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HYBRID INTERVENTION TO FACILITATE PRESCHOOL CHILDREN'S

NARRATIVE DEVELOPMENT

A Thesis in

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by

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ABSTRACT

Narrative skill is identified as a critical link to successful school achievement. A lot of descriptive studies have been done in this field but intervention studies are rare. The present research used a new hybrid intervention method which covered three domains of narrative development, linguistic complexity, evaluative information, and story grammar. Thirty children (mean age 4;6 years) participated in this study. Before and after the intervention, the children's skills were evaluated for language and in three different tasks of narrative ability. Fifteen children were assigned into the intervention group and the other 15 children who were closely matched with the intervention group on their pretest languages skills served as the control group. In six weeks, the 15 intervention children received 12 intervention sessions which lasted for 30 minutes each time. After the intervention, the intervention group showed improvement in all three narratives tasks that were employed. Specifically, they recalled more information and used more complex sentences in the story retelling task. The intervention group in the story telling task included more evaluative information and more story grammar components in their story narratives. The stories generated by the intervention group in the story telling task also included more complete episodes than the control group children did. For the personal narratives, the intervention group produced narratives which were more structurally complicated. In a sentence recalling subtest from the Clinical Evaluations of Language Fundamentals (CELF-preschool) as well as a composite language Z score, the intervention group received significantly higher score than the control group children. These results demonstrated preschool children's narrative development could be effectively facilitated by a hybrid intervention in a short time.

At the theoretical level, this study emphasizes the importance for children's progress of providing challenges in multiple narrative components. Further, the intervention results support

the theoretical notion that rapid narrative skill growth will occur when narrative challenges were interwoven dynamically with favorable emotional, motivational, and scaffolding conditions during adult-child interaction.

Because narrative skills are important for reading and other academic activities, it is suggested that interventions such as the present hybrid intervention would be valuable tools in preschool and kindergarten curriculum.

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Chapter 1

INTRODUCTION

As the basic principles of language development at the vocabulary level and sentence level became well understood in the last few decades, more emphasis has been placed on describing children's ability to combine sentences into paragraphs. One method of studying these larger linguistic units is the children's narrative. Narrative is a type of discourse that typically describes real experience or imagined events that happened in the past.

Previous research has demonstrated that conceptualization of past experiences helps people understand themselves (Bruner, 1986; Fivush, 1987). The narratives they tell about their experience, either to themselves or to the audience, play an important role in shaping their self-concept. Narrative is also a logic system that helps people understand the world around them (Bruner, 1986). This perhaps suggests a link between narrative skills and reasoning or problem solving ability. In daily life, parents read stories to infants and, as soon as children begin to talk, parents begin to reminisce with their children (Hudson, 1990; Nelson, 1989). From then on, narrative continues to play an important role in everyday social life interactions. Deese (1984) noted that at the core of telling experiences, narration encompasses much of people's daily social interaction. A study by Preece (1987) also supported the important role of narration in children's social interaction.

Another thread of evidence for the importance of narration in children's development comes from correlation studies that relate narrative skill with children's success on other literacy tasks (Feagans, 1982; Snow, 1983; Snow & Dickinson, 1990). As a higher level ability, narrative

ability requires children not only to produce multiple sentences, but also to knit them together in a coherent story. This process encompasses multiple domains of language skills, including syntax, semantics and pragmatics. It also challenges children's memory. Narrative ability has been linked to particular preschool experiences with book-reading and story telling (Wells, 1985). Researchers have also shown that narrative ability affects children's performance in some classroom activities such as show-and-tell, sharing time, and storytelling (Hicks, 1991; Michaels, 1981). Furthermore, narrative, as a form of decontextualized speech, has been found to contribute to literacy acquisition (Snow, 1983; Dickinson, 1989). According to Snow (1983), it is the transition from contextualized to decontextualized language that enables individuals to acquire literacy skills.

The decontextualized nature of narrative is that children can talk about something that happened before and someone not present in view. The ability of talking about "then" and "there" is a property that educators find interesting. Decontextualized language has been found as a link to success in school. Peterson and McCabe (1983) suggested that children who had not mastered narrative ability when entering Grade 1 have difficulty in making the transition to learn written texts. Other studies also proved that narrative skills of preschoolers could predict their later academic and linguistic performance. Paul and Smith (1993) found that narrative skills of four-year-olds were one of the best predictors of later school outcomes for those children who were at risk for academic and language problems. Feagans and Applebaum (1986) investigated a number of skills in six- and seven-year-old learning disabled children and found that children who had stronger narrative skills were better on various standardized academic achievement tests including both reading and math. Fazio, Naremore, and Connell (1996) followed low-income children at risk for specific language impairment from kindergarten through second grade. They

found that in kindergarten, the best predictor of which children were assigned to remedial education later was story telling ability. Bishop and Edmundson (1987) found that the best predictor of literacy functioning at age 51/2 years was children's performance on a narrative task. One recent finding came from the Home-School Study (Tabors, Snow & Dickinson, 2001).

This study investigated Head Start children from three years old through the seventh grade. This study employed numerous measures of child language and literacy skills over the course of ten years. They found narrative production in kindergarten was one of the four measures that correlate significantly with reading comprehension and receptive vocabulary at fourth grade and seventh grade.

Narratives can assume many forms: telling a story from a book, sharing your prior experience with the audience, or retelling a movie after seeing it. Some narratives are based on factual scenes such as what happened in one's own life, these types of narratives are usually called personal narratives. Another category of narrative—story—is fictionalized accounts of imagined events (Stein, 1982).

As a type of discourse, narration has its own conventions. Unlike in conversation, a teller of a narrative does not expect a topic-related response from the listener (Keenan, 1973). And as Neisser (1982) has pointed out, in order to tell a "good story" about the past, one need not only tell what happened, but must also orient the listener to the who, where and when of the events so as to place the event in an appropriate spatial-temporal context. It has been demonstrated that stories often conform to a story grammar or a schema that specifies both the content and the structure (Mandler, 1978). Stories which follow such a schema are better comprehended and recalled by both adults and children than those that do not abide by a story schema (Mandler & Johnson, 1977; Hudson & Nelson, 1983).

The conventional form for personal narratives is similar to the accepted structure for stories, but simpler. In their study, Peterson and McCabe (1983) showed in their study that one part of the story grammar, the resolutions for problems, is not always necessary for personal narratives. Nevertheless, a story without this part is only an incomplete episode. Besides orienting information, evaluative information makes another important part of personal narratives. Indeed, inclusion of evaluative information is "the means used by the narrator to indicate the point of the narrative" (Labov, 1972, p.366). In terms of personal narrative, evaluative information may reveal why a particular experience is important enough to be incorporated into the life story (Peterson & Briggs, 1998). Evaluative parts are also important in stories, but the function of evaluative information is different in fictional and personal narratives. In personal narratives, the narrator tells a story that happened to him/her, whereas in story narratives, events that happened to the protagonist are told by this narrator from an observer's point of view. This difference of perspective is fundamental in using of evaluations (Bamberg, 1997; Shiro, 2000).

Analysis of Narrative

Different structures and functions of stories and personal narratives requires some analysis sensitive to each type of narrative. The two most popular narrative analyses, story grammar analysis and high-point analysis, have their strength in analyzing story narratives or personal narratives respectively. Story grammar analysis has been recommended for analyzing fictional stories in part because story grammar analysis values goals and solutions to problems; it would underrate a personal narrative if it does not include the resolution of the event. Story

grammar analysis examines how stories are structured around the explicit goals of the protagonist. This analysis is oriented toward the content of the narratives: the protagonist's goals and the expressions, the protagonist's efforts to achieve these goals, and the results of these efforts. Stein and Glenn's story grammar (1979), for example, listed six story grammar categories: setting, initiating events, internal responses, attempts, direct consequences and reactions. Story grammar analyses provide information about episodic organization of propositions in the text. Stein and her colleagues (Stein & Albro, 1997; Stein & Glenn, 1979) also defined a complete episode as a narrative minimally contained an initiating event, an attempt, and a consequence. An incomplete episode contained two of the three critical elements.

Personal narratives have been studied extensively by Labov (Labov &Waletzky, 1967; Labov, 1972, 1982) and extended to young children by Peterson and McCabe (1983, 1991, 1994, and 1999). It has been argued that personal narratives provide the simplest, most fundamental narrative structure (Labov & Waletzky, 1967). Moreover, available reports suggest that narratives of personal experiences are among children's earliest narrative productions, appearing prior to three years of age (Scollon & Scollon, 1981, Heath, 1982, Fivush et al., 1987). High-point analysis is based on the work of Labov. This relatively fine-grained analysis keeps track of both orientation and evaluation information. It was originally suggested (Labov & Waletzky, 1967) that evaluative clauses cluster around the 'high point' of narratives of personal experience, i.e. the point at which problem is about to be solved. Peterson and McCabe (1983)used high point analysis in their study about children's personal narratives (age ranges four to nine years) and found that from early on, the children place an evaluative around the high point (Peterson & McCabe, 1983). They also divided the children's personal narratives into seven categories depending on how the events are structured: miscellaneous narrative, disoriented narrative,

impoverished narrative, leapfrog narrative, chronology narrative, end-at-the-High-Point

narrative, and classic narrative.

Descriptive Studies on Narrative

Prior studies on narrative have made positive efforts in describing characteristics of the

different genres of narrative. These researchers generally focused on three domains of narrative

ability: story grammar structure, linguistic complexity, and the use of evaluative information

(Labov, 1972; Milgram, Shore & Malasky, 1971; Pellegrini et al., 1984; Eiserberg, 1985; Roth &

Sperkman, 1986; Fivush, 1987; Miller & Sperry, 1988, Peterson, 1990).

Findings on Story Grammar

The development of story grammar in normally achieving children has been studied

mostly through the use of "story recall" tasks. Typically, the subjects listen to a story and are

then asked (either immediately or after a delay) to retell the same story to the experimenter.

Recall is measured by the proportion of each story grammar category accurately recalled.

Overall, it has been reported that five-to-six year old children already demonstrate

knowledge of narrative structure, but the amount of information recalled from the stories

increased with age (Mandler & Johnson, 1977; Stein & Glenn, 1979). Further, all story grammar

categories are not recalled equally well. Mandler and Johnson (1977), Stein and Glenn (1979)

both reported that major setting information, initiating events, and direct consequences were the

story grammar categories most likely to be recalled. Similar results have been validated with

naturalistic narratives. Sleight and Prinz (1985) asked language disordered and normal children,

ages 11 to 12, to narrate a nonverbal film to another child who was unfamiliar with the film. Their results indicated that the most salient features of narration for language disordered children and normal children were the orientation information about characters and activities.

Since the orientation information is the most salient category of story grammar, many relevant studies have been conducted. Kernan (1977) analyzed narratives produced by children 7 to14 years of age and found that all children provided considerable orientating information. However, about half the time, the youngest subjects introduced a character with just a name and no other identifying information while older children almost never did so. In addition, younger children were more concerned with identifying specifics like time, place and characters while older children stressed background information like mood, motivation and circumstance. As a result, more of the older children's narratives were devoted to orientation. Children of younger age groups have also been studied. Umiker-Sebeok (1979) assessed the possibility of preschoolers including orientation information in their intra-conversational narratives to peers. He found that although three-year-olds seldom included orientation in their narratives, four-year-olds were considerably more likely to do so. Peterson & McCabe (1983) traced the development of orientation in the narratives of 96 children between 3;6 and 9;6 (year; month). They found that younger children provided the same proportion of orientation information as older children (about 20% of all sentences) in their narratives despite the short length of their narratives. In a different analysis about the quality of children's orientation information, they found that although the youngest children identified almost all the subjects in their narratives ('what' information), they had a more difficult time specifying who and where and seldom provided information concerning when and why. In a more recent study, Peterson (1990) traced the use of key orientation information (who, when and where) with an 18-month longitudinal study in

personal narratives produced by 10 children aged approximately 2 to 3;6 (year; month). This study revealed that orientation to time was rare at first but with a steady developmental improvement in frequency as well as differentiation of time reference. Location information (where) was more common at all ages even for child as young as two years old, particularly when the narrated events occurred away from home. Appropriate use of information about participants is the most difficult job for children at this age. A clearly competent and fully explicit orientation to narrative participants is rarely used by children at this early age of narrative acquisition.

Findings on Linguistic Complexity

Between ages 3 and 5, most children's narratives demonstrate increasing linguistic complexity. Measures of the length of oral narratives show developmental increase and also can differentiate between high language ability and low language ability children (Allen, Kertoy, Sherblom, & Petti, 1994). Measures of narrative length could be based on number of words, number of propositions, number of sentences, or number of thematic units (T units) (Milgram, Shore & Malasky, 1971; Manhardt & Rescorla, 2002; Capps et al., 2000; Feagan & Short, 1984; Der Lely, 1997). Additionally, measure of story productivity, i.e. the number of different words; have been used to differentiate children with language impairment from typically developing children (Paul & Smith, 1993). Children with normally developing language demonstrate a greater number of different words in their narratives than children with specific language impairments.

Narrative cohesion, the second aspect of linguistic complexity, refers to explicit connections between the sentences that comprise a story (Berman & Slobin, 1994; Peterson & McCabe, 1991). It differentiates low and high language ability preschool children (Paul & Smith, 1993). Children with language impairments tend to use fewer complex sentence structures (Gillam & Johnson, 1992; Lilies, 1985) and consistently produce more grammatically inappropriate utterances than their typically developing peers (Bedore & Leonard, 1998; Leonard, 2000). Development of sentence organization is associated with production of increasing complex syntax. For instance, 3-year-olds often combine clauses through the use of simple coordinating conjunctions (e.g. "and"), whereas the 4 and 5-year-olds are beginning to use adverbial clauses, complement clauses, relative clauses, (e.g. "because", "so") and more complex coordinating conjunctions (e.g. "first…then…") (Wells, 1985). These complex syntax structures have been examined in children's narratives (Manhardt & Rescorla, 2002; van Der Lely, 1997; Sleight & Prinz, 1985).

Findings on Evaluative Information

The role of emotions, intentions, and other psychological responses within the context of children's oral narrative productions was highlighted by Labov's (1972) "evaluative" dimension of narrative. This evaluative information makes explicit why the described event was interesting or meaningful (Haden, Haine, & Hivish, 1997). Use of evaluative techniques in narrative may also signal general development of the narrative as a whole. Hoff-Ginsberg (1997) found a significant relationship between the density of evaluative devices and the number of plot elements included in preschool children's narratives based on a wordless picture book. Further,

evaluative clauses serve to evaluate the narration. Evaluative information is conveyed by using explicit inference about a character's emotion or cognition state, quoting the speech of a character, using qualifying or emphasizing comments, directing questions to the listener, and commenting on one's own emotional reactions to the story (Peterson & McCabe, 1983).

Cohen, Robins & Lewis (1968) classified the evaluative information into four categories of linguistic devices: intensifiers, comparatives, extensifiers, and explanations. These four categories were broken down and extended by Peterson and McCabe (1983) into 21 separate categories, which subsequently were used to identify children's early use of evaluatives in narratives. In their analysis of children's narratives of personal experience (age range four to nine years), Peterson and McCabe found that across all ages, children pay a great deal of attention to evaluation. They also found that the following four linguistic and paralinguistic devices were the ones used most commonly across all age groups: (a) gratuitous terms (b) stressors (c) negatives (d) causal explanations. Furthermore, Peterson and McCabe found that even though narrative sophistication increased with age, basically all age groups structured their narratives in a similar way (similar basic story grammar components), and from very early age, they placed the evaluatives around the high point. Bamberg and Damrad-Frye (1991) analyzed evaluative comments in oral narratives elicited with the wordless picture book "Frog, where are you?" They found adults used evaluative comments much more often than children did. The use of evaluative information is also qualitatively different. According to their results, adults used significantly more reference to "frame of mind" and "hedges" than the children. However, children as young as three years make use of evaluatives in conversational narratives (Umiker-Sebeok, 1979).

