skills with a group of 30 English preschoolers for a period of six months. Children's narrative skills were measured using a story retelling task with the wordless picture book *Frog, Where Are You?* (Mayer, 1992) and a personal story generation task. Children's narrations were analyzed with a simplified version of the High Point Analysis framework that focused on the pragmatic features of children's narratives, including orientation, evaluation and appendages. Results indicated that children's narrative skills showed an increase in the number of words and an increase in the use of orienting and supplementary information. A range of qualitative observations showed changes in teachers' plans and attitude towards the use of new technologies in the classroom setting. In addition, several issues were noted which were related to the challenges resulting from the practical implementation of a new technology in a busy classroom.

**Keywords:** iPads, narrative, early years, formative experiment, teachers' plans

### Introduction

Children from deprived backgrounds often make poor progress with language (Roy & Chiat, 2013) and this is identified as a government priority in several Western countries, including the US and UK. A recent trend in many Western preschools has been the use of iPads with young children (Shuler, 2012) and several anecdotal reports suggest that iPads could support children's language. In 2011, a preschool in an area where children often made poor progress with language approached the authors of this chapter to explore whether iPads could be used to help the development of the children's narratives in their classrooms. From this grew out a research

https://doi.org/10.1075/sin.25.12kuc

project in the tradition of formative experiments to look at the potential of a specific story-sharing/story-making app "*Our Story*" to support children's narratives.

### *Supporting children's narrative skills*

Children come to preschool with various levels of oral language skills, and it is well-established that experiences significantly shape their narrative skills (Tomasello, 2006). A number of investigations indicate that storybook reading at home has a significant influence on children's oral language (e.g., Justice & Ezell, 2002; Sénéchal, 1997), including their receptive language (Debaryshe, 1993). Sénéchal, Lefevre, Thomas, and Daley (1998) looked at a number of potential influences (children's storybook exposure and the amount of teaching in reading and writing skills reported by middleclass parents) on children's oral language skills, including receptive vocabulary, listening comprehension, and phoneme awareness. The researchers found that storybook exposure at home was a significant predictor of children's enhanced oral language. However, not all children are exposed to a high-quality literacy environment at home (Sylva et al., 2004). This has implications for children's oral language skills and later on, their reading ability (Sénéchal & Lefevre, 2002) and school achievement (Duncan et al., 2007). It is therefore important for preschools to provide a rich language-stimulating environment which can increase children's narrative skills, notably of the children who may not have this exposure at home. iPads and tablets provide new platforms and possibilities for engaging children and young people with a range of language experiences and this possibility is in need of investigation.

### *iPads and Apps for young children*

iPads are flexible, mobile and multi-featured devices, on which a countless number of applications can be run that engage children multimodally (i.e., via touch, vision and sounds), sequentially and with gradually increasing levels of difficulty. As such, iPads fit the current academic view that there are many pathways into literacy (Marsh, 2007; Plowman, McPake, & Stephen, 2010) and that introducing multimodal media education into early years curricula supports children to become "competent techno-citizens" (Marsh, 2002, p. 137). In particular, for preschool children, including those with limited oral language skills, touch-screen tablets are an attractive way to a research project in the tradition of formative experiments to look at the potential of a specific story-sharing/story-making app "*Our Story*" to support children's narratives (Kucirkova, 2011, 2014a).

Although it is now widely recognized that iPads offer some unprecedented opportunities for supporting children's creative engagement with a range of literacy

activities (Flewitt, Messer & Kucirkova, 2014), there is a serious lack of educational software (apps) which support meaningful interactions. In particular, the potential of iPads to act as a motivational and stimulating tool for children's engagement with narrative activities (such as digital storytelling or creative writing) has been highlighted in recent reports and observational studies (Wohlwend, 2010, 2011). However, thus far, these concerns have not been accompanied by developments in the app design industry (Shuler, 2012) or by research which would empirically demonstrate this potential (Kucirkova, 2014b).

## The current study

The *Our Story* app is one of the few apps currently available for young children which is built on the principles of longstanding early years literacy curriculum ideas and successful early literacy programs, including shared storytelling for children's literacy development (for a review see Conrad, 2007). The app was developed at The Open University, UK, by a group of psychologists and educational professionals. The user interface of *Our Story* consists of a gallery of pictures, which can be placed in a sequence on a filmstrip to make up a story. Stories can be shared orally or by listening to the audio-recordings or reading the text. The app allows the users to create their own story, with a simple user-interface and the possibility to record their own sounds, embed their own text and use their own pictures/drawings. In addition, the app invites the participation of adults or other 'more knowledgeable others' (Vygotsky, 1978), such as children's older peers who can extend children's self-made stories to other levels and environments through the embedded story-sharing feature in the app. *Our Story* is freely available as a public download for smartphone and tablet devices (see www.open.ac.uk/creet/main/projects/our-story).

This study explored how the use of the *Our Story* app in one English preschool might improve children's narrative skills. The study was framed as a formative experiment in that the 'intervention' was not predetermined; it was flexible in nature and the goal of the intervention was established jointly with the classroom teacher. A broader epistemological orientation was adopted, that is, the perspective which conceptualizes literacy as a set of practices rather than skills (Ivanic, Edwards, Fowler & Smith, 2004).

Digital technologies give access to new semiotic resources which powerfully shape children's everyday literacy practices (Flewitt, 2011) and provide them with various opportunities for multimodal interaction. Consequently, children's literacies involve a set of "social, virtual, material and discursive practices" (Coiro, Knobel, Lankshear, & Leu, 2008, p. 526), typified by multimodality, diversity and

plurality (Jewitt, 2008). Researchers and practitioners working in the so-called New Literacies framework share the view that the introduction of media education into early years curricula will equip children with skills and experiences that can help them better understand the various narratives they can access in the range of media around them (Plowman, McPake, & Stephen, 2008). We incorporated this concept of literacy into the study by leaving the activity of story-sharing on iPads open to the teacher's and children's creative exploration of the digital resource. Children were free to engage with the narrative via touch (by swiping the digital pages of the book), by using the embedded voiceover feature or taking pictures and thus explore the visual nature of their own or customized stories.

Besides the formative experiment methodology, we also employed a design-based research *approach*. This concerns direct, scalable improvements, which can be made concurrently in research, theory, and practice (Wang & Hannafin, 2005). In contrast to large-scale controlled experiments, design-based research is gauged in the perspective of multiple realities (Labbo & Reinking, 1999) and follows a collaborative practitioner-researcher investigation. This means that a conscious effort was made to achieve a mutually enriching understanding for all stakeholders involved in the intervention, in this case the researcher, the practitioner and the children, as the key intervention recipients. In design-based research, the instrument of intervention, the *Our Story* app, is conceptualized as "something that can be used, by the school as well as the researcher, to support changes" (Newman, 1990, p. 12).

The following research questions guided the research: first, how might personalized iPad stories be implemented in an English preschool to meet the goal of increasing children's narrative skills? Part of this objective was to identify which factors enhance and which inhibit/detract from the intervention's ability "to successfully accomplish a desirable pedagogical goal" (Calais, 2007, p. 2). Second, how does using the *Our Story* app influence the development of children's narrative skills? This question concerns the effectiveness of the intervention in supporting the development of young children's narrative skills.

In terms of the teacher-technology relationship, and our understanding of how the specific technology used here was implemented in the classroom, we drew on the developmental framework developed by Reinking, Labbo and McKenna (2000). This acknowledges practitioners' ability to both assimilate and accommodate new technologies in relation to their knowledge of the literacy opportunities represented by these tools. We were also mindful of the importance of a close alignment between practitioners' own attitudes and beliefs about new technologies and their effective deployment in the classroom (Zhao, Pugh, Sheldon, & Byers, 2002).

## Method

### *Setting and design*

The study took place in a government-funded Sure Start[1] children's center, located in a disadvantaged area of a city in the English Midlands. Although Sure Start centers are open to all children who live within the neighborhood where the Centre is located, this particular center was attended predominantly by children from very low-income, diverse and often one parent families. The center provided a wide range of activities and services for the families of children aged 0–5 years. Part of the center was a nursery school where the key teacher in the study – Katie (pseudonym) – worked as a part-time teacher and where all the data were collected.

### *Participants*

The participants in the study were Katie, a teacher with a keen interest in ICT (information and communication technology) and innovative practice, her four colleagues working in the preschool classroom, and 30 children, aged 3 to 5 years, of mixed socio-economic background. The four other teachers had flexible work schedules so their presence in the classroom was not regular. The use of the *Our Story* app was led by Katie who was occasionally helped by one of the teachers, especially towards the end of the study.

The children attended either a morning or afternoon session, and were split in two groups, according to their time of attendance. There were 26 children in the morning group and 13 children in the afternoon (six children attended both the morning and afternoon sessions and 3 children did not participate in the study). Based on their observations during home visits, staff reported that the children had few experiences with print-related material such as bookreading or letter-based activities, but that they were exposed to many technology-related experiences at home, mostly mediated by TV. As Katie described in the initial interviews with the researcher, 'Often at home visits, the most prominent item in the house is television, in often very small rooms. There will be an enormous sofa and this enormous television and that would be it.' The majority of children in both groups were identified as having developmentally very limited language skills. A pre-intervention interview by the researcher was conducted during which the staff commented on the children's lack of basic vocabulary and difficulty to maintain eye-contact with the speaker. Twenty-two of the participating children were formally identified as having special education needs and qualified for extra teaching support.

1. Sure Start is an area-based initiative, which aims to give all children the "best possible start in life".

### *Implementation and operation of the intervention*

The intervention lasted six months (November 2011 to April 2012) as Katie and her colleagues were loaned an iPad2 that was pre-loaded with the *Our Story* app. The researcher (first author) visited the classroom for three full days altogether, one at the beginning, one in the middle and one at the end of the intervention, and was in contact with Katie via emails and telephone on a regular basis during the intervention. Pre-tests and post-tests took place one week before the intervention and one week after, respectively.

At the first visit, the researcher introduced Katie and her colleagues to the affordances of the iPad hardware and demonstrated the app. On subsequent visits, the researcher acted as an observer and teachers' consultant, but did not intervene with their ongoing teaching practices to avoid interrupting the natural events of the classroom. She took notes and made observations of children engaging with the app or in other story-sharing activities. Some of these activities were filmed so that they could be shared with the rest of the research team. The researcher also talked to the staff and Katie about any challenges during the intervention; some of these discussions were audio-recorded, especially if they related to specific modifications of the app requested by the teacher(s). These comments were then discussed with the research team and followed up with design modifications of the app.

The participating teachers were not given any specific instructions on how to implement the *Our Story* app nor were they asked to take field notes. As a result, the app was introduced in a multitude of ways, sometimes in a small group activity, sometimes in a one-to-one session with a particular child. During one observation session, the app was used outside the classroom for part of the day, and during another the app and children's stories were shared with a parent who came to collect their child. This variety of ways in which the app was implemented in the classroom provided rich contextual data which were part of the analysis of the inhibiting and enabling factors for the intervention.

### *Data for enabling and inhibiting factors*

To gain an insight into the effectiveness of the intervention and children's engagement in narratives and literacy, contextual data were gathered during the three times that the researcher visited the classroom (before, during, and at the end of the intervention). These data included video recordings to illustrate children's engagement in literacy activities in the classroom (such as letter-making, bookreading, mark making); pictures evidencing the quality of environmental print in the classroom (such as pictures on the notice boards on the walls and the

periodic changes made to the pictures); interviews with staff, and handwritten and audio-recorded field notes about the progress of the intervention. These data were analyzed using qualitative coding methods.

### *Pre-tests and post-tests*

To further test the effectiveness of the intervention, children's narrative skills were assessed approximately one week before the intervention (November 2011) and one week after the intervention (April 2012). Two types of narratives were used, retellings and personal story generation.

Personal stories were incorporated for three reasons: (1) personal stories typically contain richer and more complex narratives (Liles, 1993); (2) the *Our Story* app has been designed with the emphasis on personal, rather than template-based approaches to stories; (3) children's personal event narratives typically develop before fantasy stories and follow a different developmental trajectory (Allen, Kertoy, Sherblom, & Pettit, 1994).

- For retelling, children were presented with five pictures selected from the wordless book *Frog where are you?* (Mayer, 1992).
- For personal story elicitation, the following scenarios were followed:

Can we play this game where I tell you about something that happened to me and you tell me whether something similar happened to you? So all we do is swap stories with one another.

Scenario 1: Last time when I was in the nursery, I took a small blue book with me. In the book were lots of things I needed to remember. But somehow I lost the book. I looked everywhere for the book and asked lots of people who I met whether they had seen the book. But no one had seen it. I lost my favorite little book. I was very upset. Has that ever happened to you that you lost something you really liked?

Scenario 2: You know this morning when I was drinking milk, I managed to spill it. The whole glass of milk across the floor. I was very upset. Has that ever happened to you that you spilled something? (adapted from McCabe & Peterson, 1991).

The narratives were elicited by the researcher and were recorded with a standard, hand-held audio-recorder in a quiet corner of the classroom. All children's narratives were transcribed and coded at the end of the study.

### *Coding*

We followed McCabe & Peterson's (1991) conceptualization of narrative as a chronological recapitulation of successive events; that is, two or more events

temporally or causally connected over time. The High Point analysis (Peterson & McCabe, 1983) is a coding framework which corresponds to this definition of narratives and is particularly suitable for early narratives (Liles, 1993). However, given the limited language skills of the participating children, appropriate adjustments in the coding procedure were made. To ensure comparability with previous research, McCabe and Peterson's coding was revised in consultation with the teacher and the research team, and only the pragmatic features of personal narratives such as orientation, evaluation and appendages (cf. Longtin, 1992) were coded (see Table 1 for coding and examples). To score children's narratives, we separately calculated, for all children's narratives, the raw frequencies of all the words fitting one of the three categories for pre-test and post-tests. In addition, the total number of words produced by each child during each session was calculated.

