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# THE STABILITY OF NARRATIVE AND PARADIGMATIC FRAMING OF MOTHER-CHILD COMMUNICATION WITHIN AND ACROSS TASKS

by

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The purpose of this study was to examine three assumptions of Nelson's (1993) theoretical perspective concerning relationships between narrative and paradigmatic mother-child communication and children's cognitive development. These assumptions were: 1) that there are distinct narrative and paradigmatic styles of communication, 2) that mothers show stability in their use of narrative and paradigmatic communication with their young children, within and across contexts, and 3) that children, as an apparent result of internalization, show stability in their use of the form of communication predominantly used by their mothers, both within and across contexts. Four mother-child conversational tasks were used: a descriptive picturebook task, a memory picturebook task, a task in which children recalled the content of the memory picturebook with the help of their mothers, and an autobiographical memory task. In addition, two experimenter-child tasks were used: a descriptive picturebook task and a scripted memory task. The results showed that primarily distinctive narrative styles were used by both mothers and children in the mother-child tasks, while children used narrative styles in one task with the experimenter and both narrative and paradigmatic styles in the other task with the experimenter.

The goal of the task appeared to influence mothers' and children's use of narrative communication across tasks. Mothers' and children's proportional use of narrative communication were much greater in the autobiographical memory task and these levels were unrelated to those in the three tasks which involved information from picturebooks. Children's proportional use of narrative communication in each of the experimenter-child tasks was unrelated to mothers' proportional use of narrative communication in the mother-child descriptive picturebook task. The goal of the task should be considered in future investigations of mother-child narrative and paradigmatic communication.

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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TABLE OF CONTENTS

# CHAPTER I

# INTRODUCTION

## General Statement of the Problem

The present research focuses on how parents, in this case, mothers, communicate with their young children within and across routine activities. Mother-child communication has been studied in a number of settings (Hoff-Ginsberg, 1991), but in the present research, mother-child communication was examined as the basis for a set of theoretical assumptions proposed by Nelson (1993) regarding mother-child communication and children's cognitive development.

Within Nelson's theoretical perspective, generalized event representations, such as scripts, are considered to be basic cognitive structures that young children rely on to understand and remember events (Nelson & Gruendel, 1981). Children are thought to acquire generalized event representations through their interaction with other individuals, but primarily, through parent-child communication (Nelson, 1989, 1992). Nelson (1993) suggests that much of mother-child communication is present in the form of one of two styles of communication, corresponding to what Bruner (1986) has called two modes of thought (i.e., the narrative mode and the paradigmatic mode). The

narrative mode of thought involves focusing on relationships between agents, their intentions, and sequences of actions, while the paradigmatic mode of thought involves focusing on the forms of language which are used to establish and instantiate categories and relate them to one another through generalization, categorization, and conceptualization (Bruner, 1986; Nelson, 1993).

Use by mothers of either a narrative or a paradigmatic style of talk is considered by Nelson to be "a characteristic passed from mother to child" (Nelson, 1993, p. 12). Nelson's (1993) theoretical perspective includes an explicit unidirectional influence; that is, that mothers' narrative and paradigmatic communication influences children's narrative and paradigmatic communication. This unidirectionality does not allow for the possibility that children and mothers may influence each other in their use of narrative and paradigmatic communication, yet there is increasing evidence that many forms of mother-child communication are bidirectional (e.g., Smith, Adamson, & Bakeman, 1988; Sokolov, 1993; Yoder & Kaiser, 1989).

Further, Nelson's (1993) theoretical perspective suggests that characteristic maternal communicative styles exist in a stable manner, both within and across contexts. A mother's style also is assumed to predispose her young child to internalize that form of talk and is assumed to be

adopted by the child as his or her predominant form of talk. These forms of communication are considered not only to be the basis for linguistic differences among mothers and among children, but also to provide a means through which children perceive, interpret, and store information about the world, and thereby, remember the information. For example, Nelson (1993) suggests that mothers who use a narrative mode of communication with their young children may be providing them with a narrative cognitive frame (i.e., a storage structure) important to certain kinds of memory proficiency in young children (e.g., memory for stories, dramatic play, or histories). An extension of this reasoning raises the question of whether mothers who use a paradigmatic mode of communication with their young children may be providing a cognitive frame that is important to other forms of memory, such as memory for objects (Lange & Carroll, 1995).