Findings in Varied Populations

Results of the aforementioned studies have been widely accepted for mainstream speakers with normally developing language. Since 1980, some attention has been focused on children with language problems (Hansen, 1978; Noel, 1980; Bishop, 1991; Feagans & Short, 1984; Lilies, 1985; Lely, 1997; Capps, Losh &Thurber, 2000; Manhardt & Rescorla, 2002) and children from different ethnic backgrounds (Michaels, 1981; Nicholas, 1989; Hicks, 1991; Minami & McCabe, 1995; Munoz et al., 2003). Feagans and Short (1984) compared the performance of nonverbal enactment and verbal paraphrase of a script narrative in reading disabled children and normally achieving children. This study indicated that language expression problems of reading disabled children were persistent over time even when they have demonstrated comprehension through nonverbal enactment. Sleight and Prinz (1985) found that language disordered children made fewer references to the orientation clauses of props and activities than non-disordered children. Similarly, Capps et al's study (2000) also revealed that children with autism or developmental delay were less likely than typical children to identify the cause of a character's internal state although they did not differ in their use of causal language or internal state terms. Another study with later talkers (Manhardt & Rescorla, 2002) demonstrated that children with histories of early language delay obtained lower syntax, story grammar, and evaluative scores than typically developing peers in their narrative productions.

Studies about minority children or children from different cultures also found culture-dependent narrative styles. It has been commonly noted that African-American English (AAE) speaking children tend to formulate what has been called "topic-associating" narratives that are consistent with the oral culture of AAE speakers (Collins, 1985; Michaels, 1981). These narratives included a series of personal anecdotes without an overall theme. In addition, thematic

cohesion was attained through prosodic cues rather than explicit semantic and syntactic forms, such as conjunctions and relative clauses. Nicholas (1989) found differences in the story narratives of AAE speaking children and white fourth-grade children. He also found that African American children emphasized immediacy, entertainment, and audience participation as important features of storytelling, whereas for white children, reporting of events and moral instruction were important.

Minami and McCabe (1995) examined conversations between mothers and children in Japanese and American families. Comparisons of mothers from these two cultures yielded several differences. First, Japanese mothers requested less description from their children and provide less evaluation to their children's speeches. Second, Japanese mothers provided more verbal attention to children than American mothers. Third, Japanese mothers paid more attention to boys than to girls. Comparisons of narratives produced by children who speak Chinese, English, German, Spanish, Hebrew, and Turkish showed that even though stories produced in multiple languages had a similar structure, the specific content of children's stories often differed (Berman, 2001; Wang & Leichtman, 2000). It is clear that some aspects of storytelling can be influenced by culture and linguistic experiences.

Factors Influencing Narrative Development

After knowing many characteristics of children's narratives from the above descriptive studies, researchers became interested in exploring the factors influencing the development of narrative ability. Both correlation studies and longitudinal studies have been conducted to answer this question. The narrative skills of children are, of course, associated with cultural background

and ethnic group membership (Michael, 1991; McCabe, 1996). Some researchers claim that

they are also associated with social economic status (Feagan, 1982; Heath, 1982). But others

disagree. Hoff-Ginsberg (1997), for one example, found that the variability in the quality of the

narratives produced by typically developing 41/2-year-olds is unrelated to the Social Economic

Status (SES) of these children (within a relatively narrow range of SES), unrelated to birth order,

and unrelated to gender, whereas children's SES and birth order were found related to individual

differences at 2 years in lexical development, grammatical development and development of

conversation skills. This result, together with other increasing evidence, seems to suggest that

narrative skills must be considered as relatively distinct from other language skills, not just as a

later stage in language development. The division between narrative and conversational skill is

evident in the language development of early hemi decorticates, whose language appears

relatively normal in conversation, but exhibit severe problems in producing organized or

complete narratives (Brownell, Michel, Powelson & Gardner, 1983; Newman, Lovett & Dennis,

1986).

Parental Influence

Another important factor that affects children's narrative skills is parental input, or more

accurately, the sorts of parent-child conversational exchanges that occur. A number of

researchers have differentiated distinct styles of narrative elicitation by parents (Fivush &

Fromhoff, 1987; McCabe & Peterson, 1991, Peterson & McCabe, 1994, 1997). Two distinctive

parental styles have been documented. One style, variously labeled "high elaborative", or "topic-

extending", describes parents who deliver richly elaborate descriptions of past events, provide a

lot of embellished information, and tend to ask many questions. The other style, which is labeled "repetitive", "low elaborative," or "topic-switching", describes parents who have short conversations about the past, provide little information, and tend to ask the same questions over and over. Children's narratives about past events included two parts: recalling information and organizing what they remembered into a coherent and meaningful story. Longitudinal research focusing on maternal styles of talking about the past indicates clear facilitative influences of a highly elaborative style on children's later abilities of recalling information. In particular, Reese, Haden and Fivush (1983) found that mothers who were more highly elaborative in talking about the past with their 40-Month-old children had children who recalled more information in mother-child conversations at 58 and 70 months of age. Further, a maternal elaborative or topic extending style is associated with preschoolers' longer and more elaborative narratives elicited by an experimenter one year later (McCabe & Peterson, 1991).

In summary, there appears to be a good deal of individual variability in the ways parents reminisce the past with their children. These styles are associated differentially with children's abilities of recalling the information and telling past events. In short, correlation data suggest that parents play an important role in children's acquisition of narrative skills (Miller, Potts, Fung, Hoogstra, & Mintz, 1990).

Learning narrative skill, using evaluative information, for instance, may require more than simple opportunities for imitation. How do children acquire this ability? Nelson, Craven, Xuan, and Arkenberg (2004) argued for all language, art, and narrative skills, new levels of skills modeled by an adult will be effectively encoded and learned by a child only when interactive, dynamically engaging child-adult exchanges are mixed in with challenges. Thus, children may develop some of their narrative skills via the questions they are asked by an adult

listener and by the pattern of adult story telling. Perhaps by listening to parents' use of evaluative information during highly engaged story telling, children sometimes discover how these devices are an integral part of story telling. In a sample of children from middle income families, Harkins, Koch and Michel (1994) showed that 5-year-olds increased the number of evaluative devices included in their narratives based on a wordless picture book after hearing their mother narrated the same story twice. Moreover, they found when mothers narrated two similar picture books, their 5-year-olds generalized their use of evaluative devices in their narratives to an unfamiliar picture book. In a longitudinal study, Peterson and McCabe (1992) selected two highly elaborative mothers who tape recorded past event conversations with their children starting at 27 months of age and continued for an 18-month period. One mother emphasized orienting information, and her child came to incorporate a great amount of orienting information into her un-scaffold narratives. The other mother, in contrast, elicited more temporally ordered descriptions of actions and occurrences, and her child came to provide a lot of this information in her subsequent independent narratives. Other studies also provided evidence of parental influences on later development of children's personal narrative skills. Haden, Haine and Fivush (1997) found that those mothers who emphasized evaluations when reminiscing with their child at 40 months of age had children who were emphasizing evaluations in their narratives at 70 months of age.

Influences from Other Interlocutors

Besides the apparent effect of children's parents, other participants in their narrative activities including their teachers and siblings or friends also play an active role in children's

narrative development. The ability to comprehend and recall narratives requires skill in integrating a series of statements which are usually in an organized sequence. This ability has been linked to particular preschool experience with book reading and story telling (Wells, 1985). The use of narratives by teachers has been seen as an important mode of presentation of new information in the classroom and is often in the form of a story narrative in elementary school years (Feagans, 1982; Snow, 1983; Wells, 1985).

Peer interactions also can enhance language abilities. Research on school aged children has demonstrated that peer-mediated programs sometimes can effectively facilitate language skills such as spelling, word reading, and reading comprehension including some aspects of narrative comprehension. These results have been seen in children with normal language abilities (Brown & Campione, 1990, Koller & Greenwood, 1990), and in children with language learning disabilities or mental retardation (Harper, Mallette, & moore, 1991; Koury & Browder, 1986).

Intervention Studies

There are few studies about intervention programs aimed at improving children's narrative skills. To the writer's knowledge, there are only seven intervention studies published so far about facilitating children's narrative development. These studies, despite their mostly small sample sizes, covered diversified populations and several types of intervention. The intervention was applied by parents, teachers, clinicians and even peer-tutoring. The participants of these studies varied a great deal too, from normally developing children to children with language disorder, from Caucasian children to African American children, from preschool children to children in elementary school.

As one of the earliest intervention studies on children's narrative ability, Klecan-Aker (1993) started with a case study. Her subject was a Caucasian boy age 8;8 (year; month) with a reading disability. He attended second grade in a public school when the intervention occurred. Before the intervention, two oral and written stories were elicited and analyzed to determine the specific treatment targets. The intervention consisted of one-hour sessions twice a week for 12 weeks. At the onset of treatment, general explanations of underlying concepts of all the story grammar components were presented to the child. Stories were subjected to a t-unit analysis and each t-unit was classified as a story grammar component and subsequently assigned to a level of complexity (Klecan-Aker & Brueggeman, 1991). Since this child initially was telling Level-2 stories, the treatment began with teaching the organizations of Level-3 stories. Overall, in this study, the child used more t-units, more clauses in t-units, and produced more complicated stories after the intervention. Story telling may have been successfully taught in this case study, but interpretation is difficult because no control or comparison procedures were provided.

Feagans and Farran (1994) examined narrative skills in 89 children in poverty in the fall and spring of their kindergarten year (mean age=5.36 years at the fall). Half of them had received an infant daycare intervention (intervention) and half of them had not (control). The intervention group received an educational daycare program which began at about 3 months of age and continued 8 hours per day 50 weeks a year until the children entered public kindergarten. The intervention program itself was aimed at preparing the children for school. As one small component, the kindergarten children were asked to comprehend and paraphrase varying stories (script stories, non-script stories and temporal stories). Results indicated that in the fall, the intervention group performed better than the control group on comprehension and paraphrase of stories, but not in the spring. It appeared that the preceding preschool intervention program did

enhance the initial narrative abilities of the intervention children but this superiority tended to diminish over the kindergarten year. The difference between the intervention group and the control group was completely reduced after attending the kindergarten for almost a year. Also, the material type was related with children's performance. The script story type was easiest for all groups and the non-script story the most difficult in both story comprehension and story paraphrase. Though the researcher investigated narrative skills in this study, the intervention was not targeted on narrative ability itself. It was an intervention on general cognitive and language levels to prepare children from disadvantaged families (poverty family) for public school. Improvement of narrative might just be a byproduct of overall improvement of language level, so it should not be surprising that the intervention effect was diminishing over the kindergarten year if the control children were catching up that year in overall language skills.

Gillam, McFadden and Van Kleeck (1995) compared whole language intervention and language skill intervention methods for impact on the production of children's spoken and written narratives. Whole language approach has a meaning emphasis and language skill approach has a form emphasis. Only 8 children with language disorders (mean age 10; 10) participated in this study. Four subjects had received all of their special education assistance in a whole language setting for a period of no less than 2 consecutive years and the other four students had attended language skill programs for an equivalent time. In the whole language approach used in that study, children were immersed in narratives by being read aloud to frequently, by reading to each other, by engaging in extensive discussions before and after stories had been read, by enacting stories, by writing stories, and by using children's literature as a basis for creative expression in other media such as art, music and dance. In a language skill approach, educators systematically teach the sub skills that are believed to enable students to comprehend

stories and to produce stories. Every day, students in the language skill room read to the

teacher from assigned books and completed spelling lessons. They also wrote sentences that

were dictated by the teacher and worked on phonic decoding skills each day. After intervention,

all students were asked to create two spoken and two written stories about pictures they selected.

Students from the whole language and language skill programs presented different patterns of

spoken and written narratives in term of forms and content properties. However, it is interesting

that the difference in the narrative ability of two groups were quite consistent with the emphasis

of the educational program they participated. The four students who received form-oriented

instruction in the language skill classroom produced spoken and written narratives that earned

higher values on form measures. Spoken narratives produced by students receiving the content-

emphasis whole language approach tended to receive higher values on content measures.

Consistent difference was not found for measures of contents in written narratives between

groups. These intervention study results fit with the conclusions from longitudinal observation

studies reviewed above that the different emphasis patterns adults hold may shape children's

narratives correspondingly. But these content and form measures of narratives they used in this

study (e.g. propositions per T-unit, morphemes per T-unit) were mostly linguistic measures.

Evaluatives, as well as story structures of narratives, were not taken into consideration here.

Those linguistic measures were only administrated once after the intervention and no efforts

were made to ensure that these two groups of children were matched on narrative ability or

language skills what-so-ever before the treatment. The small size of this sample makes it even

more difficult to draw statistically meaningful conclusions.

In 1999, Peterson, Jesso and McCabe randomly assigned 20 economically disadvantaged

preschoolers (mean age 3; 7) to an intervention or a control group of a study which lasted for 12

months. Their research examined parental influences on children's narrative development.

Mothers of intervention children, in this study, were encouraged to talk to their children

frequently and consistently about past experience, ask more open-ended and context-eliciting

questions, and encourage longer narratives through back-channel responses ('uh-huh' 'yeah?'

'tell me more')or repeating what the child just said. Mother's styles of eliciting narratives from

their children were assessed before and after intervention. A standardized receptive vocabulary

test (PPVT) was given to the children before and after the 12-month intervention. Children's

personal experience narratives were assessed before and after the intervention and 14 of the 20

children participated in a follow-up assessment a year later. Narrative measures included the

number and length of narratives as well as how decontextualized and informative the narratives

were. In some statistical comparisons, intervention children showed significant vocabulary

improvement immediately after intervention. A year later, at the follow up, there was an overall

improvement in narrative skill including more narratives and more context information about

where and, especially, when the described events took place. Unlike the fading intervention

effect on narrative skills in Feagans and Farren's study (1994), Peterson et al (1999) found a

delayed facilitation of narrative skills by encouraging mothers in adopting a context eliciting

approach in talking to their children about past events. A bonus effect of the intervention was the

significant improvement in vocabulary immediately after the intervention.

One cautionary note for Peterson et al, however, is that there were no recordings or other

measures taken of actual mother-child conversations during intervention; thus, it remains unclear

what the mothers did and with what frequency. At the follow-up test, which was 14 months after

the posttest assessment, the children's narratives were found different in two groups, but there

was no documentation about maternal elicitation styles over these 14 months. It has been found

that mothers tend to be consistent in their ways of eliciting narratives over the preschool years

(Reese et al, 1993). Did the mothers continue the encouraged elicitation style they were taught in

the intervention or did they switch back? Without clear documentation of mother-child

conversations, the researchers can only assume this facilitative narrative style has been

consistently carried on in family routines. In addition, when conventional statistical procedures

were employed, there were few significant effects at posttest or delayed follow up assessments

that favored the intervention children. In fact, the only significant group difference on narrative

measures was for total contextual information at delayed follow up tests in favor of the

intervention group. Furthermore, this result may not show narrative gains, but rather the indirect

effect of a trend for the intervention children to produce more narratives for analysis.

Examining children's narrative ability in kindergarten or other preschool programs has

garnered the interest of researchers. McGregor (2000), for instance, conducted an exploratory

study aiming to enhance narrative development in preschool classrooms. Participants were

African-American children in a Head Start program of different age groups (3, 4, and 5 years

old). For the intervention, the experimenter paired one advantaged child narrator (the tutor) with

a disadvantaged narrator (the tutee). The tutor then told a story to the tutee with prompting and

feedback provided by an adult clinician in a 20-minute session for ten training sessions over a

period of eight weeks, for a total intervention time of three hours and twenty minutes per pair.