**Table 1.** Coding categories for structural narrative elements (adapted from Peterson & McCabe, 1983)

| Category of coding | Details of coding | Examples |
|---|---|---|
| Actions | Complicating actions | |
| | Specific events occurring before the high point | |
| Orientation | Participants, Time, Location, General conditions, Ongoing events, Tangential information | I lose Daisy Mummy |
| | Statements that provide the setting or context | |
| | Imminent events, Environmental features | |
| Evaluation | Prosodic: stress, onomatopoeia, elongation, exaggerated intonation | Try to find her. |
| | Features that tell the reader what to think about a person, place, thing, event or the entire experience | |
| Appendages | Abstracts | Yeah, mummy found her. |
| | Summaries of the story at the beginning, signaling that a narrative will follow | |
| | Attention getters, features that engage the listener, for example, Guess what I did? | |

*Reliability of coding*

An independent researcher, who did not work in our institution, verified 10 randomly-selected narratives for reliability in coding. The inter-rater reliability was very high (r = .94).

## Results

Descriptive statistics for the number of words produced in the Frog and personal narrative tasks are provided in Table 2.

**Table 2.** Mean frequencies (including standard deviations) of the Total number of words produced by all the children in the frog (N = 30) and personal narrative (N = 30) conditions

| | Pre-scores for Frog narratives | Post-scores for Frog narratives | *P* | Pre-scores for personal narratives | Post-scores for personal narratives | *P* |
|---|---|---|---|---|---|---|
| Mean (SD.) | 16.88 | 27.33 | 0.16 | 20.21 | 28.55 | 0.13 |
| | (14.57) | (25.92) | | (25.55) | (29.80) | |

There was a statistically significant increase in the number of words children produced from pre-test to post-test for both the Frog task ($t(28) = -2.557$, $p = .016$), and for the personal narrative task ($t(30) = -2.617$, $p = .013$).

Children's narratives produced in the Frog task were not sufficiently well structured before and after the intervention to be further analyzed. Children's personal narratives were not elaborate either, but contained a strong pragmatic narrative structure, involving complication and the characters' actions (Lynch & van den Broek, 2007), thus our analysis focused on this aspect. This analysis revealed that before the intervention children's personal narratives contained mostly orientation elements, followed by appendages and evaluations (see Table 3 for details). The orientations were mostly used to locate the story in place and included statements about the participants rather than other contextual information, as evidenced in the excerpt below. This is a common finding in young children's narratives, as children include more "complete contextual embedding" as they grow older (Menig-Peterson & McCabe, 1978, p. 582). After the intervention, there was a considerable increase in children's inclusion not only of orienting but also of evaluative and supplementary information in their narratives (see Table 3). There was a statistically significant difference between the pre-and post-test summary

**Table 3.** Mean frequencies of the three pragmatic elements in personal narrative for pre- and post-tests

| Pre_orientation scores | Pre_evaluation scores | Pre_appendages scores | Post_orientation scores | Post_evaluation scores | Post_appendages_scores |
|---|---|---|---|---|---|
| 0.76 | 0.21 | 0.30 | 0.87 | 0.35 | 0.35 |
| (0.43) | (0.41) | (0.47) | (0.34) | (0.49) | (0.48) |

scores, $t(30) = -2.158$, $p = 0.039$). We illustrate these patterns with the narratives of two children before and after the intervention.

> *My, my daddy. He take me to school. And I got a new jacket. I got a black one. When I see that, come to my house. And it was night. I fell asleep.*[2] (Boy 1, Pre-test story)

> *Yeah. When I go to sleep. Then a monster. Some other people a monster and then a fairy monster hand and much and watching a film. Then, then, then I was trying to sleep and mummy shh the light then she put my clothes in and in and like in and in a there and then she didn't get it out. Yeah but daddy said. Daddy said he was my dad. But mummy said he was my dad first. Then dad said you are my friend. Then then nobody talking too much. Then I was trying to sleep, then mummy make me woke up then she make me drink milk and I don't know how to sleep. And then I drink and then and then I go to and then I go.* (Boy1, Post-test story)

> *I read a book. Yeah, my nursery one. Lost. Then I can't find it. A book. And another book, again; Then my mum can't find it. Then I can't read it when I go to bed. Then I dropped it on floor. Now she reading in bed.* (Girl 1, Pre-test story)

> *When I was having milk I spilled it out. My mummy got tissue then wiped it away. I don't spill anymore my breakfast. [Researcher: Oh I see. You want to tell me more what happened?] Yeah, then we had a bath, then we drink some of it. Then come upstairs. And my ehm went to bed. Having bath, then went to bed. Am not going tell you nothing else* (Girl 1, Post-test story)

The intervention consisted of implementing the *Our Story* app in the classroom, as a complementary tool to the existing practice. The teacher used the app in story-sharing sessions where she thought children's interest in narratives might be waning and their engagement could be enhanced with the *Our Story* app. She used the app for various purposes to engage children in the books they read in the classroom. For example, the teacher used some pictures from the popular children's book *Kipper* by Mick Inkpen (1996) in the app and let children explore the pages on the iPad. On another occasion, she used the app to insert children's pictures taken inside or outside the setting and let them personalize them with their own voice-overs (short audio recordings) or helped them type simple sentences. As researchers using a formative experiment, we did not want to impose particular practices on the teachers; rather, the teacher was free to use the app as she felt fitted the particular objective of the lessons or related to the needs of the individual children.

**2.** Punctuation corresponds to pauses in the child's spoken narrative.

## Discussion

### *Enabling factors of the intervention*

Grounded theory analysis of the interviews, video materials, and the researcher's field notes were used to identify the factors that facilitated the intervention. Through this analysis, factors identified *before* the introduction of the app were mostly related to the ethos of the setting. Specifically, in line with the New Literacies (Leu, Kinzer, Coiro, & Cammack, 2004) and funds of knowledge perspectives (Moll & Cammarota, 2010), the staff placed great value on the "different realities of diverse groups of learners", and they incorporated "this acknowledgment into actual teaching practice" (Verhoeven & Snow, 2001, p. 11). There was a shared understanding among the staff about the importance of valuing each individual in the setting (cf. Gonzalez, Moll, & Amanti, 2005) and various procedures were in place to provide a supportive learning environment for the children.

The key teacher's commitment to advancing children's language skills was evident in many areas and activities in the classroom. For example, in the interview before the intervention, Katie emphasized the need for increasing children's basic vocabulary skills to help develop the children's narratives, and the need to make vocabulary learning an engaging and enjoyable activity, 'We need to get the basic vocabulary into them and it can be a boring task for both the staff and the children but the iPad could help with that.'

Another reason why Katie found the iPad useful was the possibility of inserting children's own pictures. She told us after the intervention: 'We need to find something which would give them a real focus for talking. They like doing things which have a purpose. And the technology gives a purpose for talk. The *Our Story* app gives them a visual stimuli (*sic*) and something they can start questioning, … and the other thing I loved was that we can take our own pictures and focus them on that …being able to see themselves, and their peers and staff members really recognizes their interest in it.'

Katie and other members of staff built on the children's funds of knowledge in a number of ways. For instance, the use of technology in the classroom was very much recognized as a way of capturing children's attention and extending the resources provided at the nursery to those more familiar at home. As Katie summarized: 'Early years education is all about starting with children's interests. That's why I feel we should have these devices in the nursery to capitalize on that'. To encourage children to read or tell stories, the focus was always on the individual child's interests rather than on what may be prescribed in the curriculum as recommended text. For instance, Katie reproduced on the iPad stories that the children liked and were familiar with and used these as model stories when encouraging

them to compose their own. She also used many pictures of her own, notably photographs of things they liked and with which they could readily identify.

Enabling factors identified *during* the intervention were the positive attitudes of the staff toward the use of new technologies in their classroom and the intuitiveness and ease of use of the *Our Story* app. In a social context which validates their language resources and diverse backgrounds, the app seemed to have enabled the teachers to achieve their objectives by producing conditions in which personalized learning could be celebrated and enacted. This was the case for other literacy outcomes as well. For instance, at the beginning of the intervention, children could not recognize their written names, but they could use stickers for self-registration, which contained children's names, along with their profile pictures. During the intervention, photographs of children's faces were used to support entire stories about them, thus enabling them to recognize their names and role within the setting in a wider context.

The advancement of children's language and the adult's *facilitative* role in this process was also the main theme of teachers' daily plans, as illustrated by this excerpt from a daily plan drawn up by the teacher (28.11.2011)

> *Learning intention:* Describe the texture of things; Experience/ activity/ resources; Clay, Christmas shape cutters, rolling pins. *Adult role:* Encourage children to talk about what they are doing, how it feels, what it looks like etc.; support with vocabulary; model descriptive language.

Daily plans were closely followed in the setting, with staff checking the plan every day and providing activities as specified by the plan. At the start of the intervention, Katie told us that she preferred not to plan the activity too much, but built on children's momentary preferences (which were often difficult to predict). Towards the end of the intervention, however, the iPad highlighted the need for staff to regularly plan for technology-related sessions. The staff added a technology box to their planning with the aim of reminding everyone to plan some work with ICT each week. For Katie this was an important achievement on the setting level, as it provided more opportunities for children as well as staff to experiment with technologies, but also, as she explained, because 'it is an expensive equipment so it really needs to be utilized to reach the benefit, not just stay in the cupboard'.

Further positive outcomes noted *post-intervention* included children's enhanced social skills, notably their behavior when handling the iPad in groups and individually. Katie commented: 'iPad is great as a turn-taking exercise. EYFS (Early Years Foundation Stage, curriculum in the UK, Department of Education, 2013) has a lot of focus on personal and social education, that's some of the things we need to bear in mind, devices like this can make it an easy task, rather than

a board game which can easily become distracting. Also for children who are not actually operating the iPad, they can still watch what's going on and it will maintain their interest.'

Children were not only well behaved when using the iPads in small groups, but were also very considerate when using the device on their own, making sure it stayed in the protective cover and was securely stored when they had finished their play. When accessing their *Our Story* stories on the iPad, children carefully swiped the individual pages, with little random touching or pressing of the Home button which occurred at the beginning of the study. A lot of this is to be credited to Katie, who organized regular small group sessions with 2–3 children and the iPad. In these sessions, children would take turns and were encouraged to slowly and calmly explore the device, while other children watched and verbally commented but were not allowed to tap on the screen if it was not their turn.

### *Inhibiting factors during intervention*

Factors which inhibited the intervention were, by and large, related to the technology itself. This included glitches of the application, as well as the iPad hardware. The advantage of the design-based research methodology allowed us to address this limitation. We worked closely with the app designer and the feedback provided by the teacher was directly incorporated into the second version of the *Our Story* app, now available as a free public download. Further modifications to the actual deployment of the app included the use of the app as part of both indoor and outdoor activities, which enabled staff to better incorporate its use with their other duties (e.g., supervision on the playground). When used outdoors, staff devised some simple rules to deal with children's often over-enthusiastic response to the hardware, such as for example, 'only one child's fingers on the screen at a time'.

### *Study limitations*

Although the initial focus of the intervention was on children's narratives, teachers also used the *Our Story app* to promote children's basic vocabulary and literacy activities. This may have influenced children's response to the app and their narrative skills. It is also worth mentioning that while the length of children's narratives increased over the course of the intervention, the qualitative analysis of their narratives indicates that their stories did not become significantly more elaborate. It is possible that over a longer period of time, positive changes might have been more pronounced.

This study employed a naturalistic design which means that it did not control for numerous contextual factors which may have influenced children's narrative

abilities during the intervention phase and there was no control group. Therefore, when evaluating the effects and influences of the app, one needs to account for natural developmental progress, and be aware that these influences were not divorced from other activities happening in the classroom and the teachers' supportive scaffolding of children's narratives. As such, it is difficult to establish causal links, we can only determine if there were relationships between the intervention and the outcomes. The use of the *Our Story* app as an intervention tool appeared to be effective in this context and supports the view that iPad apps, when used thoughtfully in the classroom, can support narrative-rich interactions. Overall, the study thus indicates that current technologies can enrich the multiple paths and representations of narratives (Kress, 2003).

This study provided insights into how a specific intervention – using a story-making iPad app – may influence children's narrative development. The findings of this study support previous research into the effectiveness of stories (Sénéchal, Pagan, Lever, & Ouellette, 2008) and personally meaningful, engaging material (Banaszewski, 2005) in promoting children's narrative skills and effectiveness of iPad apps to support young children's early literacy (Kucirkova, 2014b, 2014c). The *Our Story* app values the various funds of knowledge such as bodies of information and strategies which children bring to stories (Moll & Cammarota, 2010), which in turn facilitate children's intrinsic motivation to engage with activities that develop literacy and social skills. With an open-ended interface, *Our Story* has the potential to promote users' creativity (Jokela, Lehikoinen, & Korhonen, 2008), self-control and self-expression, and as such, directly meets the requirements of the recommended best practices for children's apps (Guernsey, 2012). As a whole, the study indicates that apps like *Our Story* may positively influence the development of children's narrative skills, and can be used as an effective motivational tool to enrich the literacy provision in 21st century preschool classrooms.

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CHAPTER 12

# Using a storytelling/story-acting practice to promote narrative and other decontextualized language skills in disadvantaged children

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This study examined whether a peer-oriented practice of child-initiated storytelling and group story-acting, integrated as a regular component of the preschool curriculum, can serve as a powerful context for promoting the development of narrative skills and a broader range of decontextualized language skills in young children from low-income and otherwise disadvantaged backgrounds. This storytelling and story-acting practice (STSA) was introduced into one Head Start class of 3- to 5-year-olds for an entire school year, with a similar class in the same Head Start center serving as a control group. Results indicated that participation in the STSA significantly promoted the development of both narrative and productive vocabulary skills. These findings help corroborate the claim that young children's narrative skills form part of an interconnected cluster of decontextualized oral language skills whose early mastery is a key foundation of emergent literacy. They also highlight the need for researchers to recognize that the social contexts promoting children's learning and development are not exclusively restricted to adult-child interactions.