A key element of Nelson's theoretical perspective is that mothers' narrative and paradigmatic styles of communication are stable both within and across contexts. Use of a narrative or a paradigmatic style is assumed to be a characteristic of mothers, and is assumed to become an acquired characteristic of their children as well. This use of narrative and paradigmatic communication by children is, therefore, also assumed to be stable for children both within and across contexts (Nelson, 1993).

There is little information presently available regarding the stability of narrative and paradigmatic forms of talk used by mothers and by children within and across contexts. There also is little information presently available as to whether children actually internalize these communication forms at all. This study addressed three questions regarding these theoretical assumptions. The first question was whether there are distinct narrative and paradigmatic styles of communication. The second question was whether mothers show stability in their use of either predominantly narrative or predominantly paradigmatic communication with their young children, both within and across contexts. The third question was whether children, as an apparent result of internalization, show stability in their use of the form of communication predominantly used by their mothers, both within and across contexts.

## Background for the Present Research

### Generalized Event Representations

Nelson's (1993) theoretical perspective is based on Bruner's (1986) two modes of thought, the narrative and the paradigmatic. Evidence underlying Nelson's (1993) theoretical perspective comes from research regarding the ways that children form generalized event representations (Bauer & Fivush, 1992; Hudson, Fivush, & Kuebli, 1992; Nelson, 1986; Nelson & Hudson, 1988). Generalized event representations arise from everyday life, through

interaction with culture and with language (Nelson & Hudson, 1988), and they are used to construct conceptualizations such as scripts and categories (Nelson, 1986).

Scripts are characterized by slot fillers, and script members are associated through their relationship to what has preceded and what will follow in an event (Nelson & Hudson, 1988). The language of scripts is characterized by general actions, impersonal pronouns, and the timeless present sense (Hudson et al., 1992). Categories are characterized by "isa" relations, and category members are associated through their relationship to a superordinate node (Nelson & Hudson, 1988). Scripts use temporal sequencing of actions, and are developed through a narrative mode of thought (Nelson, 1993), while categories are considered to be conceptualized and instantiated through a paradigmatic mode of thought (Bruner, 1986; Nelson, 1993).

Very young children have generalized event representations (Bauer & Fivush, 1992), and can use these representations to generalize their knowledge of an event to new instantiations of it (Bauer & Fivush, 1992; Nelson, 1989). Generalized event representations are considered to facilitate performance of task demands (Nelson, 1986). Young children who have a generalized event representation for an event can anticipate and plan actions within the event (Hudson & Fivush, 1991; Nelson, 1986), although their execution of planned action has been found to be less

efficient than that of older children (Hudson & Fivush, 1991).

While generalized event representations, such as scripts, provide a general background for events, specific information about the event is needed in order for children to remember particular episodes (Hudson et al., 1992). This perspective often has been considered as a "script-pointer plus tag" hypothesis, in which specific information is tied to memory for a specific episode (Hudson et al., 1992). Specific information about an event is considered to be the basis for both episodic memory and for autobiographical memory (Nelson, 1993). Autobiographical memory has been something of an enigma for theoreticians and researchers who consider children's memory development (Nelson, 1992). Children and adults seem to remember little about specific episodes in their very early lives, giving rise to the concept of infantile amnesia (Nelson, 1992). Autobiographical memory generally is thought to emerge at approximately age four (Bjorklund, 1989; Nelson, 1992). Children who are younger than four years of age can remember specific episodes if they receive cueing from adults, but for children to have an enduring memory for specific episodes, the memory apparently needs to be reactivated within a certain time frame (Nelson, 1992). Nelson (1992) has suggested that the reason that children of age four are able to remember specific episodes may be that, at about age

four, there are changes in children's mental representations consequent to changes in children's verbal skills. Young children of age four are able to more easily verbalize memory for specific events than are younger children (Nelson, 1992). These children are able to compare their representations of a specific event with the representations verbalized by other people about the same event, in interactions such as parent-child talk about the past (Nelson, 1992). Nelson (1993) indicates that parents' representations of events in parent-child talk about the past benefit children's memory for events by providing children with cognitive frames. These cognitive frames are assumed to serve both interpretive and storage functions for children.

Cognitive Framing Through Parent-Child Communication

There is evidence to indicate that parents do frame events for their young children from a number of studies regarding communication between parents and their children about shared events. These studies indicate that children learn how to remember specific events by learning the forms of language that their parents use (Hudson, 1990).