Both the tutors and tutees were required to tell familiar and unfamiliar stories before and after the

intervention. These narratives have been analyzed in terms of the story elements. As a result,

tutee's narratives improved in the frequency of the types and tokens of story elements included,

In addition to the overall length and complexity of narratives as measured by MLU, number of

words, and number of different words. The children also demonstrated generalized effects: they

applied their new skills to the unfamiliar stories. This procedure may be an effective and efficient intervention, considering these gains were the results of only three hours and twenty minutes intervention. However, it is important to note that McGregor had only two pairs of tutors and tutees in the intervention group and had no control or comparison group in the study.

In Hayward and Schneider's study (2000), 13 preschool children with language impairments (ages from 4:8 to 6:4) participated in a narrative intervention program. All these children had been diagnosed by a speech-language pathologist as demonstrating moderate-severe language impairment. One group of children had a two-week baseline and six-week intervention whereas the rest of the children had a four-week baseline and a four-week intervention. In both groups, the children attended the intervention program twice a week and each session lasted 20 minutes. Thus, some children had eight treatment sessions while others had twelve sessions, depending on how long their baseline was. Narrative intervention explicitly taught story grammar components to children. Story grammar components such as setting, initiating, and internal responses were first introduced by cue card and then children were instructed to match these components to the stories they read. Then, the children got to act out the story and tried to recognize and identify the missing part of story grammar. They finally resorted the scrambled story on their own. Children's narrations about a picture were collected before and after the intervention. The narratives were analyzed on story information and episode level. Overall, children included more story information and produced more structurally complex stories after the intervention (ANOVA revealed a main effect for Time (pretest, posttest) $p<.001$ for both measures). Length of intervention did not contribute to this result. The performance was no different between children receiving eight sessions and children receiving twelve sessions. The disorder type did not predict the significant improvement either. Children with expressive

language impairments and children with receptive impairments both demonstrated improvements. However, there were also children in both groups who did not show any statistically significant improvement. It was difficult to interpret these findings giving the small sample size and confounding factors. All subjects received the same treatment, but for different time periods. Also there was no control group in this study. Children' narrative ability was compared with their baseline performance. This could not rule out effects of practice or maturation. Because the researchers were using theme-related stories in pre- and post-test, the children could get higher scores the second time simply because they heard a similar story in the past. Another interesting finding from this research was that seven participants demonstrated statistically significant improvement in their inclusion of story information units but not in the episode level rating or vice versa.

As an important indicator of children's narrative ability, using evaluative information has been explored by many psychologists. Zevenbergen, Whitehurst and Zevenbergen (2003) assessed evaluative use after a shared reading intervention designed to increase preschool children's language skills. One hundred and twenty three four-year-old children, who were in a Head Start program, joined in this study. Seventy-one children (58% of the sample) participated in the intervention: 30 week dialogic reading program conducted at school and home and a 16 week phonemic awareness program conducted in Head Start classrooms. Teachers and parents of children in the intervention group were taught to read to their children using an interactive reading technique called dialogic reading. Children were encouraged to take an active role in reading the stories over time. The role of the adult was to prompt the child with questions, evaluate the child's utterance, and expand the child's production. To accomplish these tasks, parents used more open-ended questions or used back channeling (e.g. "uh-huh, yeah, tell me

more"). A standardized story-telling task, Refrew Bus Story, was administrated to all the children at the beginning and the end of the Head Start year. This book has 12 pictures and a186-word story script matched with each picture. The child was asked to retell the story immediately after an examiner told the child this story while looking at the pictures. This study assessed children's use of evaluative devices and content of the narratives. The children were found to include significantly more evaluative devices in their narratives after this dialogic reading intervention. Specifically, children who participated in the intervention program included more references to internal states of characters and used more character dialogues in their narratives at the end of the Head Start year than children in the control group who did not receive the dialogic reading instruction. Assessment of expressive language skills (the Expressive One Word Picture Vocabulary Test, EOWPVT) was also administrated to all participants at the end. In this study, they found the intervention group children had a significantly higher score on expressive vocabulary than the control group children at the end of year. The use of evaluative devices, however, was still significantly different between the intervention and the control group even when the difference in expressive vocabulary had been controlled. This suggests that the increasing use of evaluative devices could be attributed, in part, to the intervention rather than the advantage of general language ability. Meanwhile, the intervention seems to have had a specific effect on evaluative devices rather than the overall narrative quality; the content level of the children's stories (i.e. information units) was not improved significantly.

For Zevenbergen et al's study, there are limitations similar to those noted for Peterson et al. First, no treatment fidelity measures were taken for any of the intervention sessions. Accordingly, neither the intensity nor quality of intervention is known. In addition, narrative measures did not consistently favor the intervention children – for causal statements, a trend

favoring the control children existed at posttest, and for six other measures there were no group differences.

A good narrative is a good combination of context, story grammar, referential, and evaluative information. Different methods may enhance different parts. Using eliciting questions to ask about when, where, and who may enhance children's ability to include referential and contextual information while parents' emphasis on internal state may result in children's greater use of evaluative devices in their independent narratives. Peterson, Jesso and McCabe (1999) revealed in their study that when mothers of the intervention group used more open-ended and context eliciting questions in conversation with their children, the child tended to include more contextual information in narration. The intervention that Peterson and her colleague used was similar to Zevenbergen et al.'s dialogic reading procedure. However, one study found improvement in receptive vocabulary (PPVT) and contextual information whereas the second showed enhancement of expressive vocabulary (EOWPVT) and evaluative information. It is noteworthy that each study focused on relatively few narrative measures and it is possible that the researchers could have found differences in other measures if a more comprehensive assessment had been used.

Following in the footsteps of previous descriptive researchers, we identified their accomplishments and shortcomings. Although varied previous studies examined story grammar structure, linguistic complexity, and evaluative information as individual dimensions, few descriptive studies have been attempted to examine these dimensions simultaneously. The intervention studies reviewed above have their own foci too. Early intervention studies usually focused on story grammar or some linguistic measures such as the children's expressive, receptive vocabulary or total length of the oral productions. Only recently have researchers shed

some light on use of evaluative information in children's narratives. One way or another, each

of the prior studies either emphasized just one component of narrative or instead more broadly

focused on general language skills. Even in Gillam et al's (1995) study where they used two

different intervention methods, "whole language" and "language skill", a child only received one

kind of intervention. Furthermore, they found that students from whole language and language

skill classrooms presented different patterns in their narratives. Differences in the narrative

abilities of these two groups of students were quite consistent with the emphasis of the

intervention program with which they were exposed. This suggests that each intervention method

has its own strengths and limitations.

Theoretical Frameworks

Historically, in all areas of language, theorists have proposed different intervention

approaches reflecting varied conceptual perspectives (such as constructivist and behavioral).

They have been proven to be effective in certain contexts. But Warren and Yoder suggested

(1995) that a single perspectives approach is insufficient in language intervention. An integrated,

cover-all-base, cross domain approach is needed. As evidenced by previous intervention studies

viewed above. For narratives, constructivist approaches have increased children's use of

evaluative information or vocabulary (Peterson, Jesso, & McCabe, 1999; Zevenbergen,

Whitehurst & Zevenbergen, 2003) whereas a behavioral approach (Klecan-Aker, 1993; Hayward

& Schneider, 2000) improved children's use of story grammar and complexity of story structure.

However, an integrated approach could possibly be developed that would not make confuse

children. It might even be an advantage to children because it encourages them to develop and

define truly effective, adaptable learning strategies. Indeed, an important advantage of different approaches for language facilitation is that they can sometimes be combined and used in complementary ways to provide a more optimal comprehensive intervention. For example, Rogers-Warren and Warren (1980) used a milieu contextualized teaching procedure to enhance the effectiveness of a direct teaching intervention. Kaiser (1993) reported a combination of responsive interaction and milieu approaches to facilitate children's language development. Thus, theoretically and procedurally there is some rationale to adopt an integrated intervention approach.

The Dynamic Tricky Mix Model (Nelson and colleagues, 1996, 1998, 2001, 2004) would be a good framework to represent the integration of multiple factors. This theory emphasizes that multiple complex conditions need to cooperate and converge to support learning (Nelson, 1991a, 2001; Nelson & Welsh, 1998). These conditions include the outside environment such as availability of appropriate challenges and social supports, children's cognitive ability (i.e. attention and memory), emotional readiness (i.e. motivation, expectation, and on-line internal state) and interactions between children and environments. An individual child's learning can change from extremely slow to normal rates or even highly accelerated learning rates when highly positive Tricky Mixes of conditions are created (Nelson, Craven, Xuan & Arkenberg, 2004). In this case, the Dynamic Tricky Mixes bring together challenge factors, adjustments of emotion and motivation and self-esteem, highly specific processing enhancers, flexible long-term network representations, and learner readiness. In a word, from a Dynamic Tricky Mix Model perspective, rapid learning occurs when all these conditions dynamically work together. Accordingly, narrative skill acquisition should require not only the children's physical, cognitive and emotional readiness, but also specific adult-child interactions that mix together multiple

narrative challenges and scaffolding that supports child engagement and eases challenge processing. More efficient intervention methods based on this framework would cover more components of these complex mixes.

Results from seven prior intervention studies demonstrated some intervention effects on children's narrative skills, but the findings were quite weak. We have reviewed these studies in the previous section and realized several common limitations among these interventions. First, most of these researches lacked rigorous control in their experimental design. Many do not have a closely matched control group to compare as a baseline. Second, measurements of children's narrative were problematic. Children's general language skills were not taken into consideration in assessing narrative ability. Selected components of narratives were inspected and in all occasions, only one type of narrative was examined. Third, similar to their limitations on the measurements, each intervention method focused on only one target such as the story grammar or using of evaluation information

In the current study, a broad-based, hybrid intervention is employed that incorporates more components of narrative than any prior research. This intervention is expected to facilitate clearly the development of multiple narrative skills in preschool children. In this study, to ensure interpretable results, the intervention group and the control group also were matched closely in their age, gender, home environment and general language skill. Assessment of their narrative ability consisted of three tasks: story retelling, story telling and personal narrative. Considerable efforts were given to designing and executing the intervention procedures. First, all these evaluations and interventions took place in a daycare center where the children attend so that they would feel comfortable and act naturally. Second, to maintain the children's interest and motivation, we chose six age-appropriate books which feature both fictional stories and real life

events. Third, each week a new book was introduced to the children. By reading the book together, the experimenter reestablished the rapport between her and the child. Color coded cue cards elicited information about the story and prompted the child to engage in the story. Fourth, the children were provided more scaffolding at first and then gradually encouraged to lead a more active role later where they could act the story out or give another ending to the story as they wanted. Fifth, children's performances got immediate feedback and were supported, praised, and applauded by the experimenter. All these steps were meant to encourage the optimal convergence of multiple kinds of narrative challenges accompanied by high child engagement and social, emotional support by the adult.

Research Questions

The purpose of this study was to examine three questions regarding children's narrative development: 1) How will children do in language and narrative tasks after the hybrid intervention compared with their peers who didn't receive the intervention? 2) What is the relationship between children's general language skills and narrative ability? 3) Do the three narrative tasks highly correlate with each other or do they reveal different aspects of children's narrative ability?

Hypothesis 1. Our first hypothesis predicted that children in the intervention group would show improvement in their narrative ability after this hybrid intervention. They would acquire narrative ability at a greater rate than their peers who did not receive the intervention. For these control children, skills would remain the same or grow slower solely due to maturation or practice. It was expected that facilitation would be found in one or more domains, including

syntactic complexity, using evaluative information and the story grammar structure for the narratives.

Hypothesis 2. The second question concerned the relationship between language skills and narrative ability. Our prediction was that narrative is a complex ability which draws upon multiple domains of language skills although being different from overall language skill. A moderate correlation was expected between these two, with certain component language skills showing more correlation with narrative performance than other language skills.

Hypothesis 3. The three tasks used to assess narrative development were expected to be modestly inter-correlated with each other. We also expected to see some differences among these tasks. Children might use different evaluative devices or story grammar components or linguistic structures in different contexts when dealing with a story, and these differences could tend to reduce inter-correlations across tasks.

In an attempt to answer these questions and test our hypothesis, a six-week hybrid intervention study was performed where comprehensive measurements of children's language skills and narrative ability were used at two time spots—prior to intervention, i.e. pretest (Time 1) and after the intervention, i.e. posttest (Time 2). Two groups of children participated. The children in the intervention group received a hybrid intervention twice a week for six weeks. A matched control group children received all the measurements but experienced no intervention sessions.

Chapter 2

METHODS

Participants

Participants were 4-to-5 year-old children recruited from local child care centers through advertisement. Children at this age have been studied extensively in descriptive studies and in a small number of intervention studies. Therefore, it is possible to compare results from this study to previous findings.

A total of 30 children participated. Fifteen of these children participated in the hybrid intervention program, while 15 served as matched controls. Mean age across groups was 53.93 months (SD=3.45), while mean age for the intervention group and the control groups was 54 (SD=3.55) and 53.87 (SD=3.48) months respectively. This difference was not statistically different. An approximately equal number of boys and girls participated in this study (14 boys and 16 girls), and there was no significant gender difference across groups (p=.48).

No child had ever been diagnosed as having a developmental disability. Two of the children (one in the intervention group and one in the control group) learned English as a second language (the first language is Mandarin Chinese and Korean respectively). Both of them had been in English-speaking daycare for at least 2 years. The teachers rated their English as fluent as monolinguals. Visual inspection of their data suggested there was no difference in any of the pretest assessment measures compared to the other children.

Pretest Measures

At the beginning of the study, all participants were given a battery of language tests including expressive and receptive vocabulary, print awareness, grammar understanding, and recalling sentences in context. They also received narrative assessments which included one story retelling task, one story telling task and a task to elicit personal narratives. Besides the tests administered to the children, all of the children's parents were asked to fill in a questionnaire about the child's home literacy environment.

Language Tests

The Expressive One Word Picture Vocabulary Test- Revised (EOWPVT-R Gardner, 1990) assessed children's expressive vocabulary. The examiner showed children black and white sketch pictures of an object and told the children "I want you to look at the pictures and I want you to tell me the names of the pictures. What is this called?" The child would label the picture and, if correct, the child got one point. The total number of correct responses was the raw score for this test and then it was recoded into a standard score according to the test manual. The standard score takes the children's age into consideration and, thus, provides a more meaningful and accurate index in comparing one child's score with others. This standard score was used in analyses and results.

To evaluate the children's receptive vocabulary, the Peabody Picture Vocabulary Test-III (PPVT-III, Dunn & Dunn, 1997) was used. The examiner presented a page consisting of four pictures and orally presented a word. The children were asked to point to the picture that

represented the word. The scoring is similar to the expressive vocabulary test and we also used the standard score for analyses and reports.

Children's awareness of print was assessed by the Print Awareness task from the Preschool Comprehensive Test of Phonological and Print (P-CTOPP, Lonigan, Wager, Torgesen, & Rashotte, 2002). The children were asked to identify which of a series of pictures has letters, identify uppercase and lowercase letters, and tell what sound they made. A total of 36 items correct is possible.

A subtest of Test of Language Development-Primary third edition (TOLD-P:3, Newcomer & Hammill, 1997) was used to explore children's understanding of grammar. The children were presented with three pictures while the examiner read one sentence to them. The task was to point to the picture that matched the sentence. There were 25 items for this task and the raw score was converted to a standard score.