**Keywords:** narrative, storytelling, story-acting, decontextualized language, peer group, preschoolers

## Introduction

The study discussed here examined whether an activity combining voluntary storytelling with group story-acting, integrated as a regular component of the preschool curriculum, can help promote narrative and other oral-language skills in young children from low-income and disadvantaged backgrounds. Three orienting factors helped to define the distinctive orientation and agenda of this study.

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First, it was informed by a body of theoretical and empirical scholarship which has argued that young children's narrative skills are part of an interconnected cluster of decontextualized oral-language skills, and that children's early mastery of these decontextualized language skills serves as a crucial foundation for their acquisition of literacy and their long-term success in formal education. Thus, it assessed the development of two types of decontextualized language skills, narrative competence and productive vocabulary.

Second, whereas most research on narrative interventions has focused on various types of adult-child interaction, this study examined a structured practice of peer-initiated and peer-oriented storytelling and story-acting which is guided and facilitated by adults, but in which adult-child interaction does not play a central role. Thus, it sought to go beyond an exclusive focus on adult-child (or expert-novice) interaction to address the potential complementary role of peer-group activities and peer collaboration as contexts for promoting children's learning and development.

Third, whereas most research on this storytelling and story-acting practice (STSA) has been carried out in preschool or early-elementary classrooms with predominantly middle-class children, this study examined the potential value of the STSA for children from low-income and otherwise disadvantaged backgrounds. The participants were 3- to 5-year-old children attending Head Start.[1]

## Narrative development, reading comprehension, and school success

I will begin by outlining the research background and theoretical rationale for the study. It is generally accepted that the early and effective acquisition of literacy by young children is critical to their long-term learning and success in formal education (Snow, Burns, & Griffin, 1998). However, as a number of scholars have made clear (including Dickinson & Tabors, 2001; Whitehurst & Lonigan, 1998, 2001), training children in the kinds of technical skills related most obviously and directly to literacy – such as print awareness, letter recognition, and phonological processing – is not sufficient, by itself, to prepare them to be successful readers and writers. It is also necessary for children to master a broader range of linguistic and cognitive skills, and these become increasingly important as the child moves from simple decoding to reading for meaning and comprehension (Whitehurst & Lonigan, 1998, 2001).

1. Head Start is a federally funded preschool program in the U.S. serving children from poor families.

In this connection, during the past several decades a growing body of research has argued convincingly that the development of narrative competence by children in their preschool years serves as a crucial foundation for their acquisition of literacy and long-term success in formal education. The most influential work in this area has been that of Catherine Snow and her associates (for some key formulations and overviews, see Snow, 1983, 1993; Snow & Dickinson, 1990, 1991) and of Gordon Wells (1985, 1986), but the main thrust of their arguments on this subject has been supported by a wide range of other scholarship (including Griffin, Hemphill, Camp, & Wolf, 2004; Reese, Suggate, Long, & Schaughency, 2010; for a useful review, see Sénéchal & Lever, 2015). While the full array of early language skills may help prepare children for literacy and schooling (NICHD Early Child Care Research Network, 2005), this research has pointed to *narrative* skills as being among the most significant in this regard. Studies have found that the strength of early oral narrative skills is a significant predictor of later reading abilities during the elementary school years (Dickinson & Tabors, 2001; Griffin et al., 2004; Reese et al., 2010; Wells, 1985, 1986). For example, Dickinson and Tabors (2001) found that narrative production by low-income kindergarteners (roughly 5 years of age) predicted reading comprehension in grades 4 and 7 (9- and 12-year-olds). Similarly, Griffin et al. (2004) found that the length and quality of middle-class 5-year-olds' oral play narratives with structured materials predicted their reading abilities as 8-year-olds in Grade 3. Reese et al. (2010) found that the quality of middle-class 7-year-olds' narrative recall, after listening to a story told by the experimenter with the aid of pictures, predicted their reading fluency concurrently at Grade 2 and later at Grade 3.

## Decontextualized language skills in narrative discourse and emergent literacy

The reasons for this link between early narrative development and reading remain a subject of ongoing research and considerable debate. Broadly speaking, however, the argument advanced by the scholars just cited and others (with some differences of terminology and emphasis) is that the cognitive and language skills required and promoted by young children's narrative activity form part of an interconnected cluster of *decontextualized* oral language skills that play a critical role in facilitating children's achievement of literacy and their overall school success.

Language use is "decontextualized," in the technical sense used in this research, to the extent that it involves explicitly constructing, conveying, and comprehending information in ways that are not embedded in the supportive framework of conversational interaction and do not rely on implicit shared background knowledge and

non-verbal cues. Information is conveyed in ways that can, in principle, allow it to be understood by more unfamiliar, impersonal, or generalized audiences, even when it deals with subjects removed from the immediate setting of the communication (Snow & Dickinson, 1991, pp. 185–186; for one recent formulation, Demir, Rowe, Heller, Goldin-Meadow, & Levine, 2015). Decontextualized discourse thus raises greater demands than "contextualized" discourse for semantic clarity, planning, and linguistic self-monitoring. Examples of decontextualized language use include various forms of coherent extended discourse such as narratives, explanations, and other monologues, as well as metalinguistic operations such as giving formal definitions, monitoring the grammatical correctness of speech, and so on (Snow, 1983, 1993). Although this range of examples may appear rather heterogeneous, there is evidence to support the claim that the cognitive/linguistic skills underlying these activities are, in fact, highly interrelated and form a mutually supportive cluster. For example, children's degrees of success on different decontextualized language tasks tend to be strongly intercorrelated, while the correlations between their success on contextualized and decontextualized tasks are weak (Davidson, Kline, & Snow, 1986; Dickinson & Snow, 1987).

Furthermore, there is evidence supporting the claim that "skill at the decontextualized uses of language predict[s] literacy and school achievement better than skill at other challenging tasks that are not specifically decontextualized" (Snow & Dickinson, 1991, p. 185) and that "all decontextualized language tasks relate increasingly to reading skills with age" (Snow, Cancino, Gonzalez, & Shriberg, 1989, p. 238). Thus, early proficiency in decontextualized language skills constitutes a basic foundation for emergent literacy and educational success whose results become increasingly apparent as the child progresses through elementary school.

### *The significance of "self-contextualizing" narrative discourse*

For preschool children, stories – especially fictional stories – are an especially important mode of decontextualized discourse in that they pose the challenge of explicitly building up a scenario or picture of the world using only words. To put it another way, free-standing stories are *self-contextualizing* (Wells, 1985, p. 253) to a considerably greater extent than other forms of discourse that young children typically experience and construct. Therefore, the experience of narratives – both hearing and telling them – helps bring home to children "the symbolic potential of language: its power to create possible and imaginary worlds through words" (Wells, 1986, p. 156; cf. Bruner, 1986). In the process, narrative discourse can be especially effective in helping the child prepare to grasp "the disembedded and sustained characteristics" of written texts and "the more disembedded uses of spoken language that the school curriculum demands" (Wells, 1986, pp. 250, 253).

Furthermore, unlike many other forms of decontextualized language use, narrative is an important and engaging activity for children from an early age. Young children do not often spontaneously generate formal definitions and are rarely very successful in achieving grammatical precision. But even very young children can begin to construct both fictional narratives and narratives of personal experience, and can become enthusiastically involved in listening to stories and telling their own.

This analysis has important practical implications, since there is considerable evidence that when children enter school the narrative skills of middle-class children tend to be stronger than those of children from poor and minority backgrounds (Dickinson & Snow, 1987). It is worth noting that systematic social-class differences have not been established for early conversational skills, as opposed to specifically narrative skills (Snow, 1983; Feagans & Haskins, 1986; Wells, 1985, 1986). But there are strong indications that social class differences in early narrative skills – and in decontextualized language skills more generally – favor middle-class over low-income children, and mainstream over minority children, with respect to long-term school success (Dickinson & Snow, 1987; Peterson, 1994; Wells, 1985, 1986).

## Promoting narrative development: Adult-child interaction and the untapped potential of peer-group practices

Considerable research effort has therefore been devoted to delineating the kinds of social contexts and practices that best promote the early development of relevant narrative skills. So far, however, with relatively few exceptions, this research has focused predominantly on modes of dyadic adult-child interaction, parent-child and teacher-child (McCabe & Peterson, 1991; Pesco & Gagné, 2015). Even when interaction between children has been studied in connection with socialization or education, peer relations have usually been conceptually assimilated to the one-way expert-novice model, with the older sibling or other peer taking on the "expert" role (for elaboration, see Nicolopoulou, 2002).

These kinds of interactions between unequals obviously play a very important role in children's development, education, and socialization. However, this one-sided picture of the "social context" of development must be expanded to take systematic account of the complementary role of children's peer relations and group life (Nicolopoulou, 1996, 1997, 2002; Nicolopoulou, Cates, de Sá, & Ilgaz, 2014). In this respect, the role of peers is not limited to one-way transmission, facilitation, or "scaffolding," but also includes modes of genuine peer *collaboration*. Furthermore, such collaboration is not restricted to dyadic (or even multi-party)

interaction between individuals; children, like adults, also create, maintain, and participate in *fields of shared activity* that provide resources, motivations, and affordances for development, including narrative development (Nicolopoulou, 2002; Nicolopoulou & Cole, 1993). There is strong evidence that various forms of peer-group activity, when carefully and appropriately integrated into educational practices, can contribute to young children's development and education in ways that usefully complement the role of more direct adult-child interactions (Rogoff, 1998).

## Storytelling and story-acting in the preschool curriculum: A peer-oriented narrative practice as a matrix for development

Various practices that emphasize adult-child interaction, including interactive bookreading (Pesco & Gagné, 2015), have been shown to promote early narrative abilities in valuable ways. But it is essential for early childhood education to complement practices focused on adult-child interaction with more child-centered, peer-oriented, and playful approaches (Nicolopoulou, 2002; Nicolopoulou et al., 2014; Nicolopoulou, Cortina, Ilgaz, Cates, & de Sá, 2015). One activity that exemplifies such an approach is the STSA pioneered by the teacher and writer Vivian Paley (1990).

This Paley-initiated STSA, sometimes also described as story dictation and dramatization, has been used, with variations, in classrooms across the U.S. and abroad (Cooper, 2005; Cremin, Flewitt, Mardell, & Swann, 2017; Nicolopoulou, 1997). Although this practice is conducted with variations in different places, its main outlines tend to be consistent. Children are given the opportunity to compose stories and dictate them to their teachers, as a regular part of their self-chosen free play activities, and then to act them out later with their friends during a group-time activity that involves the entire class.

This is an apparently simple activity with complex and powerful effects. Several features of the STSA are especially worth noting. Although this is a structured and teacher-facilitated activity, the children's storytelling is voluntary, typically self-initiated, and relatively spontaneous. Their stories are neither solicited directly by adults nor channeled by suggested topics or story props. Because this practice runs the entire school year and the children control their own participation in storytelling, it provides them with multiple opportunities to work over, refine, and elaborate their narratives and use them for their own purposes–cognitive, symbolic, and social-relational.

Furthermore, the way that this practice combines story*telling* and story-*acting* has several important implications. Children typically enjoy storytelling for its

own sake, but the prospect of having their story acted out, together with other children whom they choose, offers them a powerful additional motivation to compose and dictate stories. And perhaps most critically, one result of having their stories read to and dramatized for the entire class at group time is that children tell their stories, not only to adults, but primarily to each other; they do so, not in one-to-one interaction, but in the shared public setting of the classroom peer culture. Children are therefore given opportunities to borrow elements from each other's stories and rework them, facilitating narrative cross-fertilization. When this practice is established as a regular part of the classroom activities, all children typically participate over time in three interrelated roles: (1) composing and dictating stories; (2) taking part in the group enactment of stories (their own and those of other children); and (3) listening to and watching the performance of the stories of other children. Thus, the children's storytelling and story-acting are embedded in the ongoing context of the classroom miniculture and the children's everyday group life. (For further elaboration, see Nicolopoulou, 2002; Nicolopoulou et al., 2014.)

### *Including low-income children*

Examinations and analyses of this STSA in action, beginning with Paley's own insightful and illuminating ethnographic accounts of her classrooms over the years (e.g., 1986, 1990), provide evidence that it promotes children's narrative and emergent literacy skills as well as other cognitive and language abilities (Cooper, 2005; Cremin et al., 2017; Nicolopoulou, 1996). These examinations have mostly been conducted in preschool classrooms with children from predominantly middle-class children (exceptions include McNamee, 2015 and some of my own work, most recently Nicolopoulou, 2017; Nicolopoulou et al., 2015). One reason is that those preschools are more likely to employ the sort of play-oriented, child-centered curriculum with which this practice dovetails easily. But there are good reasons to believe that practices of this type, if properly conducted, could be even more valuable for children from low-income and otherwise disadvantaged backgrounds than for middle-class children.

## The study: Evaluating the storytelling/story-acting practice in a head start classroom

For the analysis reported here, I use data collected in my first effort to study the STSA in a preschool class of children from low-income and otherwise disadvantaged backgrounds. The teacher of this class was planning to introduce this STSA into her classroom and invited me to help introduce it and assess its operation and

effects; I was able to use another preschool class in the same center for comparison. Some features of this study still make it especially well-suited to illustrate the potential value and effectiveness of the STSA for promoting the narrative skills of disadvantaged preschoolers. (For another analysis based on this study, with a somewhat different focus from the one presented here, see Nicolopoulou, 2017. These two analyses are complementary, and some formulations here draw on that discussion.)

The children in this class began the school year with exceptionally weak language skills in general and narrative skills in particular, even by comparison with children in other preschool programs with low-income children that I have studied over the years. By comparison with children in middle-class preschools I have studied, these children faced the task of building up many of their basic narrative skills from scratch. This case therefore offers an opportunity to examine the operation and potential benefits of the STSA in especially challenging circumstances.