In a longitudinal study of one mother-child dyad, Hudson (1990) found indications that the child internalized the forms of language that the mother used in talking about the past. As the child became older, and her communicative

skills increased, she became more and more adept at using the forms of language that her mother used.

Peterson and McCabe (1992) indicate that mothers tend to use a topic-extending style or a topic-switching style in talking with their young children about shared events. Mothers who use a topic-extending style give a child who is having difficulty recalling past shared events more information for the child to build upon, while mothers who use a topic-switching style question the child's memory, and independently of how much information is recalled by the child, these mothers move quickly to another topic (Peterson & McCabe, 1992). A longitudinal investigation by Peterson and McCabe (1992) of two topic-extending mothers and their young children indicated that these children internalized the forms of communication that their mothers used in conversations about the past.

Further evidence for cognitive framing through parent-child communication comes from investigations of mother-child and father-child communication about shared events by Fivush and her colleagues (Fivush & Fromhoff, 1988; Fivush, Hamond, Harsch, Singer, & Wolf, 1991; Reese & Fivush, 1993; Reese, Haden, & Fivush, 1993). Two styles of parent-child talk about the past are discussed by Fivush and her colleagues: a high elaborative and a low elaborative (or repetitive) style (Fivush & Fromhoff, 1988; Fivush et al., 1991; Reese & Fivush, 1993; Reese et al., 1993). High

elaborative parents tend to use a style of interaction that encourages the child to participate in the construction of a story about the shared event, while low elaborative or repetitive parents tend to use a testing or prompting mode of interaction with their children to examine the child's memory for the event. Over the several studies published by Fivush and her colleagues, children of high elaborative parents have been shown to recall more about events under discussion than do children of low elaborative or repetitive parents. Theoretically, this difference in recall among children of high elaborative parents versus children of low elaborative parents is associated with the narrative frames that high elaborative parents provide to their children (Reese & Fivush, 1993). Interestingly, in a longitudinal study of mother-child communication about the past, as the children became older, all the mothers in the sample became more elaborative (Reese et al., 1993). Nevertheless, high elaborative mothers retained their larger amount of elaborations (adding new information in the next conversational turn) relative to low elaborative or repetitive mothers (Reese et al., 1993). The elaborative style described by Fivush and her colleagues is considered by Nelson (1993) to be comparable to a narrativizing orientation of interaction.

Bruner's Narrative and Paradigmatic Modes of Thought

While other researchers use different labels (e.g., repetitive versus elaborative styles or topic-extending versus topic-switching styles), Nelson and her students (Nelson, 1993; Tessler, 1991) use Bruner's distinction between narrative and paradigmatic modes of thought to describe mother-child communication with young children. The narrative and the paradigmatic are two complementary modes of thought which allow individuals to interpret information and to order experience (Bruner, 1986). Further, these two modes of thought suggest an association between the ways in which an individual views the world, and an individual's cognition within the world, such as how these different frames may influence problem-solving skills (Snow & Dickinson, 1990).

The narrative mode of thought has an emphasis on information which is context sensitive and particular; experience is located in time and place (Bruner, 1985, 1986). There is a focus on agents and their actions, intentionality, and causality (Bruner, 1990a; Bruner & Lucariello, 1989; Nelson, 1993). Believability is the test of narrative language; a story must have elements (e.g., setting, action, intentions of the characters) which are consistent with each other (Bruner, 1986).

The paradigmatic mode of thought has an emphasis on the abstraction of information for generalization,

categorization, and conceptualization, and focuses on naming and object characteristics (Bruner, 1985, 1986; Nelson, 1993). This mode of thought is considered to be a logico-scientific mode, and involves consistency and noncontradiction. In paradigmatic forms of language, facts, abstracted from specifics, may be tested against theories (Bruner, 1986).

Bruner (1986) notes that the two modes of thought eventually come to reside together. Children are able to use both modes of thought in some workable form, but become more adept at seeing the world from multiple perspectives as they grow to adulthood (Bruner, 1986). There is a large amount of educational and research literature available about the uses of the paradigmatic mode of thought, and about how children acquire the information needed to form categories and conceptualizations (Bruner, 1986; Nelson, 1993). Information processing theory and research have provided much evidence which furthers an understanding of the development of this type of knowledge (Bruner, 1985, 1990b). Much less is known about how children become adept at the narrative mode of thought (Bruner, 1986, 1990b), although there is evidence to indicate that parent-child communication does include both narrative (Peterson & McCabe, 1992; Snow & Dickinson, 1990) and paradigmatic (Callanan, 1990) forms.