Another test employed was the recalling sentences subtest from the Clinical Evaluation of Language Fundamental –Preschool (CELF-P, Wiig, Secord, & Semel, 1992). In this task, the examiner told children a story with pictures setting before the children. The children were asked to repeat a sentence right after the experimenter said it. Children needed to imitate 18 sentences through the story from easy to hard. Understanding the story structure as well as syntax and vocabulary should contribute to high scores on this test. Children were rated on how closely their imitation matched the original sentences. Only the exact utterance got full credit and every error (add or drop a word, different word order) cost some points. This test also provided a standard score which was used in analyses.

Narrative Ability Assessment

Samples of children's story narratives were collected in the story telling and story retelling tasks as well as personal narratives at the daycare. All narratives were audio recorded with a micro-cassette recorder (SONY, M-529V).

Personal Narrative

Personal experience was elicited from the children by a trained experimenter at the children's daycare centers. The experimenter used the steps designed by Peterson and McCabe (1983) and incorporated prompts from a list of a dozen narrative prompts into interaction. For example, the experimenter said "One time I stepped on a bee and got stung. Have you ever gotten stung by a bee?" Once the children began narrating about a topic, the experimenter encouraged continuation by means of providing backchannel responses such as "uh-huh", "yeah", "really?", "and then what happened", or repeating what the child had just said. These responses have been found to be successful at encouraging children to continue without imposing adult-generated structure (Peterson & McCabe, 1991).

Story Telling

The story narratives were elicited from each child by an experimenter using a 28-page wordless picture book, "Frog, where are you?" (Mayer, 1969) This story has 26 separate pages, and it describes a boy and his dog who went out on an adventure to find the boy's pet frog. This story was chosen because it contains several instances of deception and trickery on the part of the

story character, and thus, offers the narrator several opportunities to describe intention,

emotion and behaviors. Furthermore, it is also the most popular measure of children's story

telling task in previous studies (Tager-Flusberg, 1995; Bamberg & Damrad-Frye, 1991; Capp,

Losh & Thurber, 2000; Harkins, Koch, & Michel, 1994; Manhardt & Rescorla, 2002; Der Lely,

1997; Hoff-Ginsberg, 1997). The results of the story-telling task in this study could be compared

with other researcher's findings. The children were allowed to look through the book and then

started the narrative with the prompt, "now tell me this story". The examiner encouraged the

children's utterance by giving praises such as "very good", or "You are doing great", and asked

general questions like "uh-huh, what happened?" "Can you tell me more", or simply repeated the

children's words "oh, he fell in the pool."

Story Retelling

A standardized story-retelling task, the adapted version (Glasgow & Cowley, 1994) of the

Bus Story (Renfrew, 1977), was used to assess children's story retelling ability in this study. This

test has adequate test-retest (r=.70) and inter-rater (r=.66) reliability for scoring for the

information contained within the child's narrative. It has also been used by other researchers

(Paul and Smith, 1993) on children at similar ages. The story has 12 pictures. The experimenter

presented the pictures to the children while she told them a 168-words script of this story. After

the children heard the story, they were asked to retell the story to the experimenter. The

experimenter also used backchannel response and repeating children's utterances to encourage

narratives.

Home Literacy Environment Scale

To explore possible home literacy environment effects on children's pretest level of

narrative development, a Home Literacy Environment Questionnaire was given to parents of all

the children (a copy of the complete questionnaire is in the appendix). This questionnaire asked

15 questions about the children's home environment including available reading materials,

frequency of literacy activities, and parents' education levels. The items were presented as

multiple choice questions. Parents just circled the answer they thought most accurately described

their situations.

Posttest Measures

At the end of the six-week intervention, all of the participants received comprehensive

assessments of language skills and narrative ability. All language tests administrated in the initial

assessment were given to the children one more time at this time, except the print awareness task.

Those given were standardized language tests for expressive vocabulary, receptive vocabulary,

grammar understanding, and sentences recalling.

Children also had the same three narrative tasks at final test: personal narrative, story

telling and story retelling. The examiner followed the same procedure as at pretest in eliciting

personal narrative. For the story telling and retelling task, the same two books, "Frog, where are

you?" and "Bus Story", used in pretest were used here in the final test again with a new book

added for each task. Another wordless picture book about a frog "Frog goes to dinner" (Mayer,

1973) was used as the unfamiliar story for the story telling task. This book had 28 pages. It was

one of the series of books on the frog theme written by Mayer. A 14-page, 313-word new picture

book was used for the story retelling task. This story was about how a little polar bear got lost and found his way back home with the help from his new friends.

Procedure

Upon signing up for the experiment, each child was given the initial assessments while parents of the child filled out the home questionnaire. All the measures were individually administrated at the children's own daycare center in a quiet room. The children then were assigned to the control group or the intervention group randomly, with the restriction of keeping their pretest scores across groups as similar as possible. All children finished their initial assessments within one week. The children assigned to the intervention group started their intervention following the assessment. The intervention lasted for six weeks. The children participated in two sessions each week and each session lasted for about 30 minutes. The control group did not receive intervention. All the children were given the final assessments at the end of the study. If the intervention schedule was stretched by holiday breaks, equal number of children from the control group received their final tests on the same time frame as the intervention kids. This was done to ensure that intervention group and control group were matched in the number of days between initial and final assessments.

The order of testing was the same for each child. The initial assessments usually took two 40-minutes sessions to finish. All the children received the standardized language test for the first session and narrative assessments for the second session. This way the children would get acquainted with the experimenter at the second session and be more likely to produce natural language when they were more comfortable. The receptive vocabulary test preceded the

expressive vocabulary test. This order was followed because the previous studies investigating

receptive and expressive vocabularies had been using this order. After the vocabulary test,

children were assessed on grammar understanding, print awareness (only at pretest) and

sentences recalling. The assessment of narrative ability also followed an order. The experimenter

started with the story retelling task. Then the children were asked to tell the experimenter a story

based on the wordless picture book. Finally the experimenter would "share" her personal

experience with the child and encouraged him/her to say something about their experience as a

personal narrative. We felt children were more comfortable with this order of tasks, in which the

scaffolding decreased gradually from the most constructed story retelling test to the most

spontaneous personal narrative task.

A female graduate student delivered all the intervention sessions for the children. To

minimize the possible effects of familiarity with experimenter on the tests, the final assessments

were administrated by a trained female undergraduate under the supervision of the graduate

student.

Intervention Sessions

This study adopted an intensive hybrid intervention approach in facilitating children's

narrative development. Each child in the intervention group received two sessions each week for

six weeks. There were 12 sessions for the whole intervention. Each session lasted 30 minutes;

the total intervention time was 6 hours. In terms of hybrid method, this study emphasized three

components of narrative, story grammar, linguistic complexity, and evaluative information. The

first session of each week was focused on story grammar learning. The experimenter used color-

coded cue cards to teach children story grammar components. In the second session of each week, the children took a more active role in reading the story. The experimenter asked questions to elicit orientation or evaluative information about the story (When did this story happen? How did the frog feel about this?). The investigator discussed emotion words with the child and asked the child to show a face of this emotion. The experimenter also used complex recasting to incorporate narrative supporting syntax structure into the utterances. If a child said Arnie was sad, for example, the experimenter could say "Yes, Arnie was sad because he didn't have grandparents coming for his school day."

Nelson and his colleagues (Camarata, Nelson & Camarata, 1994; Nelson, 1999; Nelson, 2001; Nelson et al., 2001) demonstrated in their work that when children were presented with recasting, children with syntactic difficulties acquired syntactic structures at a greater rate than in the past. Whitehurst published multiple articles about the benefit of dialogic reading with children, in which adults promote dialogue through questions and prompts. The recent intervention study he published (Zevenbergen, Whitehurst, & Zevenbergen, 2003) found that dialogic reading had a significant effect on children's inclusion of evaluative information in their narratives. The present study combined recasting and dialogic reading expected to support increases in syntactic and evaluative information in children's narratives.

An adapted version of the procedure used by Haryward and Schneider (2000) was used for each of the children story grammar components. The experimenter showed the child a set of seven color-coded cued card each representing one story component. These seven components were: when, where, who, what happens first, what happens second, what happens last, and the emotion. At first, the child was introduced to these cards and was told that a good story would include all these seven parts. The experimenter would label each card and present it above the

story picture representing this particular component. In the following weeks, the cue cards were reviewed again with the experimenter presenting them above the pictures. Then the child learned to identify these cards and they were given the opportunity to put a card above the picture if it represented the corresponding grammar component. The children also learned to put these cards/story pictures in temporal order. In the last week, the experimenter presented the child a scrambled story and asked the child to organize them and put them in the correct order.

To maintain children's interest in the story, we changed the stories weekly. Each story was read at least twice per session either by the experimenter or the child. The child could act out the stories with the experimenter and the child each played a character in the story. The investigator also designed some games to help the child learn the grammar components. These games included a matching game, in which the experimenter showed one card and the child was requested to find the matching card label it correctly; an ordering game, in which the child was asked to put the seven cards in the correct order, and the card "hide and seek" game, in which one or more cards would be hidden away and the child had to tell what cards were missing and then find them. The purpose of these games was to keep the children's engagement and attention at optimal level. The Dynamic Tricky Mix Theory predicted that rapid learning would happen when all learning conditions converged together. Appropriate challenge, focused attention, scaffolding interaction, and high motivation are all part of a good Mix.

Scoring of Narrative Data

All narrative samples were audio recorded and transcribed verbatim by one undergraduate student or graduate research assistant. Each narrative was checked for transcription accuracy by comparing the written transcription and audio-taped narratives.

Scoring of Story Retelling Task

The Bus Story narratives were scored for general content (information score) provided by Glasgow and Cowley (1994). The narratives were scored for content to determine if the intervention session had a significant effect on children's overall language production in the recall context. Narratives were given one or two points for each item that was accurately retold from the story script (e.g. "there was a naughty bus"). Possible raw scores on the information variable can range from zero to 53. In scoring, narratives that were conceptually highly similar to the story content were generally awarded points. Narratives that were slightly different got partial credit. A comprehensive manual with detailed examples were provided to the raters. Raw scores were converted to standard scores referring to the age norm; these standard scores were used in the analysis. A similar scoring procedure was used to code the content of the Polar Bear story we added in the final assessment. The possible raw scores can range from zero to 51.

Another measure for the story retelling task was the number of complex sentences in the narratives. A complex sentence was defined as a sentence that had a main clause and at least one subordinate clause. Another part of the operational definition was the sentences had at least two sets of subjects and verbs. Past research showed three-year-old can often combine clauses through the use of conjunctions whereas the for- and five-year-old learned to used more

sophisticated structure and began to use adverbial clause, complement clause, and relative

clause (Wells, 1985). In this study, only subordinate clauses were counted and coordinate

clauses (clauses connected by conjunctions such as "and" "then") were not included. The

complex sentences were further divided into three types; adverbial clause, complement clause

and relative clause. Adverbial clauses usually specified time (when) and reason (why), e.g.

"When his driver was trying to fix him, he decided to run away". Complement clauses often

included "that" and "wh" (e.g. what and where), e.g. "He didn't know what he should do."

Relative clauses were usually used to modify a noun or pronoun, e.g. "This is the cow who said

'moo'".

Scoring of Story Telling Task

The story narratives were scored on two linguistic measures: total number of words and

total number of complex sentences. Total number of the word was a measure of the narrative

length and total number of complex sentences measured the structural complexity of the

narratives.

Stories were also coded for evaluatives, that is, the evaluative devices the child used to

make a point of the story (Labov & Waletzky, 1968). These evaluative devices played an

important role in making the story appealing and maintaining audience interest. Adapted from

previous researchers (Capps, Losh, & Thurber, 2000; Bamberg & Frye, 1991; Peterson &

McCabe, 1983), our coding scheme included the following types of evaluation:

Negatives: Using negative words. E.g. "no", "not" "never"

Hedge: Used as a distancing device. E.g. "probably", "kind of"

Intensifier: Lexical emphatic marker. E.g. "really", "very"

Stressor: Voice emphasis E.g. "s-o-o bad" "t-o-o tired"

Intention: Referring to character's intention of action E.g. "want" "try"

Causality: Indicating the cause of events or behavior E.g. "because"

Emotion: Reference to internal emotion. E.g. "happy" "sad"

Character Speech: Referring to character's language E.g. "He said let's go."

Repetition: Repeating to emphasize e.g. "It goes round and round and round…"

Attention getter: Get audience's attention e.g. "Look at that" "You know what"

We tallied the frequency of using each type of evaluative devices and found that individual category use was too low for systematic analysis. Accordingly, analyses examined the total number of evaluatives and number of different evaluative devices a child used in the story narratives. The density of using evaluative information was calculated too. It was defined as how many evaluatives the children used every 100 words. So it equaled the total number of evaluatives divided by the story length and then multiplied by100.

The last part of narrative coding was the structure of a story in terms of the story grammar components. The first intervention sessions at each week focused on story grammar. The stories were coded for story grammar components the children included in their stories. The six story grammar components were defined consistently with definitions used in numerous studies of story production in children (see Table 1 ; Hayward & Schneider, 2000; Merritt & Liles, 1987; Stein & Glenn, 1979; Munoz et al, 2003).

Table 1: Story Grammar Components and definitions

Story grammar component	Definition
Setting	Introduce characters and context
Initiating event	An action or event that elicit a goal-based episode
Attempt	Actions to attain the goal
Internal Response	Thoughts or feelings in response to the initiating event
Reactions	Thoughts or feelings in response to other events not related to initiating event
Consequence	Success or failure of the goal

The story grammar analysis yielded six raw scores for each story, the total numbers of occurrences of the six story components (settings, initiating events, attempts, internal responses, reactions and consequences).

An episode analysis was also done and yielded a total number of complete episodes and incomplete episodes for each story. A complete episode was defined as containing at least one initiating event plus an attempt and a consequence. An episode was coded incomplete if it had only two of these three components.

Scoring of Personal Narratives

For personal narratives, first, the number of narratives produced by the children was counted. This included the narratives elicited by experimenter's prompts and those that were spontaneously generated by the child. Then, the length of the children's narratives was measured

by counting how many words were in that narrative. Four measures were used to assess children's use of evaluatives, including the total number of evaluatives the children used, frequency of using each type of evaluative device (the categories and definitions of evaluative devices are the same as used in story telling task), the number of different evaluative categories the children used in the narrative, and the density of using evaluative information every 100 words. All these four scores were generated for each participant. The structure of the personal narrative was measured by the episode levels of the children's narratives.

A high-point analysis was run to determine the children's episode level of their personal narratives. The personal narratives were coded as one of seven categories of episode level according to the structure of the clauses. The name and the definitions of these seven episode level were based on works of Peterson and McCabe (1991) (See Table 2). Each episode level was assigned a value from the most sophisticated classic narrative (level 7) to least complex miscellaneous narratives (level 1). The average episode level and the highest episode level were calculated for each subject.

Table 2: High-point analysis of personal narrative—Episode level and definitions

Episode level	Definitions
Classic	Have a high-point and a resolution
End-at-the-high-point	End at high point no resolution
Chronology	In a temporal order but no high point
Leapfrog	Jumped from subject to subject, important parts left out
Impoverished	Too little information or dwell on only two events
Disoriented	Ambiguous or self-contradict to be understood
Miscellaneous	Narratives don't fall in any of the other six categories

Two undergraduate coders were trained to do the coding of evaluative information, information score, and using of complex sentences. They practiced until their point-to-point agreement was over .90. Then, they did separate coding independently. If there was any disagreement, the group would discuss it and found a solution that all coders agreed on. The author did the coding of story grammar and episode complexity level. Ten percent of these narratives were assigned to a trained undergraduate and the reliability was 87% for episode level coding and 91% for story grammar coding.