*Participants*

The participants were 26 3- to 5-year-olds attending two preschool classes, the intervention class and a control class, for the entire 1997–1998 school year. Both classes were part of the same Head Start center serving children from low-income backgrounds in a small semi-rural New England town. Each class began and ended the school year with 17 students, but the sample used for the analyses included only children present for the entire year. Three full-year children in the intervention class were excluded for various reasons: one child suffered from microcephalia and had minimal language skills; one was Spanish monolingual; and one was mistrustful of adults in general and refused to be tested. The sample used for analysis consisted of: 11 children from the intervention class (5 girls, $M = 4–2$, and 6 boys, $M = 4–4$; ages calculated at the beginning of the school year) and 15 children from the control class (7 girls, $M = 4–5$ and 8 boys, $M = 4–4$).

All the children in both classes came from poor families that qualified for Head Start, a federally funded program, by having annual household incomes of less than $13,000; with just a few exceptions, reported annual household income ranged from $5,000 and $7,000. Almost all the children's home environments also showed some degree of family difficulty or instability. More than 2/3 of the children lived with mothers who were divorced, separated, or single; and even those children who came from two-parent households experienced various family difficulties as reported to us by the teachers. Regarding ethnic and racial background, 79% of the children in the sample were non-Hispanic white (a category that made up 97% of the community as a whole), born and raised in the US. In the intervention class, 36% of the children in the sample were white Hispanic

(one or both parents were immigrants from the Caribbean), but all of them spoke English as their dominant language; in the control class, only one child was from Hispanic background. There were no non-Hispanic African-American children in either class.

### *Research design*

Intervention and control classrooms were selected non-randomly. The intervention teacher volunteered to incorporate the STSA into her classroom for the entire school year. To ensure that the control group was as similar as possible, we asked the teacher of the classroom housed in the same building to let it serve as the control class.

Both classes were conducted by a head teacher and a teacher's aide, met 4 half-days a week, used the same curriculum, and were supervised by the same Education Coordinator. Both head teachers were of similar age (late 20s), had similar qualifications from teacher education programs at prestigious institutions, and displayed great enthusiasm for teaching. One difference was that the head teacher in the control class was somewhat more experienced. She had been teaching for three years in this Head Start program, while the head teacher of the intervention class was in her first full-time teaching position (having served as teacher's aide for the previous two years in a different Head Start program). This difference was not great; but, if anything, it could be expected to give a slight advantage to the control class in terms of the development of the oral language skills under consideration.

### *Procedure*

The study was designed as a pre- and post-test, quasi-experimental intervention in combination with monthly videotaped and ethnographic observations. It consisted of three phases: pre-test, intervention, and post-test. At each assessment time, we measured children's narrative and productive vocabulary skills, as described below. Testing was conducted by a trained graduate student, from an institution different from the author's, who was not familiar with the goals of the research project. The pre-tests were administered in September, after we obtained informed consent from the parents of all the children in both classrooms for their children to participate in the study.

#### *Intervention phase: The storytelling and story-acting practice*

After pre-testing was completed, the STSA was introduced in the intervention classroom in early October and remained in operation throughout the school year until early May. Prior to this introduction, the teacher was trained in how to

conduct the activity and provided with a booklet containing detailed guidance. (A research assistant and the author provided further input and training during our monthly visits to the classrooms.) The teacher was encouraged to use the activity as often as possible, but at least twice per week. The control classroom continued its usual curriculum.

The storytelling part of the practice took place during "choice time," when children were free to participate in different activities available to them. After the children had settled down into choice-time activities, the head teacher made herself available to take children's stories. The number of stories she took down ranged from 2–3 up to 4–5 stories per session. If there were several more children who wanted to tell a story, a waiting list was established so that the waiting children could go on with other activities. The storytelling events were voluntary and largely self-initiated; no child was required to compose a story, though some of the more reticent ones were occasionally encouraged to do so. Children were allowed to tell any kind of story they wished. In practice, the great majority were fictional stories. The teacher usually wrote each story down with minimal intervention, repeating the child's words as she was writing them down. During the first few months, however, the teacher sometimes found it necessary to scaffold some children's storytelling because of their limited language and narrative skills.

The story-acting portion of the practice took place during "group time," with the entire class assembled. All the stories dictated during that day were acted out in the order dictated. The teacher read each story aloud, after which the child/author first chose which character he or she wanted to play and then picked other children to act out other roles. After all the characters were selected, the teacher read the story aloud once again. As she was reading it, the child-actors acted out the story, while the rest of the children watched attentively. This process was repeated until all the stories dictated during that day were acted out.

*Additional data collection and fidelity of implementation*

The teacher wrote the stories down in a single "storybook" as the child dictated the story, indicating who the author was, when the story was told, and which children acted what roles in the story performance. The storybook thus provided a record of how often the activity was used and how many children participated in it either as tellers or actors. It was given to us at the end of the year for analysis. (All the parents had signed consent forms to make the stories of their children available to us.)

The author and research assistants visited both classrooms for two consecutive days once a month (from September through June). During our visits we remained in the intervention classroom for most of the day, observing the STSA as well as other classroom activities, and we wrote detailed field notes. We also visited the control classroom and observed the ongoing classroom activities and children's

engagements in them. These observations helped to ensure that the classrooms engaged in similar activities except for the intervention and to assess how well the intervention was conducted. After our observations each time, we discussed with the intervention teacher how well she was following the activity and gave her advice and suggestions for implementing it effectively.

*Pre-test and post-test assessments*

Pre-testing took place at the beginning of the school year (September), before the intervention began, and post-testing towards the end of the school year (May), after the intervention was completed. The tasks were administered individually to each child, in a random order, a few days apart, in a small quiet room adjacent to the classroom.

*Expressive vocabulary test (EVT).* This test (Williams, 1997) was selected because it focuses on vocabulary production rather than comprehension and also tests children's understanding and use of synonyms, making it especially well-suited to tap some elements of children's decontextualized language skills. In the first part of the test, the child is presented with pictures of familiar objects and asked to name the depicted object (e.g., "What is this?", or "What is this called?"). In the more advanced portion of the test, administered to children who have demonstrated a certain level of competence (usually achieved by age 4), the tester provides an appropriate word that identifies the object in the picture, and asks the child to give another word that means the same thing (i.e., a synonym). The synonym portion of the EVT was administered to most children in both the intervention and control classrooms in the fall, and to all the children in the spring.

*Figurine-based narrative task (FBNT).* To measure children's narrative skills, we devised a narrative task that elicited two stories from each child using suggested themes accompanied by Fisher-Price figurines. My previous research had indicated that two of the most popular themes around which young children organize their spontaneous stories are depictions of (a) family life and (b) powerful animals, and that these themes are gender-related, with girls favoring the first and boys the second (Nicolopoulou, 1997). To ensure that the task would engage both boys and girls equally, each session included two story-formats, beginning with the theme characteristically favored by children of that gender and then moving on to the next one.

To encourage the child to tell a story, the tester provided the beginning of a story as a prompt, while presenting and naming the illustrative figurines, and then invited the child to continue the story. For the *family story*, the tester began, "Once upon a time there was a mommy, a daddy, a brother, a sister, and a baby." As she named each of these characters, she lined up the corresponding figurines

in front of the child. Then she added, "Can you continue this story?" or "Can you tell me what happened?" The same procedure was followed for the *animal story*, for which the tester began, "Once upon a time there was a bear, an elephant, a tiger, a dinosaur, and a crocodile." In both formats, the tester encouraged the child to continue as long as the child's responses remained generally focused on the figurines or on the suggested story themes. Each story-elicitation was brought to a close when the child said that the story was finished, indicated an unwillingness to continue, or seemed to have lost interest in continuing with the task. Children's responses were audio-recorded.

*Conceptualizing and coding the FBNT.* Children responded enthusiastically to the FBNT, often at some length, but their responses did not always take the form of a single continuous narrative. Instead, they typically generated a range of discourse types, which might include narrative constructions but also simple descriptions, play interactions among the figurines, and conversational interactions with the tester.

Each response to each of the two story-elicitation themes was transcribed verbatim and divided into three types of discourse units: *narrative, pretense*, and *other non-narrative*. "Narrative" and "pretense" discourse units presented fictional scenarios through symbolic means; what distinguished them was the extent to which they constituted decontextualized discourse, in the sense explained earlier. A *narrative* discourse unit built up a complete scenario, or a portion of one, using words – a scenario that a listener could, in principle, understand without seeing the gestures of the child or physical manipulations of the figurines. Even if a child used figurine manipulations, noises, motions, and imitations as special effects to accompany or *illustrate* the story, the discourse unit was classified as "narrative" if the scenario being conveyed would still be comprehensible without these non-verbal elements.

A *pretense* scenario was verbally incomplete in this sense. The child used the figurines and other non-verbal elements to demonstrate (not merely illustrate) the actions, events, or characters being described. A significant number of elements were left implicit in the verbal account and needed to be filled in by observing the child's gestures and physical manipulations. (For example, the child might say something like "Then they do this" or "This one goes here" – communications that were incomplete without including the non-verbal elements.) Referents essential to establishing the context or action of the story were conveyed through actions and physical props, not words. In short, during "pretense" episodes the child was primarily showing, not telling, the story. *Other non-narrative* was a residual category that included a heterogeneous range of utterances that did not form part of a sustained effort to build up a symbolic fictional scenario: conversational

interactions irrelevant to the task, non-symbolic comments about the figurines, simple counting or description, and so on.

Each time the child shifted from one of these discourse types to another, the shift was marked as the beginning of a new discourse unit. The total number of discourse units comprising the child's response for each story-elicitation response served as the denominator to calculate the proportion for the three types of discourse units occurring in each response. Because two stories were elicited per child for fall and spring, analyses were based on mean proportions.

## Results

### *Intervention class: Operation of the storytelling and story-acting practice*

As indicated, the STSA was introduced into the intervention class in October and remained in operation throughout the school year. The activity took place an average of 2 days per week (59 days out of 120 for the school year). The 11 children in the sample generated a total of 151 stories.[2]

Overall, the children found this activity highly engaging. As soon as it was initiated, most of them were immediately eager to tell stories and all were eager to participate in acting them out. Within a short time, almost all the children were participating enthusiastically in both components of this activity, and their enthusiasm remained undiminished throughout the school year. During a storytelling session, there were always several children gathered around the story table, waiting their turn fairly patiently while other children dictated. Almost all the children who were in this class from the beginning of the year participated in telling stories, and most told between 9 and 21 stories each during the year. Furthermore, all the children acted in other children's stories, and all acted in more stories than they told (the typical pattern I have observed in classrooms using the STSA). When characters were being chosen, many children vigorously expressed their desire to be picked, even waving their hands and shouting "me, me!" to request desired roles.

### *Intervention and control classes: Comparative measures*

The overall hypotheses informing this study were that participation in the STSA should improve the children's narrative skills and also, directly and indirectly, contribute to the improvement of a wider range of decontextualized language skills

**2.** Nicolopoulou (2017) provides an analysis of these stories and their patterns of development and narrative cross-fertilization during the school year.

– specifically, in this case, productive vocabulary skills that included generating synonyms. The results confirmed our expectations.

*Promoting narrative development: Figurine-based narrative task (FBNT)*
A 3-way repeated measures ANOVA with discourse types (narrative, pretense, other non-narrative) and semester (fall, spring) as the within factors and class (intervention, control) as the between factor was performed on these scores. The results showed a clear contrast between the developmental trajectories of the two classes over the course of the school year (see Table 1). In the intervention class, children's responses moved significantly in the direction of greater narrativity between fall and spring, whereas the responses of the children in the control class did not.

**Table 1.** Mean Proportions (and standard deviations) of discourse types for figurine-based narrative task

| | **Pre-test (September)** | | | **Post-test (May)** | | | |
|---|---|---|---|---|---|---|---|
| | **Narrative** | **Pretense** | **Other** | **Narrative** | **Pretense** | **Other** | |
| Intervention | 5 | 27 | 69 | 34 | 34 | 33 | N vs. N** |
| | (14) | (24) | (30) | (28) | (17) | (18) | O vs. O*** |
| Control | 9 | 31 | 60 | 16 | 42 | 43 | N vs. N *ns* |
| | (24) | (28) | (33) | (18) | (16) | (23) | O vs. O *ns* |

** $p < .01$,
*** $p < .001$

In the intervention class, the mean proportion of "narrative" discourse units increased from 5% to 34%, and this difference was statistically significant, $F(1,69) = 10.73$, $p = .002$. The proportion of "other non-narrative" units decreased correspondingly, from 69% to 33% ($F(1,69) = 16.29$, $p = .0002$), with a slight (and non-significant) increase in the proportion of "pretense" units. In the control class, by contrast, the proportion of "narrative" units increased only slightly (from 9% to 16%), and the change was not statistically significant, $F(1,69) = .62$, $p = .43$; the decrease in the proportion of "other non-narrative" units was somewhat greater (from 60% to 43%), and almost reached statistical significance, $F(1,69) = 3.64$, $p = .06$; and there was a non-significant increase in the proportion of "pretense" units. In short, the children in the control class, unlike those in the intervention class, showed no significant improvement in the narrativity of their responses.

*Building decontextualized language skills: Expressive vocabulary test (EVT)*
The results were striking and statistically significant (see Figure 1). In September, the mean age-standardized scores for the control class were significantly higher

than for the intervention class (intervention M = 92.5, control M = 96.26). But over the course of the year the performance of the children in the intervention class increased sharply, and that of the children in the control class did not, so that in May the relative positions of the two classes had actually reversed themselves (intervention M = 95.33, control M= 92.94). Because the mean scores of the two groups differed during the pre-test, the data were analyzed using one-way ANCOVA with the EVT fall scores as a covariate. This analysis confirmed that the productive vocabulary skills of the children in the intervention class improved significantly more over the course of the year than those of the children in the control class. $F(1,22) = 6.77$, $p = .02$.

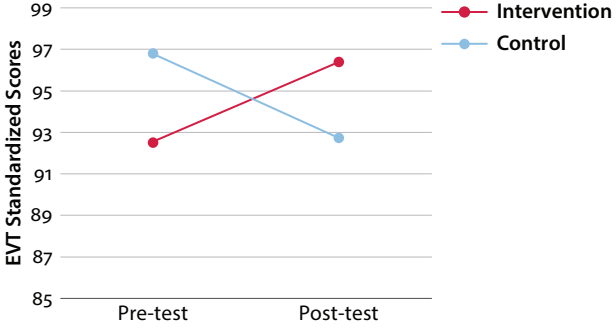


**Figure 1.** Mean EVT pre-test and post-test age-standardized scores for intervention and control groups

## Discussion, conclusions, and implications

The results of this intervention study add to existing evidence that a storytelling and story-acting practice of the type pioneered by teacher and writer Vivian Paley, integrated as a regular component of the preschool curriculum, can be educationally and developmentally valuable for young children from poor and otherwise disadvantaged backgrounds. Specifically, they suggest that participation in this STSA promotes the development of narrative skills and other decontextualized oral-language skills that are important foundations for emergent literacy. The scores of the children in the intervention class on both the Figure-Based Narrative Task (FBNT) and the Expressive Vocabulary Test (EVT) increased significantly more between the beginning and end of the school year than those of the children in the control class. These findings also support the claim that young children's narrative skills form part of an interconnected cluster of decontextualized oral language skills whose early mastery has been identified as a key foundation of emergent literacy

Results from a small-scale study using only one intervention class and one control class, however promising, are not necessarily conclusive. But this study deserves attention, not least because it tested the viability and effectiveness of the STSA for children who started with unusually significant handicaps in their narrative and other oral language skills. And further evidence of the value of the STSA for disadvantaged preschoolers comes from other sources as well. These include a more large-scale study I subsequently conducted in a different preschool program serving children from low-income families, comparing 6 intervention with 7 control classes and using a wider range of outcome measures (see Nicolopoulou et al., 2015). Results from that study indicated that children's participation in the STSA was associated with significant improvements in their narrative abilities – as well as other oral language, emergent literacy, and social competence skills (though not expressive vocabulary, as measured by the EVT – an intriguing discrepancy which may be worth further exploration).

### *How should we explain the developmental and educational benefits of the storytelling/story-acting practice?*

These very promising results impel us to consider *how* and *why* the STSA can promote young children's narrative development and, plausibly, the development of other decontextualized language skills. Given the structure of the STSA, the kinds of mechanisms usually emphasized in the context of expert-novice interaction, such as scaffolding, expert guidance, or conversational fine-tuning, do not seem to play a key role here. So how should the developmental and educational benefits of children's participation in this practice be explained? Without pretending to offer a complete or definitive answer to that question, I will suggest what has long seemed to me the most fruitful and plausible approach to addressing these issues (for related discussions, from which some formulations that follow are drawn or adapted, see Nicolopoulou, 2002, 2017; Nicolopoulou et al., 2014).

The key starting point, I would argue, is to look beyond interactional reductionism and recognize that the STSA provides the framework for an ongoing, socially structured, and collectively constituted field of shared symbolic activity. Although teachers play a necessary and important role in structuring, facilitating, and sometimes guiding the STSA, the children themselves help to generate and sustain this activity system through their participation in the STSA; and it serves, in turn, as a sociocultural context that shapes their participation and offers them opportunities, resources, and motivations for narrative development. In this respect, several interconnected features of the STSA, some of which were noted earlier, seem especially critical.

One key feature is the public, peer-oriented, and peer-evaluated character of the children's narrative activity. Each child freely composes his or her own stories, but then the stories are presented to the class as a whole, and at one point or another all the children also participate in acting out their own stories and each other's. As a result, this activity engages the children and creates a public arena for narrative communication, appropriation, experimentation, cross-fertilization, and collaboration. With respect to collaboration, I am not referring primarily to forms of direct cooperation such as multi-authored stories. They are not uncommon in some of the middle-class preschools where I have studied the STSA, though it so happens that there were none in the classroom discussed in this chapter. Rather, the key vehicle for collaboration in this context is children's participation in the public arena of the STSA itself. Even in a small class of children from similar backgrounds, different children come with distinctive experiences, knowledge, skills, concerns, and temperamental styles. The STSA allows those individual skills and perspectives to be transformed into shared and publicly available narrative resources, so that each child can benefit from the variety of resources that other children bring with them through processes of narrative cross-fertilization, mutual influence, and variations on shared themes. To borrow a phrase from Paley (1986, p. xv), this public arena offers children an "experimental theater" in which they can reciprocally try out, elaborate, and refine their own narrative efforts while getting the responses of an engaged and emotionally significant peer-group audience.

The public arena of the STSA is itself enmeshed in the sociocultural framework of the children's peer relations and group life, with their emotional importance for children and their significance for children's experience, socialization, and development (Nicolopoulou, 1997, 2002; Nicolopoulou et al., 2014). In all the preschool classes where I have studied the STSA, the emotional significance of the peer group and peer relations is clearly part of what draws children into this practice and fosters their intense engagement with it. That generates a valuable mutually reinforcing dynamic. Children's participation in the STSA helps to form and sustain a common culture in the classroom (while also facilitating the expression and articulation of differences within this common culture); and, simultaneously, this STSA is shaped, supported, and energized by its embeddedness in that peer-group culture.

The operation of the STSA thus offers the possibility of fruitfully integrating individual spontaneity with peer-group collaboration and mutual support. As children participate in it, they contribute to, draw on, and work with a growing common stock of themes, characters, images, plots, and other cognitive, symbolic, and linguistic resources. But at the same time, individual children can participate in this field of shared activity according to their own pace, rhythm, and inclination. Since the children are given control over what stories to tell, when to tell

them, and who should act in their stories, it provides them with the opportunity to use and elaborate their narratives for their own diverse purposes – cognitive, symbolic, and social-relational.

The STSA also integrates two dimensions of children's narrative activity too often treated in mutual isolation: the discursive exposition of narratives in storytelling and the enactment of these narrative scenarios, which is a central feature of pretend play. As I have argued elsewhere (Nicolopoulou, 2015), we need to recognize the close affinity and interdependence between play and story in children's experience and development, while also recognizing that they involve cognitive and linguistic skills that are partly distinct and complementary. The STSA is able to utilize the interplay between them in a manner that promotes and facilitates narrative development. Composing and dictating their stories poses for the children a challenge and opportunity to engage in exceptionally *decontextualized* uses of language, since they are called on to construct free-standing, self-contextualized narratives that are not embedded in a framework of conversational interaction. On the other hand, my analyses of the STSA have indicated that the public reading and enactment of the children's stories, which in their own way are highly *contextualized* in the children's peer-group life and peer relations, not only help to motivate the children's storytelling, but also serve some important educative functions. In particular, they help bring home to the child in a vivid way what is required for a narrative scenario to be effectively complete, self-contextualizing, and satisfying.

In combination, these features of the STSA help explain why it can serve as a powerful context for promoting narrative development in young children, including those from poor and disadvantaged backgrounds. For these and other reasons, both research and educational practice should recognize it as a developmental matrix of rich complexity and great potential that can play a valuable role in early childhood education.

### *Some wider implications*

I will close by re-emphasizing some key themes that have run through the discussions in this chapter, and which have implications for both developmental research and educational practice. An extensive and growing body of scholarship has argued convincingly that the mastery of narrative and other decontextualized oral-language skills by children in their early years lays crucial foundations for their acquisition of literacy and long-term success in formal education. It is therefore important to delineate, design, and encourage the kinds of practices and interventions, in classrooms and elsewhere, which can most effectively promote the development of these skills in young children. But doing this successfully, I

have argued, requires broadening and refining the most prevalent conceptions of the social context of development.

In addressing these issues, existing research has focused overwhelmingly on various forms of adult-child interaction, especially parent-child and teacher child. For example, in many of the most valuable and sophisticated studies aimed at identifying the social contexts and interactions that can best promote the early development of decontextualized language skills, a major focus has been on analyzing the ways that the adult both *supports* (scaffolds) and *pushes* the child toward greater achievement. In this regard, researchers have usefully argued for the value of interactions in which the adult questions the child, prods the child to greater clarity or consistency or grammatical precision, and so on.

Research that pursues those kinds of issues is necessary and commendable. And to avoid any possible misunderstanding, let me reiterate that the importance of these kinds of adult-child interactions for children's learning and development is obviously not in question. However, by itself, an exclusive focus on adult-child (or even expert-novice) interactions yields a one-sided and misleading picture of the social context of development. The study discussed in this chapter, in its own small way, helps underline the need for researchers also to examine the complementary role of children's peer relationships and group life in the process of development. The findings of this study, for example, suggest that certain kinds of narrative- and play-based practices like the STSA can provide sociocultural contexts in which children are given both motivations and resources to push *themselves* toward greater mastery of decontextualized language skills, and in which they can (in various indirect as well as direct ways) support *each other* in these efforts. In other words, these findings help demonstrate the untapped potential of peer-group activities to promote development in ways that can *complement* the kinds of adult-child interaction emphasized by most current research.

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CHAPTER 13

# Promoting narratives through a short conversational intervention in typically-developing and high-functioning children with ASD

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This chapter describes a short conversational intervention (SCI) procedure aiming to promote narrative skills in young children. The SCI solicits children's thinking and talk about the causes of the events in a story of a misunderstanding between two characters, *The Stone story*. We first report results obtained in several previous studies of typically-developing (TD) children in the 4- to 10-year age range, showing the positive immediate, as well as delayed, effect of the procedure from 6 years of age onwards. We then present a new study investigating whether the SCI could also help children with high-functioning Autism Spectrum Disorder (ASD) to narrate stories containing more causal and mental content. Results show that after the SCI these children, like the TD matched controls, provided more explanations and attributed more internal states to the characters, although the latter to a lesser degree than TD controls. The socio-cognitive processes underlying these changes, as well as the implications of using this intervention procedure, are discussed.

**Keywords:** Narrative development, intervention procedures, evaluative content, explanations, internal states, Autism Spectrum Disorders, Theory of Mind

## Introduction

Storytelling is a form of 'displaced' discourse that requires cognitive, linguistic, discursive, and pragmatic skills. Narrative abilities play a central role in school-aged children. In typically developing (TD) children, oral narrative skills are positively related to early literacy (Dickinson, McCabe & Sprague, 2003; Dobson, 2005; Makdissi & Boisclair, 2006; Reese, Suggate, Long, & Schaughency, 2010), to

https://doi.org/10.1075/sin.25.14ven

language skills (e.g., Cooper, Collins & Saxby, 1992), and more generally to school achievement (Snow, Burns, & Griffin, 1998). They are also found to be related to inferential and imaginative capacities (Lillard et al., 2013), and to children's linguistic and socio-cognitive skills (Griffin, Hemphill, Camp, & Wolf, 2004; Nicolopoulou et al., 2015). Given the centrality of narrative skills, several studies have investigated whether particular conditions or intervention procedures could improve children's narrative capacities.

In this chapter, after a brief review of the literature on narrative development and on intervention procedures, we will describe a short conversational intervention (henceforth SCI) focused on soliciting children's thinking about the causes of the story events; we will then present results obtained in previous studies where the SCI was used with 4- to 10-year-old TD children. Finally, we present a new study investigating whether the SCI could also help children with high-functioning ASD (henceforth HFA) to promote their narrative skills and in particular the causal and mental content of their narratives.

## Narratives in typically-developing children

### *Narrative development in TD children*

The development of children's narrative competence is a long process whose unfolding varies depending on the content to be narrated (e.g., personal experience or fictional stories), the communicative setting (e.g., the degree of common knowledge shared with the listener), the nature of the stimuli presented (e.g., pictures, text or film) and the elicitation procedures used (e.g., conversationally or monologically-told narratives, retelling of previously heard stories or child-constructed stories). Children's narratives of personal experience tend to be better organized than fictional stories (Berman, 2004; Nelson, 1999) and narratives constructed across conversational turns contain more explanations and references to internal states than monological narratives (e.g., Berman, 2004; Eaton, Collis, & Lewis 1999; Shiro, 2003; Wellman & Bartsch, 1994).

The first narratives appear in the second year of life, with children making reference to past experiences while conversing with their caregivers (e.g., Miller & Sperry, 1988; Veneziano & Sinclair, 1995). Narratives continue to develop through adolescence and adulthood towards temporally and causally linked complex sequences of events that recruit linguistic devices appropriate for cohesive discourse (Berman, 2009; Berman & Slobin, 1994; Hickmann, 1995; Peterson & McCabe, 1991; Nelson, 1999).

Many developmental results concern fictional narratives based on wordless pictures such as the storybook *Frog where are you* (Mayer, 1969) that have been elicited from children of different ages, speaking different languages (e.g., Berman & Slobin, 1994; Strömqvist & Verhoeven, 2004). Results from these studies indicate that most young children (up to 6–7 years) narrate the main events of the story in temporal order (Berman and Slobin, 1994; Hilaire-Debove & Kern, 2013; Jisa, 2004; Mandler, 1978; Stein & Glenn, 1979), and it is only gradually, and increasingly up to 9–10 years, that children appropriately explain why events occur (e.g., Berman, 2004; Berman & Slobin, 1994; Bamberg, 1994; Bamberg & Damrad-Frye, 1991) and that they are able to mention the characters' internal states as the cause of behaviors (Berman & Slobin, 1994; Bamberg, 1994; Bamberg and Damrad-Frye, 1991). From age 9 years, children may also attribute more complex internal states such as a false belief to a character. They may also express that the characters, or a character and the child himself/herself as narrator, have different points of view or beliefs about the same event (Aksu-Koç & Tekdemir, 2004; Bamberg & Damrad-Frye, 1991; Kielar-Turska, 1999; Küntay and Nakamura, 2004).