Chapter 3

RESULTS

The purpose of this study was to examine three questions regarding children's narrative development: 1) How will children perform in language and narrative tasks after the hybrid intervention compared with their peers who did not receive the intervention? 2) What is the relationship between children's general language skills and narrative ability? 3) Do the three narrative tasks correlate with each other or do they reveal different aspects of children's narrative ability?

Hypothesis One

Hypothesis one: Our first hypothesis predicted that children in the intervention group would show improvement in their narrative ability after implementing the hybrid intervention.

In this study, the children's language skills and narrative ability were assessed by a comprehensive battery of measurements at two time spots, pretest and posttest. To evaluate the intervention effect of this study, we compared the performance of children from the control and intervention groups at posttest with their pretest scores acting as baselines. The children were matched in age and gender between groups at pretest. Their scores at language and narrative tasks were not different from each other. A family literacy questionnaire and a Print Awareness scale were also used to make sure the children from the two groups were similar in their family background and their literacy skills. The average score of Print Awareness for children in the control group was 27.27 (SD=6.15) and for children in the intervention group was 30.27

(*SD*=3.92). The difference was not significant (*t* (28) = 1.59, *p*>.1). The data of the Home

Literacy Questionnaire demonstrated the same close results; the mean for the control group was

69.92 (*SD*=4.48) and the mean for the intervention group was 72.67 (*SD*=7.53) (*t* (26) =1.15,

p>.1).

Baseline Comparison at Pretest

The mean and standard deviation of language tests were compared between groups and

no significant difference was found on any of these measures at pretest (See Table 3).

Table 3: Means and standard deviations of pretest language scores in the control group and
the intervention group

Measure	Control group	Intervention group
PPVT	106.87 (11.72)	109.47 (7.80)
EOWPVT	119.53 (16.70)	120.20 (16.86)
TOLD	10.80 (2.43)	10.00 (1.77)
CELF	10.27 (3.10)	10.60 (2.44)

Baseline comparisons were also done in narrative measures. In story retelling task, the

average number of complex sentences was 2.13 (*SD*=1.60) for the control group and 1.87

(*SD*=1.77) for the intervention group. The standard information scores were also close in the two

groups too with a mean of 98.8 (*SD*=14.82) for the control group and 96.1 (*SD*=16.11) for the

intervention group. Measures of evaluative information in the story telling task and personal

narrative task were not different between the two groups before the intervention. In the story

telling task at pretest, the average length of the story generated by the control group children was

163.33 words and for the intervention group the average length is 153.50 words. The average number of complete episodes was 0.67 for the control group and 1.14 for the intervention group; the difference was not significant (*t (27)* = 1.39, *p*>.1). The average number of incomplete episodes was 0.93 for the control group and 0.57 for the intervention group and the difference was not significant (*t (27) =1.34*, *p*>.1). The frequency of using story grammar components was similar in the two groups. As for personal narratives, at pretest, the children in the control group generated 2.73 narratives (*SD*=1.44) and children in the intervention group generated 2.64 narratives (*SD*=1.00). The measures of length and episode level were not different between groups.

Language Performance at Posttest

The language tests were administrated to all the children one more time at posttest. Although matched on all measures at pretest, the means of the intervention group were moderately higher on each measure at posttest. When Z scores from all four language measures were averaged to produce an overall language score, children in the intervention group significantly exceed the control children by 0.60 standard deviations (*t*(28)=2.28, *p*<.025). The means and standard deviations of language tests at posttest for the two groups are listed in Table 4.

Table 4**:** Means and standard deviations of posttest language scores in the control group and the intervention group

Measure	Control group	Intervention group
PPVT	106.27 (8.99)	110.27 (10.34)
EOWPVT	117.93 (17.84)	127.13 (11.75)
TOLD	11.87 (1.60)	12.87 (2.09)
CELF	*11.27 (2.22)*	*13.27 (1.16)*
Combined Z score (language overall)	*-0.36 (0.85)*	*0.36 (0.58)*

Data in Table 4 also shows that the children in the intervention group had a significantly higher posttest score in CELF Sentence Recalling task than their peers in the control group. This difference was statistically significant (t (28) = 3.09., $p<$ .005). The effect size is 1.13.

In repeated measure analysis where the pretest/posttest is the repeated factor and the control/intervention is the between subject factor, we found that the interaction between pretest/posttest and control/intervention was significant in EOWPVT ($F(1,28)=5.58$, $p<$ .05), CELF ($F(1,28)=6.68$, $p<$.05) and in combined language Z score (F (1,28)=11.61, $p<$.01). The interaction is also marginally significant in TOLD scores ($F(1,28)=4.00$, $p<$.06).

Story Retelling Task at Posttest

At posttest, children had one familiar story—the bus story, and an unfamiliar story—the bear story. Their narratives were coded on information they recalled and the number of complex sentences they used. The use of complex sentences was broken down into three categories:

adverbial clause, complement clause, and relative clause. For the unfamiliar story, children in

the control group used 1.2 (*SD*=1.01) complex sentences and children in the intervention group

used 1.67 (*SD*=1.23). Children in the control group scored 8.2 (*SD*=5.3) points for their recalled

information and children in the intervention group scored 10.3 (*SD*=3.75). Their information

scores were similar and so were their uses of the three categories of complex sentences. None of

these differences reached statistically significant levels (in both occasions, *p*>.1).

For the familiar story, the one significant difference (of 5 possible) was that children in

the intervention group used more complement clauses in their narratives than children in the

control group did (*t* (1, 28) = 2.12, *p*<.025). The effect size is 0.77. The intervention group also

showed a trend of advance over the control group on all the other measures even though they did

not reach statistical significance. The means and standard deviations of these measures for the

control group and the intervention group are listed in Table 5.

Table 5**:** Means and standard deviations of Story retelling task at posttest (familiar story)

Measure	Control group	Intervention group
Standard Information score	99.8 (14.49)	107.4 (11.27)
N of complex sentences	2.33 (1.76)	3.33 (1.72)
N of adverbial clause	1.53 (1.30)	2.07 (1.44)
N of complement clause	***0.47 (0.52)***	***0.87 (0.52)***
N of relative clause	0.33 (0.62)	0.40 (0.63)

Differences on the posttest standard information scores between the intervention group

and the control group were not significant in a simple T-test, only comparing the posttest scores.

But in a repeated measure analysis of variance, when the pretest standard information scores

were taken into consideration, a significant time X group interaction was found (F (1, 28)=4.58, $p<.05$). Specifically, for the control group children, their scores did not change much from pretest to posttest (mean for pre was 98.8 and for post was 99.8, t (14) =-0.22, p>.1) whereas for the intervention group children their average standard score jumped from 94.6 at pretest to 107.4 at posttest (t (14)= 4.23, $p<.01$). The effect size was 0.92.

Story Telling Task at Posttest

Similar to the story retelling task, children had one familiar story and one unfamiliar story at posttest. These two stories were written by the same author and similar in terms of length and story content.

Unfamiliar Story

For the unfamiliar story, the average length of the story was 156.27 words in the control group and 164.87 words in the intervention group. The control group children on average used 1.00 complex sentences in their story whereas the children in the intervention group used 1.67. Z scores of this averaged story length and number of complex sentences were not different between two groups ($p>0.1$). Children in the control group used an average 9.93 evaluatives and their peers in the intervention group used 12.20. The number of different evaluative categories the children used was moderately, but not significantly different. Children in the control group used 3.80 different categories of evaluative devices in their story while children in the intervention group used 4.73 categories. Both groups averaged 1.00 complete episodes and similar numbers of incomplete episodes (0.67 for the control group and 0.53 for the intervention group). The total

number of story components as well as frequency of each category of story grammar was not

different between the two groups in their unfamiliar story productions.

Familiar Story

For the familiar story, the children from the two groups performed similarly in terms of

their narrative length (mean was 148 for the control group and 157 for the intervention group).

Likewise, on average, the children in the control group averaged two complex sentences while

children in the intervention group used 1.5 complex sentences. The number of different

evaluative categories they used favored intervention children (3.3 for the control group and 4.4

for the intervention group). Generally, children in the intervention group included more

evaluatives in their narratives ($M = 11.6$, $SD= 9.68$) than children in the control group ($M = 6.7$,

$SD = 5.64$). These two differences were not significant. But the density of using evaluative

information was significantly different in the two groups. The children in the control group used

4.2 evaluatives every 100 words ($SD=3.01$) while children in the intervention group used 7.4

evaluatives every 100 words ($SD=4.5$). This posttest difference was statistically significant

($t=2.37$, $p<.025$). The effect size is 0.84.

Although a T-test only revealed a significant difference for the density of using

evaluative, repeated measure analysis showed significant interaction between group and time in

the total number of evaluative children used in this frog story. ($F(1, 28)=4.69$, $p<.05$.)

The averaged evaluative Z score was calculated to compare the use of evaluatives at

posttest. This evaluative Z score is the average of the three Z scores of evaluatives measures

(total number of evaluatives, number of different evaluative categories, and density of

evaluatives). It was found that children in the intervention group had a much higher evaluative

Z score than children in the control group (Z score for the intervention group was 0.33 (*SD*=0.96)

and Z score for the control group was -0.33 (*SD*=0.74). This difference was significant (t (1, 28)

=2.10, *p*<.025). The effect size is 0.77. Repeated measure of analysis also showed significant

interaction (*F*(1, 28)=5.03, *p*<.025).

Story grammar analysis and episode analysis on this familiar story revealed several

differences between groups at posttest. The means and standard deviations as well as *F* values

and *p* values are shown in Table 6.

Table 6: Story grammar analysis and episode analysis in story telling task at posttest
(familiar story)

Measure	Control	Intervention	F	p
Setting	1.47 (0.92)	1.80 (0.56)	1.44	.24
Initiating event	1.03 (0.27)	0.88 (0.23)	0.90	.35
Attempt	2.60 (1.68)	3.20 (1.82)	0.88	.36
Internal response	***0.33 (0.49)***	***0.87 (0.74)***	***5.40***	***.03***
Consequence	*1.60 (0.99)*	*2.60 (1.68)*	*3.95*	*.06*
Z score of Story Grammar	***-0.19 (0.45)***	***0.19 (0.49)***	***4.88***	***.04***
Complete episode	***1.13 (0.83)***	***2.20 (1.45)***	***5.95***	***.02***
Z score of structure measures (average of story grammar and complete episode)	***-0.30 (0.48)***	***0.30 (0.75)***	***6.91***	***.01***

Repeated measures analysis revealed no significant interaction between group and time.

Data in this table show that children in the intervention group included significantly more

internal responses in their narratives and had more complete episodes in their stories. They also

have a higher Z score for total number of story grammar components. Using consequences was marginally higher in the intervention group.

After the hybrid intervention, for the familiar story, the children in the intervention group had a significantly better performance on two out of three domains of narrative ability in the story telling task (evaluative information and story grammar analysis).

Personal Narratives at Posttest

At posttest, children in the control group generated an average of 2.20 narratives and the average length of their personal narratives was 89.72 words. The children in the intervention group had an average of 2.27 narratives with average length of 85.23 words. It seemed that the two group children generated similar number of narratives and these narratives were similar in the length. The total number of complex sentences and the numbers of three types of complex sentences were also close between the two groups. Analysis of evaluatives did not find any significant difference in any of the evaluatives measures including total number of evaluatives, number of different types of evaluatives, and the density of using evaluatives.

The analysis of personal narratives' structure (average episode level) revealed a significant difference ($t(28) = 2.05$, $p<.025$) between the control group and the intervention group. The control group children had an average episode level of 3.58 (SD=1.42) and the average episode level in the intervention group was 4.50 (SD=1.05). When only the highest episode level a child reached was compared across groups, it was found that the children in the control group had a mean of 4.13 (SD=1.76) and the children in the intervention group had a mean of 5.33 (SD=1.23). This difference was statistically significant ($t(28)$=2.16, $p<.025$). The

effect size is 0.79. Thus, narratives produced by children in the intervention group were more complex than narratives told by the control group children. Z scores of the linguistic measures, evaluatives, and story structure measures were calculated and, among these, the Z score of story structure was significantly different between groups (t (28)=1.96, p<.025). The combined story structure Z score is 0.36 for the intervention group and -0.36 for the control group. The effect size is 0.8. The means and standard deviations of children's personal narrative measures are shown in Table 7.

Table 7**:** Means and standard deviations of personal narrative measures at posttest

Measures	Control group	Intervention group
Number of complex sentences	3.07 (3.01)	4.13 (4.22)
Average narrative length	89.72 (62.85)	85.23 (42.68)
Average episode level	*3.58 (1.42)*	*4.50 (1.05)*
Highest episode level	***4.13 (1.76)***	***5.33 (1.23)***
Total evaluatives	11.53 (13.26)	12.07 (11.46)
Number of evaluative categories	3.47 (1.96)	3.40 (2.10)
Density of evaluative information	5.22 (2.90)	5.23 (3.75)
Z score of linguistic measures	-0.01 (0.89)	0.01 (0.72)
Z score of evaluative measures	-0.003 (0.86)	0.003 (0.95)
Z score of structure measures	***-0.36 (1.05)***	***0.36 (0.71)***

Repeated measures analysis revealed no significant interaction between group and time.

Overall Narrative Scores at Posttest

A combined Z score was calculated for each task. It was the average of the three Z scores of linguistic measures, evaluatives measures, and structure measures in the story telling task and the personal narrative task. For the story retelling task, the Z score is based on the standard information score and the number of complex sentences children produced. The composite Z score for the story retelling task revealed a significant interaction between the groups and the time. It suggested that only children in the intervention group had a significantly higher score at the posttest in the story retelling task. The mean was 0.26 (SD=0.79) for the intervention group and the mean was -0.26 (SD= 0.98) for the control group. (t (1, 28) =2.22, p<.025). In the story telling task, the combined Z score of the familiar story was higher in the intervention group with an average of 0.20 (SD=0.61) in the intervention group and an average of -0.20 (SD=0.56) in the control group, which was significant (t (28) =1.86, p<.025). The effect size is 0.65. The combined Z score of the personal narrative task did not reveal any significant difference across the two groups (the mean was 0.12, SD=0.63 in the intervention group and the mean was -0.12, SD=0.73 in the control group). The average of the combined Z scores for three narrative tasks is called the overall narrative Z score. At posttest, the intervention group had a significantly higher overall narrative Z score than the control group (the mean was -0.20, SD=0.62 in the control group and the mean was 0.20, SD=0.46 in the intervention group, t (28)=1.94 p<.05. The effect size is 0.68. It seems the intervention is efficient in improving children's overall narrative ability.

Summary

The results supported Hypothesis One showing that the hybrid intervention would be effective in improving preschool children's narrative performance. After this six-week hybrid intervention, the children in the intervention group showed improvement on some tasks in all three domains of narrative ability. They used more complex sentences in the form of complement clauses and included more evaluatives. The structures of their story narratives and personal narratives were also more complex.

The results were most striking for the familiar story, "Frog, where are you?" in the story telling task. In this task, the intervention group children included more internal responses and generated more complete episodes in their stories. The children in the intervention group also had a higher Z score for the total number of story grammar components they used in the story telling. In the story retelling task, intervention children used more complement clauses and recalled more information. In the personal narrative task, children in the intervention group generated narratives with higher overall evaluative use and were more complex in episode level and in overall structural level than the children in the control group.

Even in language measures, significantly higher scores of the sentence recalling task and the overall language Z scores were found for the intervention group.

Hypothesis Two

Hypothesis Two: A moderate correlation exists between language skills and narrative abilities.

To investigate the relationship between language skills and narrative abilities, we used the pretest scores of children from both groups and calculated the correlations among these measures.