### *Intervention procedures to promote TD children's narrative skills*

Given the importance of narrative skills in the overall development of children and adolescents, it is particularly important to help them improve the quality of their stories. Several studies have thus devised procedures aiming to improve children's narratives (see Pesco & Gagné, 2015, for a meta-analysis) and have shown that, on the whole, children can produce more elaborate narratives under certain conditions. Several studies, working with children younger than 6 years of age, have used 'dialogic reading' at home or in the classroom to promote the content and the linguistic expression of preschoolers' narratives (e.g., de Blauw, Baker, & Rispens, this volume; Fine, Aram, & Ziv, this volume; Khan, Nelson, & Whyte, 2014; Makdissi, Boisclair, Sirois, Baron, & Sanchez, this volume; Nelson & Khan, this volume; chapters in Section II in van Kleeck 2006; Zevenbergen & Whitehurst, 2003). In other studies, children who were asked specific questions about causality and/or the internal states of the characters mentioned more causal relations and attributed more internal states to the characters (e.g., Eaton, Collis, & Lewis, 1999; Shiro, 2003). In these studies, children's narratives were most often co-constructed through a conversational exchange with an interactional partner.

Children can also improve their monological narratives. This was obtained in studies involving training sessions held over a relatively long period of time (Lever & Sénéchal, 2011; Peterson, Jesso & McCabe, 1999; Whitehurst et al., 1988), as well as in studies where the intervention took place in a single session (e.g., Silva, Strasser, & Cain, 2014; Veneziano, 2010, 2016; Veneziano & Hudelot,

2006, 2009). Silva et al. (2014) found that children who answered causality questions about the story events before narrating the story included more evaluative elements than children who narrated the story without answering the causality questions. Veneziano and Hudelot (2006, 2009) and Veneziano (2010, 2016) used a within-subject design in which the same child told the same story before and after a short conversational intervention (SCI) focused on the causes of the story events. Overall, the story narrated after the short conversation contained more explanations and more references to internal states than the pre- conversation story. The SCI procedure, its rationale and its results, obtained in different studies that have implemented it, will be described below.

### *The SCI and its rationale*

The Short Conversational Intervention (SCI) was devised to stimulate the children's attention and thinking about the causal structure of the story. In this process, children have the opportunity to access by themselves the physical causes of the events or the psychological motivations of the characters' behaviors. In the overall procedure (see below for more details), the SCI immediately follows a first phase in which children can apprehend and attribute meaning to a sequence of five wordless images composing the story (see below, the *Stone story*), and then express their understanding of the story, as completely as possible, in a first, monological narrative. This narrative, spontaneously produced by the child, serves as the base for carrying out the SCI during which the child is asked specific questions about the causes of each of the story's main events, without making any reference to the characters' internal states or providing answers to the questions. Besides stimulating the children's attention and thinking about the causal structure of the story, the questions, asked sequentially about each image, also help children to segment the story structure into its components. The child can then be led to better analyze each picture, to discover in it new elements and to possibly attain a richer and deeper understanding of the story's overall structure.

### *The Stone story*

The story used in all the studies discussed below is the *Stone story*, a short fictional wordless picture story for young children (Furnari, 1980), adapted for our research project (see Veneziano & Hudelot, 2006) (see Figure 1). The sequence of five pictures composing the story is meant to be a story of a misunderstanding between two characters. As such, it was chosen for its high potential to elicit mind-oriented content. Indeed, to provide an overall coherent and meaningful story, children may be led to express the different points of view of the characters, mentioning

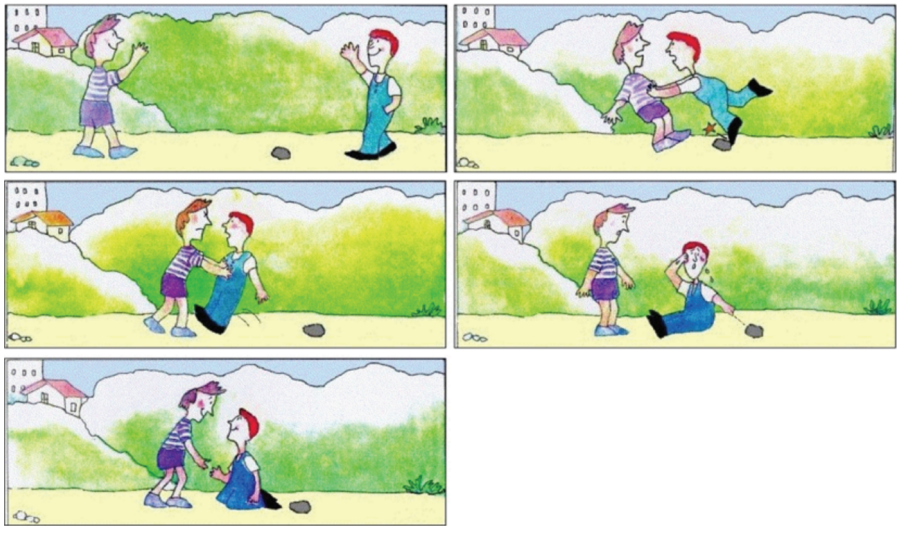

**Figure 1.** The Stone story

that one of them has a false belief about the intentions of the other, that the latter needs to reveal in order to change the mental world of the former and so dispel the misunderstanding.

The first picture 'sets the stage' of the story by showing two boys (referred to hereafter as P1 and P2) waving hello to each other from a distance (the 'greeting'). The second and third pictures represent the 'complicating event': the accidental stumbling of P1 on a stone, leading to the 'first push' of P2 by P1 followed by P2 'pushing back' P1. The fourth picture represents the 'attempt at resolution' showing P1 crying and pointing towards the stone. The fifth picture represents 'the resolution' showing P2 helping P1 to get up.

A likely inferential interpretation of these pictures is that P2 misinterprets the unintentional first push by P1 (determined by a physical cause, his stumbling on the stone) as being intentional – the source of the misunderstanding by P2 of P1's behavior – and thus reacts by pushing P1 back. P1, who understands P2's misunderstanding, explains to him the real reason for the initial push and then, after this clarification, the two characters make up and become friends again.

### *The overall procedure*

In all the studies, children were interviewed individually in a quiet room and all the interviews were audio and/or video–recorded.

First, children looked at the five wordless pictures of the *Stone story*, presented one at a time in the right sequence. Once the child was ready to tell the story, the

pictures were removed and the child narrated his/her story. The reason for removing the pictures was to maximize the chances of children attending to the overall structure of the story instead of concentrating on the details present in the images.

After this monological and autonomously-produced *first narrative*, the SCI phase began. While the pictures were again visible in front of the child, the experimenter asked the child questions that focused his/her attention on the cause of each of the four main events of the story: 'the first push', 'the second push', 'pointing towards the stone' and 'the reconciliation'. The child was asked 'how come that' or 'why': (1) P1 pushes P2 (P1 and P2 were referred to in the same way as the child had done in his/her first narrative); (2) P2 pushes P1; (3) P1 points to the stone; and (4) P2 helps P1 to get up. If the child did not respond or said s/he did not know, the experimenter asked the question again, adding, for example for the first push, *Do you push your friend when you first see him/her?*. The experimenter did not provide specific answers or make any reference to the internal states of the characters.

After the SCI, the children were asked to tell the story once again (*the second narrative*). As was the case for the first narrative, here also the children told the story monologically and after the pictures had been removed.

### *Results from previous studies*

Overall, the different studies have found that the second narratives, produced after the SCI, contain significantly more explanations and make more references to the internal states of the characters than the narratives produced by the same children before the SCI (Veneziano & Hudelot, 2009; Veneziano et al., 2011). Compared to the first narrative, in their second narrative children also expressed more complex psychological states, such as the *false belief* (e.g., 'he pushed him because of the stone but the other one thought he had done it on purpose') or attempts to dispel the false belief (e.g., 'he said it was because of the stone that he pushed him and the other boy understood'). From 6–7 years of age onwards, all the studies showed a significant increase in the number of explanations in general, and of the four key events focused on during the SCI in particular, as well as in the number of intentional and epistemic states attributed to the characters. Emotional states (such as being happy or unhappy), instead, did not increase: these were already present in the first narrative even of the youngest children and remained rather stable in the second narrative. Positive changes were also found for the expression of the false belief and its rectification, but these were greater starting from 8–9-years of age. It is at this age that children clearly expressed the differences in point of view between the two characters. This difference is conveyed by the expression of the false belief of P2 (the child refers to the belief of P2 about the intentionality of the first push by P1 and, while saying that this same event has a physical cause) and

by the clarification between the two characters in which P1 attempts to restore the truth in P2's mind. In children younger than 6–7 years changes were modest and rarely involved the expression of epistemic states or of the difference in points of view such as the false belief or its rectification (Veneziano & Hudelot, 2009), suggesting that there is a developmental threshold below which external help has no or very little impact.

But couldn't improvements in the narratives be due to the fact that the children tell the story a second time rather than to the SCI? In a study of 120 children between 5 to 10 years old, with 20 children in each age group, half of the children participated in the SCI and the other half – the control group – played a Memory game[1] with the images of the story and other similar drawings. In this way, the children in the control group were able to familiarize themselves with the story pictures as much as the children in the SCI group, but they were not focused on the causality relations nor did they exchange with the interviewer about the story (Veneziano, 2016). As in the other studies, the second narratives of children in the SCI condition contained significantly more appropriate explanations of the two complicating events, the first push (physical and/or non-intentional causes) and the second push (complex epistemic state of false belief). Children also attributed more internal states to the characters, including the more complex states relating to the difference of points of view between the characters. Significant improvements were observed from 7 years on. Instead, the second narratives produced by children in the control group were comparable to their first narratives.

Are the improvements obtained immediately after the SCI the ephemeral result of children's focalization on the causes of the events through the questions asked during the SCI, or do they represent deeper changes that persist and generalize to other stories? To provide an initial answer to this question, 84 French-speaking children between the ages of 5;6 and 8;8 (Veneziano et al., 2011; Veneziano, Hudelot, LeNormand, Plumet, & Elie, to appear) who participated in the SCI, were seen again about one week later when they narrated first the *Stone story* and then a different story (the *Bicycle story*, which is also composed of 5 wordless pictures and involves a misunderstanding between two characters). Results show that one week later children, from 6–7 years on (1st graders), told stories that were similar to, and even slightly better than the second narratives produced immediately after the SCI, with respect to their inferential content (explanations and attribution of internal states). The narratives of the new story (the *Bicycle story*) contained somewhat less inferential content than the second and third narratives of the *Stone story*, but like the latter two, they significantly differed from the initial Stone story produced before the SCI.

1. The aim of the game is to find the greatest number of pairs of cards having identical pictures.

Children not only increased the inferential content of their narratives, they also changed their linguistic expression (Veneziano & Nir, 2017). In the second narratives produced immediately after the SCI, children significantly increased the overall number of clauses per image, the number of clausal connectives and the number of subordinate clauses (adverbial, complement and embedded relative clauses), an effect that was also found in the younger group (kindergarteners) but to a lesser extent than for 1st and 2nd graders.

These results from TD children 5–6 years of age and older strongly suggest that a simple procedure such as the SCI allows children to reach higher levels of narrative competence, both in content and in verbal expression. There is nevertheless some variation in the manner and degree in which children benefit from the SCI. This variation could be explained by by children's different developmental levels. It could also be explained by other variables such as children's ability to change their initial interpretation and expression of the story, or their ability to inhibit the first narrative produced. In other words, children who have better executive function skills (such as cognitive inhibition and flexibility) might benefit more from the SCI. Preliminary results of an ongoing project on the relationship between the improvements obtained after the SCI and executive function skills in 6- to 8-year-old children, suggest that this is indeed the case (Veneziano & Bartoli, 2018).

In the rest of this chapter we examine, in an original study whose results are presented here for the first time, whether the SCI can also benefit children with high functioning autism (HFA). Will children with HFA participating in the SCI also improve the inferential aspects of their narratives? If improvements were observed, the SCI would provide educators and clinicians with a simple tool to evaluate these children's underlying competences and mostly to help them practice and produce more coherent and more meaningful narratives which can contribute in turn to promoting their skills in related areas such as social cognition, oral language and literacy in general.

In the following sections, we first discuss previous research on narrative skills in children with HFA and review studies that aimed to promote narrative skills in children with ASD. Then we present a new study exploring the effect of the use of the SCI on children with HFA. The main goal of this research was to check whether the SCI would help children with HFA improve the inferential aspects of their narrative content (in particular, the expression of causal links and internal states of the intentional and epistemic type), aspects which are particularly weak in children with HFA and that most distinguish HFA from TD narratives. The study also included a group of TD children matched in verbal age and thus we will also compare the results obtained in children with HFA to those specifically obtained in the group of TD controls.

## Narratives in children with high-functioning autism (HFA)

### *Narrative skills in children with HFA*

There is a large body of research on the narrative skills of individuals with ASD (for a review, see Stirling, Douglas, Leekam, & Carey, 2014; and for a meta-analysis, see Baixauli, Colomer, Rosello, & Miranda, 2016). Concerning children with HFA, who are the participants in the present study, previous research has shown that their narratives present both similarities and differences compared to narratives produced by TD controls. Similarities mainly concern the linguistic expression, in particular the length of the narratives, the syntactic complexity and the number of syntactic errors (Mäkinen et al., 2014; Tager-Flusberg & Sullivan, 1995). However, narratives by children with HFA are likely to contain more referentially ambiguous pronouns (Banney, Harper-Hill, & Arnott, 2015; Novogrodsky & Edelson, 2013) and longer and more frequent pauses (Thurber & Tager-Flusberg, 1993). Differences are more marked in content. Children with HFA attribute fewer internal states (emotional, intentional and epistemic) to characters than TD controls, both in narratives based on picture books (Banney et al., 2015; Colozzo, Morris, & Mirenda, 2015; Kauschke, van der Beek, & Kamp-Becker, 2016; Rumpf, Kamp-Becker, Becker, & Kauschke, 2012) and in personal narratives (Brown, Morris, Nida, & Baker-Ward, 2012; King, Dockrell, & Stuart, 2013; Siller, Swanson, Serlin, & Teachworth, 2014). Some studies did not find significant differences in the number of internal states expressed but in their function, children with HFA using them less often than TD children to explain behaviors (Capps, Losh, & Thurber, 2000). Correspondingly, narratives by children with HFA were more descriptive with a tendency to present events locally (Diehl, Bennetto, & Young, 2006) and to contain fewer explanations (Losh & Capps, 2003; Tager-Flusberg, 1995).

Some of these differences may be accounted for by the cognitive specificities and the great variation in language abilities characterizing subjects with ASD. The limitations in their understanding of the psychological determinants of behavior (atypical theory of mind) might account for the fewer attributions of internal states to the characters. The tendency to focus locally (cf. the weak central coherence hypothesis, e.g., Happé & Booth, 2008; Happé & Frith, 2006), and on perceptual information (e.g., Mottron, Dawson, Soulieres, Hubert, & Burack, 2006), might account for the expression of fewer explanations of the story events. The difficulties often encountered in executive functions such as working memory, planning and cognitive flexibility (e.g., Hill, 2004; Pellicano, 2012; Russell-Smith, Comerford, Maybery, & Whitehouse, 2014) might also account for the differences reported in these studies.

*Promoting narrative skills in children with ASD*

In clinical practice, narratives are often used as a therapeutic tool to help children with ASD improve communication or socio-cognitive skills (Gal et al., 2005; Cashin, Browne, Bradbury, & Mulder, 2013; Tan et al., 2014; Tsunemi, Tamura, Ogawa, Isomura, & Masataka, 2014). Recently, several studies have also tried to specifically promote narrative skills themselves. These studies were conducted with samples of less than 10 participants (Dodd, Ocampo, & Kennedy, 2011; Gillam, Hartzheim, Studenka, Simonsmeier, & Gillam, 2015; Hammon, Williams, Sneddon, & Crotty, 2015; for personal narrative, see also Petersen et al., 2014). Training sessions lasted about 30 to 50 minutes and were held repeatedly at regular intervals (1 or 2 sessions per week) over a relatively long period of time (up to a few months). In post-training tests, participants tended to improve their narrative performance. However, considering the intensiveness and length of the training sessions, improvements were relatively small.

The new study we present here aims to explore whether the SCI, a simpler intervention procedure that had already proved useful for TD children, can also help children with HFA to improve the mind-oriented and explanatory contents of their narratives, aspects on which the largest differences between TD children and children with ASD were found in the literature.

## Using the SCI with children with HFA

### Method

*Participants*

Twenty-six children, all native speakers of French, participated in the study: 13 children with ASD (12 boys and 1 girl) aged 8;6 to 11;8 (mean age = 9;7), and 13 typically developing children (10 boys and 3 girls) aged 8;6 to 11;0 (mean age = 9;5).

The clinical group included 6 children with high functioning autism, 5 children with Asperger Syndrome, and 2 with atypical autism (PDD-NOS), all diagnosed by experienced clinicians on the basis of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, APA, 1994). Children attended specialized classrooms or regular schools in the grade corresponding to their chronological age. To be included, children were required to be between 8 and 12 years of age (corresponding to 3rd to 5th grade), and to have a verbal age within the normal range for the chronological age. Verbal age was measured by the E.CO.S.SE (Epreuve de COmpréhension Syntactico-SEmantique), a French test of morphosyntactic and semantic comprehension (Lecocq, 1996), or by the Verbal Comprehension Index

of the Wechsler Intelligence Scale for Children (WISC-IV). Given these features, all the participants in the clinical group were considered to present high functioning forms of autism and will be referred hereafter as children with HFA.

The control group included typically developing children recruited in primary schools. They were selected to match children with HFA on chronological/verbal age as the first criterion, and sex as the second.[2]

### *Procedure*

The material and the procedure are the same as described above in Sections 1.4 'The Stone story' and 1.5 'The overall procedure'.

### *Data analysis*

All the children's narratives were transcribed *verbatim*. Each narrative was independently coded by two trained researchers. The aspects of the narratives coded here are the *events* children mentioned and the expression of the following inferential aspects: the *explanation* of events or behaviors and the attribution of *internal states* to the two characters, including those expressing the difference in point of view between them, such as the *false belief* and the *rectification of the false belief*. The coding of these aspects is detailed below.

#### *Events of the story*

Eight 'events', more or less explicitly represented in the pictures, were retained. They provide the factual structure of the story. The events coded were:

1) *the greeting* between the two characters ('the setting') in picture 1;
2, 3) *the stumbling of P1* on the stone and *the pushing of P1 by P2* ('the complicating event') in picture 2;
4) *the pushing back of P2* by P1 ('the elaboration of the complicating event') in picture 3;
5, 6, 7) *falling, crying,* and *showing the stone* to P2 by P1 ('the attempt at resolution') in picture 4;
8) *P2 helping P1* to get up ('the resolution') in picture 5.

**2.** The dominance of the age criterion explains why the TD controls included 3 girls rather than 1.

*Inferential aspects*

Narratives were analyzed for the expression of explanations and the attribution of internal states to the characters, aspects that require the children to make inferences and fill the 'gaps' relative to what is provided in the pictures and by their sequence.

*Explanation of events.* All the explanations provided by the children were coded. Both what was explained (the *explanandum*) and how it was explained (the *explanans*) were identified (see Veneziano & Hudelot, 2009, for a more detailed discussion of explanations in terms of *explanandum* and *explanans* in this context). Three categories of *explanantes* were distinguished: 'physical' causes (e.g., 'he stumbles because of the stone'); 'internal state' reasons (e.g., 'he cries because he's in pain'; 'he pushes the other back because he had not understood why he had first pushed him') (see next section for more details), and 'socio-conventional' reasons (e.g., 'as he pushed him, he pushed him too').

*The attribution of internal states.* All the internal states attributed to the characters were identified and distinguished into four types: 'physical', such as see or being in pain; 'emotional', such as being happy, unhappy, angry as well as forgiving, apologizing, making peace or being friends; 'intentional', such as wanting, not wanting or not doing on purpose; and 'epistemic' states, such as believing, knowing, thinking and understanding.

Two epistemic states – more complex than just mentioning that a character knows, believes or thinks something – were coded separately: *the attribution of the false belief (FB)* and *the rectification of the false belief (RFB)*. The attribution of the false belief (FB) requires the expression of both the physical and/or non intentional cause of the first push by P1 AND the attribution to P2 of the belief that P1 had pushed him on purpose (e.g., 'there is one who fell on a stone and pushed his pal; the other believed he had done it on purpose'). It is a second order belief, in the sense that it is not just a belief about a state of the world but a belief about the intentions of someone else.

The *rectification of the false belief* (RFB) was identified when children had *P1 explain to P2* that his initial push was *not intentional*, possibly adding the physical reason underlying the initial push (e.g., 'he says to the other one that it is because of the pebble that he stumbled and that he pushed him and the other understands'). Thus, the RFB combines the communicative aspect with the explanation of the first push, which, at this point in the story, is evoked retroactively with respect to its actual occurrence in the story.

## Results

The main purpose of this study was to explore whether the SCI could help children with HFA improve the content of their narratives as this has been shown to be the case for TD children (see above). The secondary question addressed by this study was to investigate whether the content of narratives produced by children with HFA differed from that of TD controls. In this section, we first present results concerning the factual content of the narratives, namely, the events that were mentioned in the first and in the second narratives. We then present the central results of the study, namely, those concerning the inferential content of the narratives, such as explanations and internal state attributions. Finally, we present an example produced by a child with HFA showing improvements between the first and the second narrative, particularly in the inferential aspects.

### *The events of the story and its overall temporal adequacy*

As can be seen in the upper part of Table 1, few children mentioned all the 8 events coded: in the first narrative, only 1 child with HFA (7.7%) and in the second narrative, again one child with HFA and 2 TD children (15.5%).

Instead, the majority of the children with HFA, and also of the TD children, mentioned at least one event from each picture, in the appropriate temporal order, already in the first narrative (see the bottom part of Table 1). In the second narrative, the percentage of children who did that was higher for both groups, but the change was not statistically significant for either group.[3] No significant differences were found between the two groups in either narrative.[4]

### *Inferential aspects of the story*

Our first hypothesis was that the second narratives produced by children with HFA would contain more inferential aspects – such as explanations and attributions of internal states - than the first narratives. As a confirmation of previous studies, this was also expected for TD children. On the basis of previous findings, our second hypothesis was that TD children would mention more inferential aspects

**3.** Results of Chi-square tests applied to 2x2 contingency tables (completeness x narrative) considering the number of children were: for HFA, $\chi^2$ (1, N = 26) = 0.782, and for TD children $\chi^2$ (1, N = 26) = 0.995, both non significant.

**4.** Results of Chi-square tests applied to 2x2 contingency tables (completeness x group) considering the number of children for each narrative, were, for both the first and the second narrative: $\chi^2$ (1, N = 26) = 0.000

**Table 1.** Number and percentage of children who mentioned: (a) all 8 coded events in the adequate temporal order; (b) at least one event per picture in the adequate temporal order, by group of children and narrative

| | Children with HFA N=13 | | TD children N=13 | |
|---|---|---|---|---|
| **Narrative expression of events** | **First No. (%)** | **Second No. (%)** | **First No. (%)** | **Second No. (%)** |
| Mention of all coded events | 1 (7.7%) | 1 (7.7%) | 0 (0%) | 2 (15.4%) |
| Mention of at least 1 even/picture | 8 (61.5%) | 11 (84.6%) | 9 (69.2%) | 12 (92.3%) |

**Table 2.** Mean number and Standard Deviation (SD) of Explanations, total and by type, of Internal States, total and by type, and number (No.) and percentage (%) of children expressing the FB and the RFB, by group of children and narrative

| | Children with HFA N = 13 | | TD Children N = 13 | |
|---|---|---|---|---|
| | **1st Narr** | **2nd Narr** | **1st Narr** | **2nd Narr** |
| | **Mean (SD)** | **Mean (SD)** | **Mean (SD)** | **Mean (SD)** |
| *Total number of Explanations* | | | | |
| | 2.15 (1.06) | 4.46 (1.76) | 2.92 (2.56) | 4.85 (2.26) |
| *Types of Explanations* | | | | |
| Physical | 1.07 (0.95) | 2 (1.00) | 1.38 (1.32) | 1.92 (1.38) |
| Socio-conventional | 0.08 (0.27) | 0.23 (0.59) | 0.15 (0.37) | 0.23 (0.43) |
| Internal States | 1 (0.70) | 2.23 (1.23) | 1.46 (1.26) | 2.85 (1.51) |
| *Total number of Internal states* | | | | |
| | 2.23 (1.23) | 3.15 (1.57) | 3.15 (2.03) | 4.69 (2.36) |
| *Types of Internal states* | | | | |
| Physical | 0.17 (0.38) | 0.23 (0.44) | 0.31 (0.63) | 0.62 (0.65) |
| Emotional | 0.50 (0.52) | 0.62 (0.65) | 0.69 (0.48) | 1.08 (0.95) |
| Intentional | 0.83 (0.83) | 1 (1.03) | 1 (0.91) | 1.38 (1.04) |
| Epistemic | 0.85 (0.98) | 1.31 (1.03) | 1.15 (1.28) | 1.54 (1.05) |
| | No. (%) | No. (%) | No. (%) | No.(%) |
| *Complex internal states:* | | | | |
| *False Belief (FB)* | | | | |
| | 3 (23%) | 5 (38%) | 4 (31%) | 6 (46%) |
| *Rectification of the False Belief (RFB)* | | | | |
| | 6 (46%) | 11 (85%) | 4 (31%) | 10 (77%) |

than children with HFA in both the first and the second narratives. For the first hypothesis, *paired t-tests* (for repeated measures) were applied to test whether a positive change was found in the second narrative compared to the first one. For the secondary hypothesis, we applied an *independent samples t-test* to compare the two groups of children on the first and on the second narrative for each measure considered. Since both hypotheses were directional, we retained the one-tailed *p* level probability of .05. Though we did not have hypotheses concerning the interaction between the order of narratives and the group of children, two-factor mixed ANOVAs (repeated measures within-subject for order of narratives and between-subjects for groups of children) were also performed to check whether an interaction between the two factors was nevertheless present.

Table 2 presents all the results discussed in this section.

*Total number of explanations*

As can be seen in Table 2, the mean number of explanations expressed by children with HFA increased between the first and the second narrative (from 2.15 to 4.46), an increase that is highly significant (paired t-test = 6.32, $p < 0.001$, one-tailed). Among TD children the number of explanations also increased in a statistically significant way (from 2.92 to 4.85; paired t-test = 3.85, $p = 0.001$, one-tailed). TD children explained more events than children with HFA in both narratives, but the difference between the two groups was not significant in either the first or the second narrative. The two-factor mixed ANOVA did not show any significant interaction between the two factors.

*Types of explanations*

As mentioned above (data analysis section), three main types of explanations were distinguished: physical, socio-conventional, and internal state causes. Below are two examples of explanations expressed in the narratives of children with HFA:

Example 1. Physical and intentional internal state explanations expressed by a child with HFA aged 9;4

*l'un avait trébuché dans une pierre donc il a fait, sans faire exprès, pousser l'autre*

'one had stumbled on a stone so this made him, without doing it on purpose, push the other one'

Example 2. Epistemic internal state explanation expressed by a child with HFA aged 9;4

*il l'a aidé à le relever parce qu'il savait maintenant pourquoi l'autre il lui avait poussé*

'he helped him to get up because he knew now why the other one had pushed him'

Physical and internal state explanations were used quite often (see Table 2). Physical causes were mostly used to explain the first push (60% of this type), and also why P1 stumbles, falls or cries. Internal states of the epistemic type were frequently used to explain the second push (33% of this type) and the reconciliation between the characters (21%). Internal states of the intentional type were frequently used to explain the first push (22%), often in addition to the physical cause, when talking about the event in picture 2, thus following the temporal sequence of events, or retroactively to clarify the misunderstanding. Socio-conventional explanations were infrequent. This is quite understandable as earlier results show that this kind of explanation is mostly provided by 5- to 8-year-old children (i.e., younger than the participants in this study) to account for the push back as a socially accepted retaliation (e.g., Veneziano, 2016).