Language Skill and Story Retelling

Standard scores of four language tests (PPVT, EOWPVT, TOLD and CELF), the combined language Z score and three measures of story retelling ability (information score, number of complex sentences, and combined Z score of these two measures) were used in this correlation matrix. Children's receptive vocabulary (PPVT) was significantly correlated with the number of complex sentences in story retelling ($r = 0.45$, $p<.05$). The score of the sentence recalling task (CELF) was related to the information score of the story retelling task ($r=0.36$, $p<0.5$). Three language tests scores (PPVT, EOWPVT and CELF) were all related with the combined Z story-retelling score (correlation coefficient was 0.40, 0.38 and 0.39 respectively and in all occasions, $p <.05$). The combined language score was significantly correlated with all three narrative measures ($r=0.42$ with information score, $p<.05$, $r=0.42$ with number of complex sentences, $p<.05$, and $r=0.47$ with combined Z story-retelling score, $p<.01$).

Language Skill and Story Telling

Correlations were calculated among language scores and all measures of narratives in story telling task. These measures included the standard scores of four language tests, combined Z score of language tests, Z score of linguistic measures of story telling, Z score of evaluative measures of story telling, Z score of story grammar measure of story telling as well as the

combined Z score of story telling ability. The sentence recalling test from CELF was found correlated with three out of four story telling measures. It was correlated with the linguistic measure (r=0.40, p<.05). It was also correlated with the evaluative Z score ($r = 0.40$, p<.05). Another correlation existed between CELF and the combined Z score of story telling ($r = 0.43$, p<.05). EOWPVT was correlated with the linguistic measure Z score only ($r = 0.38$, p<.05). PPVT and TOLD grammar understanding task were not found correlated with any of those narrative measures.

Language Skill and Personal Narrative

Similarly, correlations between language scores (standard scores and combined Z language score) and four Z scores of personal narratives (Z score of linguistic, evaluative, story grammar and combined Z score) were calculated. PPVT was found related with the Z score of story structure ($r = 0.47$, p<.01) and the overall Z score (r=0.43, p<.05). No other significant correlations were found between language scores and personal narrative measures.

Language Skill and Overall Narrative Ability

The overall Z score of narrative ability was correlated with three out of four language tests. The overall language Z score and overall narrative Z score were also correlated. The correlation coefficients for the four standard scores of language tests and the overall language Z score, to the overall narrative Z scores are listed in Table 8.

Table 8**:** Correlation matrix of language scores and combined Z score of narrative tasks

Measures	PPVT	EOWPVT	CELF	TOLD	Overall Language Z score
Overall Narrative Z score	0.42*	.47*	.60**	.01	.51**

** correlation is significant at the 0.01 level
 *   correlation is significant at the 0.05 level

Summary

These correlations between language skill and narrative ability demonstrate that language skill was correlated with some tasks in every domain of narrative ability (linguistic measures, evaluative information, and story grammar analysis). As predicted, the significant correlations were only moderate, around 0.38 to 0.56. When information from all narrative tasks is combined, the overall language Z score and sentence recalling test from CELF were found to be most correlated with narrative skills. Other significant correlations were seen between narrative measures and vocabulary tests, but not to the grammar understanding test from TOLD.

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Hypothesis Three

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Hypothesis Three: The three narrative tasks would show differences from each other, but would be moderately inter-correlated.

To test this hypothesis, we calculated the correlation of the same types of measures across tasks. For example, how was children's use of evaluatives in story telling correlated with their performance on the evaluative in personal narratives?

Linguistic Measures

In the story retelling task we only have one linguistic measure, the number of complex sentences. This measure was not related with any other linguistic measure in the story telling and personal narrative tasks. In the story telling task, the length of the story was measured by counting the words and the linguistic complexity was measured by number of complex sentences. In personal narrative task, the linguistic measure included the number of complex sentences and the average length of personal narratives. Between tasks, these two measures were highly or moderately correlated, (r=0.73 in story telling task and r=0.52 in personal narrative task, p<.01). Across task, the number of complex sentences used in story telling task was moderately related with complex sentences in personal narrative task (r=0.42, p<.05) and with the average length of personal narratives (r=0.54, p<.01).

Evaluative Information

In the story telling and personal narrative tasks we had three measures of evaluative information, including the total number of evaluatives used, the density of evaluatives and the number of different categories of evaluative devices used in the narratives. Within each task, the correlations among these three measures were very high, r was higher than 0.7 on all occasions and p<.001. Across tasks, there was no significant correlation on any of these measures or on evaluative Z scores. The four most popular evaluative devices were negative, intention, character speech and repeat in the story telling task (in the descending order of frequency) and intensifier, negative, causal relationship and repeat in personal narrative tasks. These results were consistent with previous works of Peterson and McCabe (1983) who found gratuitious terms (intensifiers in

this study), stressors, negatives and causal relationships to be the most commonly used evaluative devices in children's person narratives from age 4-9 years in every age group. Other researchers who used the story telling task found that reference to emotion or intention, character speech, and negative were the most commonly used evaluative devices. This was supported by our results from this study as well. It seemed that children used different evaluative devices in different contexts to make them most appropriate for the genre of the narratives.

Story Grammar

In the story telling task, story grammar analysis and episode analysis were highly correlated (r=0.6, p<.001). In the personal narrative task, the average episode level and the highest episode level were also highly correlated (r=0.78, p<.001). But there were no significant correlations between the episode level measures across the two tasks (r=0.08, p>.1). Note, however, that the episode measures are not consistent in these two tasks. In the story telling task, the episode analysis is about how many complete episodes the stories have. As long as a story has an initiating event, an attempt and a consequence, it has a complete episode. This analysis is structure emphasized. In the personal narrative task, however, the episode analysis is based on the complexity of the narrative content. In other words, the episode analysis for the personal narrative is content focused and more differentiated. This might be one reason why the two episode analyses across narrative tasks were not significantly related. These results indicate that children who had a complex personal narrative did not necessarily have more complete episodes or include more story grammar components in the story telling task. This is also understandable.

Previous research demonstrated that the structure of story and personal narratives were different and children may develop their story narrative and personal narrative ability on separate paths.

Overall Narrative Levels

As noted earlier, a combined Z score was calculated in each task which was the averages of measures from different domains including linguistic, evaluative and the story structure. The correlation between composite Z scores of the story retelling task and the familiar story in the story telling task was 0.28, and 0.12 between the story retelling task and the personal narrative task. The correlation between the story telling (familiar story) and the personal narrative was 0.32. None of these correlations was statistically significant though.

Summary

We used three narrative tasks to collect different genres of children's narrative, story retelling, story telling and personal narratives. This comprehensive measurement of children's narrative has not been explored in previous research. Some studies had compared children's performance in the story retelling and story telling tasks but none of them have compared these with personal narratives.

Across tasks, no significant correlations were found on combined Z scores of any of the three narrative components. But in linguistic measures, the measures of narrative length and sentence complexity were related in story narratives and in personal narratives.

Children shifted by task in their patterns of using evaluatives. Across the wordless picture book telling and the personal narrative task, scores were not significantly correlated. In both tasks, they used many negatives and repetitions but relied on different evaluative devices. In the story telling task, they used character speech and intention more because these inferred the story character's internal state. In the personal narrative, they used intensifier and causal relationship to describe personal experiences. This is consistent with previous findings. Bamberg and Frye (1991) found in the story narratives generated by 12 five-year-olds, reference to a character's internal state, character speech, negative as well as casual relationships were frequently used. With increasing age, older children (nine-year-old) used significantly more references to "frame of mind" compared with younger children. Analysis of evaluatives in personal narratives also validated our results. Peterson and McCabe (1983) found graituitous terms, stressors, negatives and causal explanations were commonly used in personal narratives by children four to nine years old.

The structures of children's story narratives and personal narratives were not significantly correlated either. The structure of story narratives during the story telling task was evaluated by the number of story grammar components and complete episodes the narrative had. The structure measure of personal narrative was based on high-point episode level analysis developed by Labov et al (1967) and adopted by Peterson and McCabe (1983) in children's personal narratives.

Another look at relations between narrative domains is provided by the two tasks, i.e. the story telling task and the personal narrative task, which measured all three domains. In the story telling task, the three components of narrative (linguistic, evaluative and story structure) are inter-correlated. The linguistic measures are significantly correlated with the using of evaluatives and story structure in the story narratives. But the evaluative measures were not related with

story structure. The same pattern was found in personal narratives where the linguistic measures were significantly related with evaluatives and story structures, but the latter two types of measures were not correlated with each other.

The lack of significant correlations among the overall Z score of these three narrative tasks suggests that they each tap into a different area of narrative ability.

Just like language skill, narrative ability is also complex and appears to have multiple components that may be utilized differentially by a child across different task contexts. Assessing narrative ability with different tasks across varied contexts is a good way to provide us a more accurate picture of what the narrative ability really is.

Chapter 4

Discussion

After only a six-week hybrid intervention, when comparing intervention group to control group children, intervention group children showed some significant skill advantages on all three narrative tasks and also in every domain of narratives. Children in the intervention group recalled more information and used more complement clauses in the story retelling task. For the familiar wordless picture book task, they used more evaluatives in their stories when the lengths of the stories were taken into consideration. Their story narratives for this story telling task also included more story grammar components and more complete episodes; the use of one story grammar component and internal responses was significantly higher in the intervention group. The structure measures of personal narratives also revealed that children in the intervention group produced more complex narratives. The composite Z scores of evaluative measures and structure measures in the familiar story telling task as well as the composite Z score of structure measures in the personal narrative task showed that intervention children performed much better in these tasks than the control group. For language tests, significant improvements on the sentence recalling task from the CELF and on a composite language measure were also found in the intervention group.

These results rise well above chance expectations, given that for 55 measures examined across tasks and domains, 13 revealed statistical significance. All these significant improvements made by the intervention group in just six weeks demonstrated that it was very efficient considering these are the results of 12 sessions and of only six hours intervention. In contrast, the

strongest prior demonstration of an intervention effect documented gains on only two narrative ability scores after eight months and at least 158 intervention sessions (Zevenbergen, Whitehurst & Zevenbergen, 2003).

This range of significant improvements on the narrative skills was achieved through 12 sessions of a hybrid intervention. One key component of this hybrid approach was explicit teaching of story grammar. This story grammar teaching method was adapted from the procedure developed by Hayward and Schneider (2000) and appeared to be successful in teaching story grammar components to young children (ages from 4;8 to 6;4) in their study. At the beginning in the present study, story grammar components were explained to the children with language they could understand and seven color-coded cards which represented story grammar were introduced to the children. The children were then taught to name each card and learn to correspond the card and story content. For example, when some contextual information was presented in the story, the corresponding card was shown to the children at the same time. After the children learned the relationship between cards and the content, they were encouraged to show the experimenter the corresponding card during the story reading when the matched information was mentioned in the story. Through this method, the children learned different story grammar elements (settings, initiating events, attempts, internal responses, consequences and reactions) and could identify this information in the story.

The second key component of the hybrid intervention was emphasis on evaluative information. The experimenter read the picture books together with the children and asked several open-ended questions and questions eliciting evaluative information such as "What did the animals think when they knew there was no water left?" "Why was Arnie so sad?" Children were frequently asked about the feelings of the characters and their own reactions to the stories.

A similar shared-reading method called "dialogic reading" was used by Zenvenbergen, Whitehurst, and Zevenbergen in Head Start classrooms and children's homes. They found this interactive reading helpful in facilitating the use of evaluative information in preschool children's story narratives.

The third component of the hybrid intervention was the adults' scaffolding of children's utterances. Previous studies demonstrated that complex recasting embedded in naturalistic conversation contexts was efficient in teaching syntax to language-typical children and children with language disabilities (Camarata, Nelson, & Camarata, 1994; Nelson & Welsh, 1989; Nelson, 1977, 2001). In this intervention, the experimenter elicited the children's utterance by asking questions about the story and then responded to the children's sentences with a more sophisticated, recast syntax.

All three key components were integrated in the intervention. The elicitation of information was not limited to evaluative information, but also extended to include contextual information or information about the character's attempts or consequences. Story grammar components such as internal responses or reactions were actually evaluative information. Adults' scaffolding was combined with questions and story grammar teaching too.

Considering this intervention lasted only six weeks compared with two previous intervention studies running for 8-12 months, it is very encouraging to see many significant effects on children's narrative performance. Next, we will discuss each area of improvement in detail.

Improvements in Evaluative Information of Narratives

The intervention components that could be expected to facilitate children's progress in using evaluatives were the elicitation of evaluatives and story grammar teaching. The procedures of relevance were asking for information about characters' feelings, asking for explanation of emotions, and the teaching of internal responses as well as reactions as story grammar components.

In the story telling task, after considering the length of children's stories, children in the intervention group included more evaluative information in their stories than their peers in the control group. In other words, the density of evaluative information was higher in the intervention group than in the control group (t=2.37, p<.025). For every 100 words, the children in the intervention group used 7.44 pieces of evaluative information whereas the children in the control group used only 4.15. After the intervention, the children in the intervention group significantly included more causal connectives and used more intensifiers in their stories. These two evaluative types were identified by Peterson and McCabe (1983) as the most commonly used evaluative devices from age 3 to 9.

In the ten evaluative devices we coded in this study, hedge was the least used. Only one child used it twice in her story. This was similar to what Zevenbergen et al. (2003) found in their study. Not a single child out of their 123 four-year-old subjects ever used hedge. The most commonly used evaluative categories they found in the children's narratives were character speech, character internal states, and causal relationship. This was consistent with our findings. The means and standard deviations for the inclusion of evaluative devices in this study and in Zeverbegen et al. (2003)'s study are listed in Table 9. They were based on pretest scores of the combined sample.

Table 9: Means and standard deviations of commonly used evaluative devices in this study and in a previous study (Pretest score of combined sample)

Pretest score of Combined sample	Current Study		Zevenbergen et al. (2003)	
	M	SD	M	SD
Character internal state	0.66	1.05	0.69	1.10
Character speech	0.86	1.25	1.14	1.17
Causal	0.41	0.78	0.11	0.41

The mean age of the sample in Zevenbergen et al's study was 52.67 months at the pretest and in our study the mean age at the pretest was 53.93 months. The convergence of results from our study and this previous study for similar age group suggested that these evaluative devices are the mostly commonly used ones in this age group. In another study, with older children and adults, Bamberg and Frye (1991) found that adults used significantly more references to frames of mind and 'hedge' than five-year-olds and nine-year-olds. In the overall use of evaluatives, the adult used three times as many evaluative devices as compared with the five-year-olds. It demonstrated that preschooler's use of evaluative device is not mature. Both the frequency and the diversity of evaluative categories are still in development.

Even though Zevenbergen et al. (2003) tried to code eight different evaluative devices in their children's narratives, five of them had very low occurrence or did not happen at all in the narratives, and thus were not considered further. Only three evaluatives, character internal state, dialogue and causal state were included in the analysis. T-tests revealed that after the intervention, children include more dialogue and referred more to the character's internal state. These results were consistent with Bamberg and Frye's finding. In their study, they coded five categories of evaluatives and also found that older children and adults used reference to "frames

of mind" more frequently than the other evaluative types. In the current study, we coded ten

evaluative devices except for hedge, which only one child used, most of the evaluatives were

indeed used by these four-year-olds. On average, children used about three to four categories of

evaluatives. The use of particular evaluatives varied individually. For example, some children

liked to use intensifiers or stressors while others tended to use attention get or repeat. Children as

young as four years old already showed some preference in using different evaluative devices.