As can be seen in Table 2, the number of both physical and internal state type of explanations increased among children with HFA between the first and the second narrative (physical: paired t-test = 3.21, $p < 0.01$; internal state: paired t-test = 4.38, $p < 0.001$). The number of internal state explanations also significantly increased in TD children (paired t-test = 2.92, $p < 0.01$), while for physical causes the increase was just close to significance (paired t-test = 1.62, $p = 0.065$). TD children produced a larger number of internal state explanations than children with HFA both in the first and in the second narrative but no statistically significant differences were found between the two groups. The same was true for physical explanations in the first narrative, but children with HFA caught up with TD children in the second narrative. No significant differences were found in all cases. The two-factor mixed ANOVA did not show any significant interaction between the two factors.

*Total number of internal states*

As can be seen in Table 2, the mean number of internal states attributed to the characters by children with HFA increased between the first and the second narrative (2.23 to 3.15), an increase close to significance (paired t-test = 1.65, $p = 0.06$). For TD children, the increase was larger and significant (paired t-test = 2.92, $p < 0.01$), confirming the results obtained in earlier studies. As was the case for the number of explanations, TD children attributed significantly more internal states to the characters than did children with HFA in both narratives. While the difference between the two groups was not significant in the first narrative (independent samples t-test=1.39, p=0.087), it was significant in the second narrative (independent samples t-test=2.08, $p < 0.05$). The two-factor mixed ANOVA did not however show any significant interaction between the two factors.

*Types of internal states*

As mentioned in the data analysis section above, four types of internal states were distinguished: physical, emotional, intentional, and epistemic states. Here are some further examples produced by TD children and by children with HFA (the relevant part is underlined):

Example 3. Physical internal state attributed to a character by a TD child aged 9;1:
*il voit un rocher* 'he sees a rock'

Example 4. Emotional state attributed by a child with HFA aged 8;10:
*et après il se calme* 'and then he calms down'

Example 5. Intentional state attributed by a child with HFA aged 10;11:
*après il veut l'aider à se relever* 'then he wants to help him to stand up'

Example 6. Epistemic state attributed by a TD child aged 10;5:
*il a compris qu'y avait une pierre* 'he understood that there was a stone'

As can be seen in Table 2, children with HFA mentioned each of the four types of internal states more in the second than in the first narrative. However, the increase was not significant for physical, emotional and intentional states, but reached significance for the attribution of epistemic states (paired t-test = 1.76, p = 0.05). This is a very important change considering that epistemic states are the most mental and representational of the internal states and also those for which children with ASD have more difficulties. For TD children, only the increase in physical states reached significance (paired t-test = 1.76, p = 0.05). TD children mentioned each type of internal state more often than children with HFA in both narratives, but in the first narrative there were no statistical differences between the two groups of children, and in the second narrative only the physical type of internal states was statistically significant (independent samples t-test=1.77, $p < 0.05$). The two-factor mixed ANOVA showed no significant interaction between the two factors for any of the four types of internal states.

*The false belief (FB) and the rectification of the false belief (RFB)*

Below are examples of the expression of the two more complex epistemic states, FB and RFB, expressed by children with HFA(the relevant part is underlined):

Example 7. FB expressed by a child with HFA aged 9;5:
*il trébuche sur la pierre et il pousse le copain sans faire exprès et le copain il croit qu'il a fait exprès*
'he stumbles on the stone and he pushes his pal without doing it on purpose and the pal thinks he did it on purpose'

Example 8. RFB expressed by a child with HFA aged 10;7:

*et puis ensuite l'autre enfant il dit c'est pas de ma faute c'est parce que j'ai trébuché sur la pierre sans faire exprès*

'and then the other child says it is not my fault it is because I stumbled on the stone without doing it on purpose'

Table 2 reports the number and percentage of children expressing the *false belief* (FB), per narrative, for the two groups of children. The number of children with HFA who expressed the FB progressed from 3 to 5. In the group of TD children, the change was from 4 to 6. Thus, in both groups, 2 children (15% in each group) who had not expressed the FB in the first narrative, expressed it in the second, a change that, given the complexity required to express this aspect, is not negligible, particularly for children with HFA. Concerning the expression of the RFB, the children with HFA who expressed it increased from 6 in the first narrative to 11 in the second one, an important and statistically significant increase ($\chi^2$ (1, N=26) = 2.72, p <.05, one-tailed). The number of TD children rose from 4 to 10, also a significant increase ($\chi^2$ (1, N=26) = 3.87, p <.05, one-tailed).

It should be noted that all children who expressed the FB of P2 also had P1 explain what happened, thus rectifying the FB of P2. The remaining children who expressed only the RFB implied that P2 had a misleading representation of the dynamics of the events that needed to be rectified. Children who expressed the RFB thus tell in all cases a story of a misunderstanding between the characters.

### *An example of a positive change between the first and the second narrative from a child with HFA*

The example below illustrates the change that a child with HFA made between his first and his second narrative of the *Stone story*:

Example 9. Child with HFA aged 9;4

First narrative (before the SCI)

*Moi j'ai vu qu'ils ont fait salut tous les deux /*[5] *sans faire exprès il l'a poussé l'autre mais pas par terre / mais l'autre il a fait exprès de le faire tomber / mais il a quand même fait la paix.*

'I saw that they both waved hallo / without doing it on purpose he pushed the other one but not to the ground / but the other did it on purpose to push him down / but he nevertheless made peace.'

5. a slash means the presence of a short pause

Second narrative (after the SCI)
*C'était deux petits garçons / l'un avait trébuché dans une pierre / donc il a fait sans faire exprès pousser l'autre /et l'autre il a fait exprès / mais ça a fait mal à l'autre / et il l'a aidé à le relever parce que il savait maintenant pourquoi l'autre il lui avait poussé / parce que l'autre il avait trébuché sur la pierre.*
'There were two little boys / one had stumbled over a stone / thus without doing it on purpose pushed the other / and the other one he did it on purpose / but it hurt the other one / and he helped him to get up because he knew now why the other one had pushed him / because the other one had stumbled on the stone'.

The second narrative presents more details, more explanations and attributions of internal states, as well as more links among the different scenes than the first one. The first narrative, though it contains the explanation of the two complicating events (first and second push), only makes a general reference to the intentionality of the characters without going into any detail or expressing the misunderstanding. Instead, the second narrative clearly specifies the physical cause of the first push and makes reference to the misunderstanding by expressing the change in the mental representation of the first push by P2 ('because he knew *now* why …') and attributing the epistemic state of 'knowing' to him.

## Discussion

### *The SCI with TD children*

In this chapter, we have presented the results of studies that have used a short conversational intervention (SCI) focused on the causes of the story events. The results of previous studies, obtained with TD children aged 5–6 to 10 years, show that after the SCI children can significantly improve the inferential aspects of their narratives. They not only explain the events of the story more and better – something that might have been expected given the causal focus of the SCI – but also take more into account the mental states of the characters, including more complex ones such as the false belief and its rectification, mentioning them as reasons or consequences of given happenings. These improvements are not ephemeral but continue to be present one week after the SCI, both for the same and for a new story. It was moreover shown that it was the SCI that brought about these improvements since children in a control condition (who retold the story after a *Memory* game with the story images) did not change their initial narrative in any significant way. Furthermore, a preliminary study suggests that children do not only positively change the content of their narrative but also the cohesiveness of their linguistic expression as measured by the number of connectives and subordinate clauses.

*The SCI with children with HFA*

The main purpose of the new study presented in this chapter was to investigate whether the SCI could also help children with HFA to improve the inferential content of their narratives. The results obtained show that these children can also benefit from the SCI. They improved several aspects of the content of their second narrative: they mentioned more events, more explanations of these events, and attributed to the characters more internal states, particularly of the epistemic type. These improvements were confirmed for the sample of TD controls. The only difference we found between children with HFA and TD controls concerned the attribution of internal states in the second narrative, but no significant interaction between the order of narratives and the group of children was found. It thus appears that, for the attribution of internal states, the SCI might be somewhat less effective for children with HFA than for their TD controls. However, and despite the known limitations of children with HFA in socio-cognitive aspects relating to Theory of Mind (e.g., Tager-Flusberg, 2000), as well as in conceiving different perspectives and in moving quickly from one perspective to another (see Hill, 2004; Pellicano, 2012; Russell-Smith et al., 2014), after the SCI, a significantly greater number of these children had P1 clarify to P2 what happened in reality at the time of the initial push (i.e., they expressed the RFB). And, as mentioned above, children who express the RFB also express or imply that P2 has a misleading representation of the dynamics of the events (is in a state of false belief) that the clarification serves to rectify, and thus narrate the story as a story of a misunderstanding that takes into account the different perspectives of the characters.

The significant changes in inferential aspects obtained after the SCI with children with HFA are new and quite impressive, given that the SCI is brief and that it was implemented only once. Intervention programs with children with HFA are usually intensive and spread over a relatively long time period (Dodd et al., 2011; Gillam et al., 2015). These encouraging results will have to be confirmed by future studies. Moreover, it will be important to evaluate whether these improvements also concern the linguistic means of expression, subsist over time, and whether children can generalize their new way of narrating the *Stone story* to a story different from the one on which the SCI was performed. It would also be interesting to investigate whether repeating the short conversational intervention over time would have a greater effect and could benefit children presenting other types of Autism Spectrum disorders.

*How to explain the benefits of the SCI*

The results obtained in studies with TD children and in the study with children with HFA presented here, strongly suggest that the SCI is a simple and useful tool leading children to produce narratives which are more coherent and interesting to listen to.

How does the SCI attain these goals?

It can be assumed that the causality questions asked during the SCI not only stimulate children's thinking about the causes of the events but may also lead them to think and talk about the internal motivational forces underlying the characters' behaviors, and foster their understanding of the overall plot. By drawing attention to the causes of the events, the SCI may also *distract children from the perceptual details* present in the images, and direct their attention and thoughts towards aspects that are not present and need to be inferred, such as the explanation of events and the internal states of the characters. This effect is enhanced by the fact that the pictures are not visible when the children narrate the story. This feature may have been particularly effective for children with HFA who might be attracted, to a higher degree than their TD counterparts, by the details present in each image (Mottron et al., 2006) to the detriment of inferential aspects (see also the 'weak central coherence hypothesis', e.g., Happé & Booth, 2008; Happé & Frith, 2006). At the same time, the causal questions may provide the children with an implicit model of the story the experimenter wants to hear, namely a story that doesn't only tell *what* happens but also *why* things happen.

The SCI also facilitates *the segmentation* of the story structure into its components. This may lead, on the one hand, to better analyzing each picture and discovering in them new elements that can help children gain a better understanding of the story's overall plot and, on the other hand, reduce the cognitive load created by the need to process and integrate all the different aspects of the story at the same time (see also Aksu-Koç & Tekdemir, 2004; Veneziano, 2016, 2017).

Does the SCI allow children learn something new, or does it simply lead them to promote and coordinate competences and knowledge they have already acquired? Though our studies cannot at present provide a specific answer to this question, it is likely that both of these options could take place. Children may learn something new about the pragmatics of storytelling whereby inferential aspects, such as explanations and internal state attributions, are central to making a story informative and interesting for one's listener (e.g., Galitch & Quasthoff, 1986; Hausendorf & Quasthoff, 1992). And it may also be the case that the SCI – by *focalizing* children's attention on the causes of the events and away from perceptive details, and *segmenting* the story into smaller units – helps children recruit their underlying competences and integrate them into the production of an overall coherent plot.

The results obtained in studies that have used the SCI encourage its implementation in educational practices with young TD children, children with school difficulties and at risk, as well as with children with HFA and with ASD in general. Indeed, compared to other intervention procedures found effective in stimulating children's production of a story's inferential aspects, the SCI has several advantages. It is simple and quick to administer, it does not require a long training to have people learn how to use it, and it can be implemented within the various narrative activities already proposed in schools and, for children with ASD, in social skills training groups, where children are often solicited to tell stories, narrate their everyday personal experiences or talk about fictitious social happenings.

As mentioned above, it should be pointed out that not all children improve their narratives in the same manner and degree after intervention procedures, and this is also the case for the SCI. This inter-individual variation can be explained by the different cognitive, socio-cognitive and linguistic developmental levels of the children (see for example Nelson & Khan, this volume for a detailed account of the competences necessary to produce 'good narratives' through adulthood). As mentioned earlier, it can also be related to children's variation in executive function abilities, such as cognitive flexibility and inhibition, with children who have developed greater mastery in the latter being better able to benefit from the SCI. Indeed, these children seem to show more readiness to change their initially-produced story, or inhibit the first narrative to replace it with a new interpretation based this time on the misunderstanding between the characters (Veneziano & Bartoli, 2018; Veneziano et al., 2018). An ongoing study explores this possibility also for children with HFA.

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# Subject index

In recent years, narrative skills have been receiving increasing attention from researchers for their relevance in the development of language, literacy and socio-cognitive abilities. This volume brings together studies focusing on two key issues in the development of children's narrative skills. The first part of the volume addresses the issue of the interrelatedness between narrative skills and literacy, language and socio-cognitive development, as well as of the impact of narrative practices on the promotion of these different skills. The second part of the volume addresses the issue of how early interactional experiences, particular contextual settings and specific intervention procedures, can help children promote their narrative skills.

The studies span a wide age range, from toddlers to late elementary school children, concern different languages (Dutch, English, French, German, Hebrew and Italian), and consider narrative skills and practices from a rich variety of theoretical and methodological approaches.

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