One interesting question about this is why individual variation exists in the narrative

ability of preschool children. One argument is that the style of using evaluatives or the style of

narrative in general is under the influence of dialogues children are regularly exposed to, namely

the adults' conversations and adult-child verbal interactions. Previous naturalistic studies

demonstrated that parent's verbal interactions with their children at home influence children's

narrative skills (Fivush & Fromhoff, 1988; Hudson, 1990; Fivush, 1991; McCabe & Peterson,

1991; Peterson & McCabe, 1994, 1996; Haden et al, 1997). They found that the more elaborate

the parents tend to be, the more information the children tended to included in their narratives

(McCabe & Peterson, 1991). In particular, parents who regularly ask many "wh" questions and

prompt for context information (such as when, where the event happened) have children who in

turn produce similar information in their independent narratives (Peterson & McCabe, 1992,

1994, 1996). Mothers who included more contextual and evaluative information in their

conversations about past with their children have children who provided more of this kind of

information later in their elicited personal narratives (Fivush, 1991). Similarly, Haden, Haine and

Fivush (1997) found those mothers who emphasized evaluations when reminiscing with their

child at 40 months of age had children who were emphasizing evaluations in their narratives at

70 months of age. In a shared-reading intervention study, Zevenbergen et al (2003) used

"dialogic reading" where the adults asked many "wh" and open ended questions while praising the children for their efforts. They found this intervention to be successful in encouraging children to use evaluatives in their independent narratives.

All of these results demonstrate that the early social interactions are important in developing children's narrative skills. Children learned specific narrative skills in adult-child verbal interactions and, in subsequent independent personal narratives, the children tended to include more contextual or evaluative information, whichever was emphasized in the previous conversations. The correlation between parents' narrative focus and the children's preference of including particular information is evidence that the children may have learned some narrative skills from these interactions.

Unfortunately, though, no prior study has a systematic theory about when and how the child learned to use evaluatives. Carefully designed studies and more detailed analysis about the parents' verbal interacts with their children would help us understand this question and, thus, to design more efficient intervention methods on narrative development.

Generally this hybrid intervention was successful in encouraging use of evaluatives, especially in story telling tasks and on the familiar story. Given the present results and prior literature, future interventions could perhaps improve children's progress in this area if interventions were extended well beyond six total hours and if more attention would be given to evaluative devices such as intensifiers and causal statements. Affective information is just one type of evaluative. Although some researchers (Bamberg & Frye, 1991) identified it as the most frequently used evaluatives in story narratives, other results seemed to tell a different story at least for young children or for personal narratives. Fivush (1991) found the majority of children's (mean age 44 months) evaluatives used in a personal narrative task were intensifier

information and only 6% included affective information (In a footnote, Fivush also noted that this percentage of affective language was much less than other results from children's everyday conversations about ongoing events). In this study, the affective language was only 3.8% of all evaluatives in the personal narrative task and 10.6% in the story telling task. Training on the other popular evaluative devices in personal narratives and story narratives would bring more significant effect on children's using of evaluatives in future interventions.

Improvements in Story Grammar and Episode Level of Narratives

The intervention component that could be expected to facilitate the development of episode level and story grammar use in preschool children was the story grammar teaching. The procedures of relevance were an explanation of story grammar components, identifying story grammar in stories, and including of these parts in narratives. Story grammar from each story were shown to the children with corresponding cards. The children later learned to identify these components by themselves and were instructed to include all these parts in their own stories.

The intervention effects on story grammar and episode level were very significant. This was found in both story narratives and personal narratives. After the intervention, children in the intervention group had better structured stories in both tasks than the control group. In particular, the intervention group children included more story grammar components and more complete episodes in the story telling task. Also, the personal narratives generated by them were more sophisticated.

Previous studies (Mandler & Johnson , 1977; Stein and Glenn , 1979;) reported that major setting information, initiating events, and direct consequences were the story grammar

categories most likely to be recalled by the children. In naturalistic story telling tasks, Sleight

and Printz (1985) also found that orientation information was mostly included by both normal

children and children with language disorders. In this study, for the story telling task, the

hierarchy of story grammar components is (mean frequency in parenthesis): attempts (3.00),

setting (2.33), initiating event (1.83), consequence (1.53), internal response (0.57) and reaction

(0.10). These results were consistent with previous findings. Merritt and Lilies (1987) used 20

nine-year-olds and found similar results in the use of story components in story telling task. In

their study, the rank was initiating events (5.2), direct consequence (5.1), attempts (4.0), settings

(3.5), internal response (0.8) and reactions (0.2). The three story grammar components which

make up a complete episode (initiating event, attempt, and consequence) all have a relative

higher frequency. The older children apparently used more story grammar in their narratives.

The children in our study as young as four years of ages demonstrated knowledge of story

structure. Previous studies usually focused on older children because it was believed that 5-to-6

year old children began to understand structure. As evidenced by this study, it is clear that

preschoolers can be taught story grammar successfully in short time.

Besides the increased total number of story grammar components, children in the

intervention group also included more internal responses ($t(28)=2.32$, $p<.05$). Internal

responses are the character's feedback to initiating events, or how they felt about the events.

They also serve as evaluative information if they describe the character's emotion, intention or

thoughts. Another story grammar component, reactions, refers to the character's feelings about

the success or failure of the goal. This also has dual functions as a story grammar and evaluative

device. In this story, however, only three children out of 30 ever included reactions. The

occurrence was very low for this story grammar and, thus, it was not included in further analysis.

Even in older children (9-year-old, Sleight & Printz, 1985), the occurrences for internal responses and reactions were still very low (average was 0.8 and 0.2 respectively).

If a narrative included at least one initiating event, one attempt and one consequence components, then it was a complete episode. If only two out of three of these story grammars were presented, then it was an incomplete episode. The episode analysis for story telling also revealed an intervention group advantage at the posttest.

In the personal narrative task, High-Point analysis was used to evaluate the complexity of each narrative. The results revealed a significant intervention effect on this measure of episode complexity. In other words, the intervention group generated more complex narratives at posttest than the control group did. The most sophisticated episode is classic narrative followed by end-at-the-high-point narrative. A small percentage of children produced narratives at this level (13% of the control group and 33% of the intervention group). The majority of the children's narratives were chronology narratives or leapfrog narratives (53% of the control group and 60% of the intervention group). Only a few children produced narratives that were disoriented, impoverished or miscellaneous (34% of the control group and 7% of the intervention group).

Despite the intervention effects on narrative structure, some improvement could be made to further these effects. For example, the children in this study only received six hours of intervention total over six weeks. If a more intensely intervention were provided to the children over an extended time period, more significant improvements in children's narrative ability are expected. Further, in this intervention, more focus was put on teaching meanings of story grammar and less on structural sequence of these components. If more instructions and more practice about how to organize these grammar components were provided, we would expect to see more complete episodes and a increased percentage of classic narratives.

Improvements in Linguistic and Information Measures of Narratives

The intervention component that could be expected to facilitate the linguistic measures of narratives was the complex recasting experimenter presented during conversation. Using more sophisticated syntax and maintaining the meaning of the children's utterances, the experimenter responded with recasts to the sentences of the children. If the children picked up these syntactic structures and used them in their narratives, more complex sentences would be used in the children's independent utterances. The intervention procedure which might be most influential in the information score of the story retelling task was the teaching of story grammar. Knowledge of story structure has been proven to be helpful in information recalling (Mandler & Johnson, 1977; Stein & Glenn, 1979). Children who received this intervention used more complement clauses and recalled more information in the story retelling task.

In previous studies about children's narrative ability, almost all of them had at least one linguistic measure. The most commonly used linguistic measures included length measures and linguistic complexity measures. Length of narratives or linguistic complexity of narratives could be used to differentiate between children with high and low language ability. In the seven intervention studies we reviewed in the introduction, only one case study (Klecan-Aker, 1993) showed a significant intervention effect on linguistic measures including the length of the narrative (how many t-units) and the language complexity of the narrative (how many clauses in the t-unit and how complex the sentence was).

In present study, the length of the narrative was measured by counting how many words were in the narratives. The linguistic complexity was measured by counting how many complex sentences were used. The complex sentences were further broken down into three categories, adverbial clause, complement clause and relative clause. In pretest and posttest, the lengths of

narratives generated by children in two groups were similar. But the children in the intervention group used more complement clauses in their narratives in the story retelling task. This was consistent with our expectations.

The next result considered was in the familiar story of the story retelling task. In this task, only the intervention group children had a significant higher standard score at the posttest while their peers in the control group remained at a pretest level. This standard score of information was based on how much information the child recalled. It had to be the exact words to get the full credit or at least semantically correct to get partial credit. Details the child recalled included information such as the context of the story happened, the characters involved and the speeches the characters made. Peterson and McCabe also demonstrated in their studies with 20 preschool children (age 3;7) that one year after the intervention (though not immediately after the treatment), the intervention group included more context-setting descriptions in their narratives.

In another intervention study using this same bus story retelling task, (Zevenbergen et al. , 2003), the researchers found intervention effects on evaluative, but not on the information score. One explanation for this inconsistency between studies is that we used a hybrid intervention which focused on both evaluatives and story grammar. The Zevenbergen et al.'s study only used shared book reading as the main intervention method. The explicit teachings of story grammar perhaps helped children understand the structure of a story. With this knowledge, the children would have expectations of what should be included in a story. This scheme for stories could be very helpful in their processing and recalling stories. Previous researchers (Mandler & Johnson, 1977; Stein & Glenn, 1979) even pointed out that some information was easier to recall with the help of story grammar such as setting information, cause of the story and the consequence.

One suggestion for the further narrative teaching studies is to add more connectives and complex conjunctions into recasting or similar components of intervention. Syntax may help children perceive and produce longer and more complex sentences and gaining better organized more coherent narratives.

Improvement on Language Skills

In two previous intervention studies about children's narrative development, the researchers also found some selective significant intervention effects on children's language skills. Peterson, Jesso & McCabe (1999) investigated 20 preschool children (mean age 3;7) and encouraged the intervention mothers to adopt a narrative style which elicited more information from the children. After 12 months intervention, children in the intervention group showed a significant improvement in their receptive vocabulary measured by the Peabody Picture Vocabulary Test (PPVT). Zevenbergen, Whitehurst, & Zenvenbergen (2003), in another intervention study, carried out dialogic reading in preschool classrooms and children's homes for eight months with 123 four-year-olds. They found the children made a significant improvement on expressive vocabulary measured by the Expressive One word Picture Vocabulary Test (EOWPVT). To compare with these previous studies, a receptive vocabulary test (PPVT), an expressive vocabulary test (EOWPVT), a grammar understanding subtest from TOLD, and a sentence recalling test in narrative context from CELF were included in this study to investigate the intervention effects on general language skills. A specific intervention effect showed up in the subtest of CELF and also in the composite language scores across vocabulary, syntax, and sentence recalling. In both prior studies, which found significant vocabulary improvement, the

participants were children from economically disadvantaged families. The average score of

EOWPVT in Zevenbergen et al's study (2003) was 82.01 for the intervention group (*SD*=10.74)

and 76.63 for the control group (*SD*=12.04) whereas the average score of our sample was 119.53

(*SD*=16.7) for the control group and 120.2 (*SD*=16.8) for the intervention group. The children

who participated in our study were recruited from daycares affiliated with a university, thus the

parents were usually faculty, staff or students in the university. The family background data

showed that 96% of the fathers and 86% of the mothers of our participants have a college degree

or higher, and 39% of the fathers and 36% of the mothers have a Ph.D. degree. These children

were from the highest educated families. Their average vocabulary scores at pretest showed they

are top learners, average 90th percentile in their age group. Accordingly, there was not much

room for them to improve.

Under these circumstances, both the score of the sentence recalling test and the overall

language score showed significant intervention effects. In the sentence recalling task, the

children were read a story with corresponding pictures. After each target sentence, the child was

asked to repeat the sentence right away. Previous studies already proved that knowledge of story

grammar was helpful in recalling story (Mandler & Johnson, 1977; Stein & Glenn, 1979).

Researches found that after hearing a story that follow the story grammar structure principles,

children as young as four-years-old could recall the story the way that fit the schema. In addition,

when adults or children were asked to retell a story that did not conform the story grammar rules,

they tended to retell the story in a way that conformed to the story grammar schemas (Stein &

Glenn, 1979). When the adults or children were asked to retell a story which missed a category

of story grammar, they retold the story with adding the missing parts (Mandler & Johnson, 1977;

Stein & Glenn, 1979). Note, again, that in this hybrid intervention, the children were taught new

complex sentences and also taught to recognize different elements of story grammar in stories.

Gains in story-relevant syntax and in the knowledge of story structure may have supported

posttest success in using sentences in different contests (complement clauses in the sentence

recalling task in CELF, and in the TOLD grammar understanding task).

Theoretical Interpretations of Intervention Impacts on Narrative and Language Skills

The Dynamic Tricky Mix theory predicts that when engaging children, narrative

challenges and adult scaffolding converge during interactive sequences, facilitate the learning

rate of new narrative skills. In the current study, multiple efforts were made to create an optimal

dynamic learning situation for the children. First, the story books used in the intervention were

chosen very carefully. Both fictional stories and real life events were included, and the contents

of these stories were interesting enough to capture the children's attention. Age-appropriateness

of these stories was also important as the books should not be too complex and intimidating for

the child to learn something new while still being challenging enough to trigger definite

advances. Second, rotating of books also contributes to keep the children's interest on reading a

new story. Third, the relationship between the child and the experimenter is also fundamental.

Dynamix Tricky Mix theory has predicted that a good social –support system and positive adult-

child interaction can foster children's acquisition of new skills. Fourth, a variety of scaffoldings

were provided. The experimenter used "wh" questions, open ended questions to elicit orientation

information and a "feeling" card was shown to the children to remind them of references to

internal states of the characters. The amount and type of scaffolding depends on the children's

individual performance. Generally, the children were encouraged to take a more active role in the

latter sessions; adult's guidance was tailored to particular cases. Fifth, children were praised and encouraged for their efforts and provided immediate feedback to maintain their motivation. In terms of design, the children in the control and the intervention groups were matched well on their demographic information and on their general language skill. This rigorous control of design and hybrid, extensive manipulation of intervention were adopted to ensure that multiple kinds of narrative challenges, activities to help the child process these challenges, inner state of the child, and the social engagement with the experimenter all converge to support rapid learning.

Somewhat similar types of scaffolding have been used by many researchers (Peterson & McCabe, 1983, 1991; Zevenbergen, Whitehurst & Zenvenbergen, 2003; Fivush, 1991). Fivush (1991) and Peterson et al. (1994) argued for facilitative effects of early parental scaffolding on children's subsequent narrative performance. This research, stemming from a Vygotskian perspective, demonstrated that the early experience of talking about the past with adults may be very important for the development of narrative skills. The importance of scaffolding could also be explained from Bruner's constructivist theory. The major point of Bruner's theoretical framework is that learning is an active process in which the learner constructs new concepts into his or her current knowledge. Appropriate scaffolding should ease this integration progress and, thus, increase the acquisition rate. However, definitive documentation of facilitative scaffolds has been lacking.

In the present intervention, the experimenter tried to let the child take the leading role gradually. The child was not a passive story listener, he/she could act out the story or change the story in anyway he/she wants. The children "read" the story to the experimenter sometimes. This degree of autonomy probably helped make the child confident and happy through intervention weeks. They were always looking forward to the story time. To further maintain children's

motivation, some games were developed in this study and the children loved playing these games. They were encountering opportunities to learn new story grammar parts and new evaluative and new syntax when they were playing their favorite games. Besides, the experimenter has been seeing them twice a week for six weeks and a good rapport was established between the experimenter and the child. The intervention took place at the daycare center which was a familiar context for the children. Under these circumstances, the children were relaxed and concentrated. In combination, these procedural characteristics included many of the dynamic converges of new narrative challenges and multiple supportive conditions for learning.

Implications for Further Interventions to Aid Narrative Skills Acquisition

In terms of educational application, the most significant finding of this study is that a short time (six hours in six weeks) school-based hybrid intervention could facilitate children's narrative ability. The children who participated in the intervention generated more structurally complex narratives, included more evaluatives and used more complex sentences in their narratives. Narrative skill facilitation is thus shown to be possible in a short time when the conditions dynamically converge. Previous researchers (Peterson, Jesso & McCabe, 1999) had believed that to improve narrative skills, adult-child interactions must be frequent over a long period of time, but this may be impossible for many professionals (researchers, teachers) to carry out. They suggested home-based parental intervention instead. This intervention took a year and the modest intervention effects did not appear until one year after the intervention. Apparently, this intervention had a serious time-lagged problem. Even at the follow up test, only one measure

(the combined contextual information) out of seven measures was significantly different across groups. Similarly, in the language-focused intervention by Zevenbergen, Whitehurst and Zevenbergen (2003), after eight months intervention and at least 138 intervention sessions at home and at Head Start classrooms, there was only a moderate advantage for intervention children versus control children on two out of nine measures. Beyond any previous results, the current study found some significant improvement in the intervention group in all three tasks and on every domain of narrative ability (linguistic, evaluatives and story structure).

The success of the current intervention study suggests the possibility of school-based narrative intervention where an experienced clinician or teacher would carry out the intervention. This could be more efficient in terms of time and manpower than parental intervention. Dialogic reading and story grammar teaching could be taught in group conditions which will further the efficiency without sacrificing the intervention effects.

Peterson and McCabe (cited in footnotes of Peterson & McCabe, 1999) had tried several school based interventions and their interventions lasted 20 minutes, five times every two weeks for seven to nine months. These varied interventions tried asking "wh" questions, modeling narratives, reading stories to children in small group and having the children act out the stories. But none of their interventions had any effect. The weekly intensity of these interventions is close to what we did in the current study (30 minutes, twice a week for six weeks) but was done over a much longer time period. In contrast, using a superficially similar intervention and shortened intervention time, our hybrid intervention succeeded. The secret of this success is evident in its name "hybrid". The hybrid nature of this intervention is definitely a positive factor here. The three components of the narratives are interwoven naturally in intervention episodes. For example, for story grammar, internal responses and reactions are executing evaluative

functions at the same time as a story grammar when a story is read or acted out. The setting

part usually included orientation information. Explicit teaching of story grammar and emphasis

on including story grammar in the story also reminded the children to provide more contextual

information and more evaluatives. At the same time, syntactic recasting embedded in the story

contexts is natural and interesting so the child would pick up new syntactic structures that also

support complex episode and story grammar patterns. Finally, the hybrid intervention supported

learning of the many kinds of challenges through keeping high motivational and interest levels

for the children when the challenges occurred.

Narrative ability is not only one of the best predictors for school performance, it is also a

major part of children's social interaction. Young child use narratives to communicate with other

people and to reflect knowledge they acquired in these interactions. Success of this hybrid

intervention foretells a promising future of school based narrative intervention for preschool and

school-age children, especially for those children with language impairments or reading

disabilities. For these children, delays of their reading/language negatively impact the

development of their narrative. This is also detrimental to their social interactions. The hybrid

intervention employed in the present study could easily be combined with intervention

components that would help facilitate basic vocabulary and syntax skills for children who need

help in multiple language areas.

Relations between Narrative and Language Skills

Narrative relies in part upon multiple domains of language skill, including vocabulary,

syntax, semantics, and pragmatics. In this study, we included measures of vocabulary, syntax,

sentence recalling and overall language. The correlation between these language measures and children's narrative ability verified our hypothesis; narrative skill was moderately correlated with language. The correlation coefficient between the overall language Z score and the overall narrative Z score was 0.53 ($p<.01$). This seems to support some researchers' opinion that narrative ability draws upon multiple language skills, but also requires many specific skills in narrative.

Interrelations among Narrative Skills

Narratives have different genres. Personal narratives and story narratives are the most popular ones we encounter in daily life and research. But there was no systematic prior comparison of these two types of narratives.

In this study, we included three narrative tasks including both personal narratives and two kinds of story narratives to make an exploratory effort to shed some light on this question. Measures included the three domains of narratives, linguistic, evaluative, and story grammar that have been studied previously in different contexts including personal narratives and story narratives.

The results were very interesting. There were significant correlations across tasks on linguistic measures. In contrast, for evaluative measures in the story telling task and the personal narrative task, there were no significant correlations between tasks. In both contexts, the children used negative and repeat evaluative devices a great deal. Then, the children differentially chose other evaluative devices in the two tasks. The character's speech and intention were used more often in the story narratives while the intensifier and causal statements were used more in

personal narratives. These trends were consistent with other researchers' documentations of each type of narrative. While some basic evaluative devices are used across all contexts, the children purposely chose in each task to use the most efficient way to express feelings and make the narrative more meaningful.

As for the structure of narratives, as we described in the introduction, personal narratives and story narratives may take different paths. The story grammar and episode level measures across these two tasks were not significantly correlated.

Limitations and Thoughts for Future Studies

The first limitation for this study is that there is no follow up after the intervention. It would be very interesting to see how children do after similar interventions, especially when they entered kindergarten and first grade. Will the intervention have any influence on their school performance? Such research might aid in interpreting the discrepancies in previous studies. Feagans and Farren (1994) found a language intervention showed effect on children's narrative ability (comprehending and paraphrasing stories) but this effect was gone after the children went to kindergarten for one year. But another intervention study conducted by Peterson, Jesso and McCabe (1999) on personal narratives found that the narrative ability was not improved right after the intervention, but had a one-year latency to show up on providing contextual information in personal narratives.

Secondly, the participants of this study were recruited from daycares affiliated with a university. The children's parents were usually faculty or graduate students at the university. The parents have high education levels and most of the children have above average language from

the beginning of the study. This is not a representative sample and the results from this sample

may not generalize into other populations. The other weakness of this study is its small sample.

We had only 30 children enrolled this study. It would be ideal to include more children and have

better statistical power.

Compared with previous intervention studies, this current study was very efficient in

terms of effects achieved for total intervention time (six hours in six weeks). Previous

intervention studies about narrative development took as long as 8 to 12 months. Given the very

encouraging intervention effects that showed up after just six weeks in the present study, it

would be very interesting to see whether even more substantial impacts on narrative skill would

be seen after many months of intervention.

Based on the experience and lessons gained from this study, there are some thoughts for

further studies. First, the 4-5 year-olds were studied in this study as well as many other studies

(Peterson & McCabe, 1983; Zevenbergen, Whitehurst, & Zevernbergen, 2003; Fivush, 1991;

Feagans & Farran, 1994; McGregor, 2000; Hayward & Schneider, 2000) but there were fewer

prior examples of research focused on older children. In some cases, when they did study older

children those were usually children with language disabilities (Gillam, McFadden & Van

Kleeck ,1995) or children from disadvantage families (Peterson & McCabe, 1983). One reason

for the popularity of this age group is that narrative is usually considered as one of the best

predictors of children's later school academic performance so the narrative abilities of preschool

children are the focus of most studies. But it would be interesting to see how formal school

instruction influences children's narrative development. How far can preschool or early

elementary school narrative ability predict later academic success? More longitudinal studies

should be extended to late primary school years and help to depict the developmental course

of narrative ability at 7 to 12 years of age.

Second, studies on diverse population would also be important. As already indicated,

most of the work in the children narrative has been done with middle class children. The few

studies of low-income children reported that these children perform more poorly on story

recalling tasks (John, Horner, & Berney, 1970, Feagans & Farren, 1994). Some researchers even

found that social class differences are typically larger for language production than for

comprehension (Dickinson & Snow, 1987; Fegans, 1982). In an intervention study examining

the narrative skills of children from poverty families (Feagan & Farren, 1994), the gaps between

the poverty children and a local population sample continued to widen even when the experiment

group outperformed their control peers. Though we had a middle-class sample in current study,

the success of this hybrid intervention could be expected as well for children in poverty if highly

positive and challenging learning conditions could be created and maintained for this group.

Third, narrative ability relies upon specific skills and is moderately correlated with

overall language skill. The length of narrative or productivity of the words in narratives has been

found associated with different language levels (Allen, Kertoy, Sherblom, & Petti, 1994).

Accordingly, narrative measures might be used as a screening tool for language disorders.

Standardized language measures usually evaluates isolated language knowledge while narrative

tasks reflects integrated language functioning. Narrative measures, on the other hand, may

provide the clinician with more information about how the children use language to

communicate in everyday life. As showed in this study, the personal narrative task and the story

narrative tasks may each rely on different part of language or narrative skills. Measures of

narratives should be comprehensive and diversified to be sensitive and specified to varied types of language disorders.

Fourth, as noted above, narrative has been identified as critical for language and literacy acquisition (Feagans, 1982; Snow, 1983; Snow & Dickinson, 1990). Peterson and McCabe (1983) suggested that children with low narrative ability in preschool have more difficulties in learning written texts. Other studies also proved that narrative skills of preschoolers could predict their later academic and linguistic performance (Paul & Smith, 1993; Feagans & Applebaum, 1986; Fazio, Naremore, & Connell, 1996). Language measures are usually included in narrative studies to investigate the relationship between language and narrative ability. But literacy measures are seldom used. In this study, we have a print awareness test, but it was used as a control variable and was not assessed after the intervention. It would be interesting to add more literacy measures into further studies and investigate the relationship between narrative, language and literacy development.

Skilled narrators utilized many skills. For example, to focus on the main topic of the story rather than dwell on unrelated information, one needs to plan, monitor and correct. In this intervention, children were repeatedly asked contextual information and evaluation information and this practice helped them to prioritize these types of information and inhibit their impulse of providing other non-vital clues. Indirectly, then the present intervention could have positively impacted executive function skills of planning, inhibiting, and monitoring. Since other studies have demonstrated that Executive Function is important for school achievement too, it is possible that future intervention work could directly examine narrative training impacts on children's academic and Executive Function skills.

Finally, in any future intervention work, it would be important to consider in further detail ways which specific aspects of child-adult interactions can support learning of specific narrative skills. For example, in the present study, the hybrid intervention included components of linguistic, evaluative and story structure domains. The explicit teaching of story grammar may have helped children acquire knowledge of story structure and with more efforts on the sequence of these story grammar components, the children probably would organize these components in a more goal-achieving way.

In conclusion, the hybrid intervention of the present study, with deliberation of design and rigorous control of procedure, was successful and very efficient. After six weeks of intervention, significant improvements were found on children's language assessment and narrative assessment. Investigation of all the narrative measurements revealed prevalent intervention effects on all three narrative tasks. Children in the intervention group showed significantly higher score on linguistic measures of the narrative. They generated more structurally sophisticated stories and included more evaluation information in their narratives. All three components of narratives were positively affected by this intervention in merely six hours. The time efficiency and effect sizes of this study exceeded other intervention studies on children's narrative development. It provided an excellent foundation for further intervention studies. Discussions based on the results of this study also point to several interesting topics which will lead to further studies on different age group, social groups and varied populations.

Chapter 5

Conclusion

There are literature gaps in studies about children's narrative development. Prior to this study, there was no intervention that covered all three domains of narrative. Moreover, while descriptive studies about personal narratives and story narratives were abundant, no experiment ever put them together in one study and compared the children's narrative performance across contexts. Furthermore, it was unclear how language skills related to narrative ability. The purpose of this study was to provide some evidence concerning these issues with the aim of bridging some of the gaps in previous literature on children's narrative development.

Using a hybrid intervention procedure that incorporated syntax recasting, story grammar teaching and evaluatives elicitation, it was found this intervention was successful and efficient. Children in the control and the intervention group showed equivalent performance at pretest on all measures, but on multiple posttest measures, there were significant intervention group advantages. Children in the intervention group generated better, more complex narratives than children in the control group—they used more complement clauses, included more evaluatives, and they also produced narratives with more story grammar components and more complete episodes. The episode complexity levels of their personal narratives were significantly higher than those produced by the control group. The overall language Z score was higher in the intervention group. The score of one language test – sentence recalling test from CELF—was significantly higher in the intervention. Compared with other prior interventions which usually needed 8 to 12 months to significantly improve children's performance, this hybrid intervention

facilitated preschooler's narrative and language skills in a much shorter period. It was very efficient though the long term effect was not evaluated in this study.

Comparison of three domain measures of children's narrative ability across tasks revealed interesting results. In the linguistic domain, complex sentence measures of children's narrative were related across tasks. But measures of story grammar and episode complexity suggested that children might use structural representations differently in contexts of personal narratives and story telling for a wordless picture book. Similarly, measures of evaluatives were not significantly correlated between the story telling task and the personal narrative task.

The hybrid intervention was more efficient in facilitating children's narrative ability compared with prior studies employing single domain intervention or a more general language intervention approach. It was provided to preschoolers at four-to-five years of age. Narrative ability as an important link to school success should be assessed and followed from preschool to kindergarten or primary school to document the development of this ability and whether early interventions have later impact. A longitudinal study with comprehensive measures of language and narrative ability would better answer these questions.

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Appendix

Early Literacy Experience Questionnaire

Please answer the following questions by circling your response.

1. How many books do you have at home?

     Adult books   (1)0-10 (2)11-25 (3)26-50 (4)51-100 (5) >100

     Child books   (1)0-10 (2)11-25 (3)26-50 (4)51-100 (5) >100

2. How often do you read book or magazine/newspaper in a week?

     (1) 0 (2) 1-2 days (3) 3-4 days (4) 5-6 days (5) 7 days

3. Does your child pretend to read the story in a book? (such as sitting with a book and producing

     speech that is similar to the actual story in the book)

     (1) Never (2) Seldom (3) Sometimes (4) Often (5) Always

4. Does your children make up stories and tell them?

     (1) Never (2) Seldom (3) Sometimes (4) Often (5) Always

5. How often do you and your child talk about personal experience such as his/her day at the

     daycare center?

     (1) Never (2) Seldom (3) Sometimes (4) Often (5) Always

6. How often do you or your family bring your child to a library/bookstore?

(1) Never (2) Seldom (3) Sometimes (4) Often (5) Always

7. When did you begin to teach your children learn words?

(1)Never (2) After 4 years old (3) 3-4 years old (4) 2-3 years old (5)1-2 years old (6) birth to 1 year old

8. When did you begin to read to your children?

(1)Never (2) After 4 years old (3) 3-4 years old (4) 2-3 years old (5)1-2 years old (6) birth to 1 year old

9. How often did you read to your children in the past year?

(1) Never (2) Once a month (3) Once a week (4) few times a week (5)everyday

10. How did you read to your children?

(1) I read to my children.

(2) I read with my children and the child will ask questions.

(3) I read with my children and ask questions to my children.

(4) Let the children read by themselves.

11. Does your child ask questions about characters or events during story reading?

(1) Never (2) Once a month (3) Once a week (4) few times a week (5)everyday

12. Do you or your family instruct your children in reading or writing?

   (1) Never (2) Seldom (3) Sometimes (4) Often (5) Always

13. How often do your children read books by themselves?

   (1) Never (2) Once a month (3) Once a week (4) few times a week (5)everyday

14. On weekdays (Monday to Friday) how long will your children watch TV?

   (1)Never (2) Half an hour (3) 0.5-1 hour (4) 1-2 hours (5) more than 2 hours

15 Please tell us the education level of you and your spouse

Mother	Father
(1) Middle School	(1) Middle School
(2) High School	(2) High School
(3) Junior College	(3) Junior College
(4) College	(4) College
(5) Master degree	(5) Master degree
(6) Ph. D.	(6) Ph. D.

VITA

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- Culture Influences

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- 2007   Ph.D.   Developmental Psychology
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Research Experience

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