Implications of Narrative and Paradigmatic Modes of Thought for Children's Cognitive Development

Nelson's (1993) discussion of parental narrative and paradigmatic orientations includes a theoretical assumption that the ways parents frame language and cognition for young children have an influence on cognitive outcomes for children. Parents, particularly mothers, are assumed to have a characteristic style, that is, a stable mode of framing language and cognition during interactions with their young children. These stable modes of framing communication, it can be argued, predispose the child to internalize the mother's preferred mode of thought; children of narrative mothers will themselves use predominantly narrative forms of talk, and children of paradigmatic mothers will use predominantly paradigmatic modes of talk. These presumably internalized cognitive frames provide a means by which children will perceive, interpret, store, and retrieve information about the world. Children who have a narrative frame are considered by Nelson (1993) to be better able to remember information that is presented in a narrative format (e.g., memory for stories). Following this line of reasoning, Lange and Carroll (1995) have suggested that children who have a paradigmatic frame may be better able to remember information that is presented in a paradigmatic format (e.g., memory for objects hierarchically arranged in categories).

Mothers' Narrative and Paradigmatic Communication Within Tasks

Mothers' narrative and paradigmatic communication to their young children has been examined in only a few studies. There is some question as to whether mothers show as much stability in their use of either narrative or paradigmatic forms of talk within a task as Nelson (1993) believes.

Tessler (1991) examined mothers' communication with their young children in a joint picturebook conversational task, and found that all the mothers in her sample used both narrative and paradigmatic types of talk, although there seemed to be two fairly distinct styles. Narrative mothers used an average of approximately two-thirds narrative talk, while paradigmatic mothers used an average of approximately one-third narrative talk.

Lange and Carroll (1995) have extended this preliminary work on narrative and paradigmatic modes of thought. In that study, mothers were asked, as they were in Tessler's study, to talk with their preschool children about a picturebook. Again, narrative mothers showed approximately two-thirds narrative talk, but paradigmatic mothers showed a much less distinct style of talk. Paradigmatic mothers used approximately half narrative and half paradigmatic talk. These results raise the question as to whether there are two

very distinct styles of talk used by mothers within a picturebook context.

Mothers' Narrative and Paradigmatic Communication Across Tasks

The variability referred to above occurs within a single task. The issue of whether mothers show stability in narrative and paradigmatic forms of communication across tasks has been examined in only one study.

Tessler (1991) examined the relative proportion of narrative and paradigmatic information for the two groups of mothers in her study in two contexts. These contexts were the picturebook conversation mentioned above and a conversation between mothers and children on a picture-taking walk. Narrative mothers used less narrative information in the conversation during the picture-taking walk, with an average of approximately half narrative and half paradigmatic information, versus an average of approximately two-thirds narrative talk in the conversation about a picturebook. Further, the maximum amount of narrative information used by any narrative mother was two-thirds narrative information. Paradigmatic mothers, on the other hand, were more paradigmatic in the conversation during the picture-taking walk than they were in the conversation about the picturebook. During the picture-taking walk, paradigmatic mothers used an average of approximately one-fifth narrative information, and no

paradigmatic mother used more than one-fourth narrative information, whereas the average for the paradigmatic mothers in the conversation about the picturebook was approximately one-third narrative talk. Nelson (1993) indicates that these results further verify the existence of two styles, yet both groups of mothers used less narrative information in the conversation during the picture-taking walk. Further, narrative mothers in the conversation during the picture-taking walk showed essentially equal narrative and paradigmatic forms of communication.

From research regarding other types of mother-child communication across contexts, there is evidence to indicate that the goal of the task may influence the forms of mother-child communication used across contexts. Contexts commonly used in research on mother-child communication, such as book reading and toy play, have shown some differences across contexts, and when the goal of the task varies across contexts, there appears to be even more variability in mothers' communication to their young children (Hoff-Ginsberg, 1991). Hoff-Ginsberg (1991) examined differences in mother-child conversation in four contexts: book reading, toy play, dressing, and mealtime. Results indicated that mothers used the most lexically complex speech during book reading, used the highest rates of conversation-eliciting utterances during mealtime and dressing, and used the highest rate of directives and the

lowest rate of conversation-eliciting utterances during toy play. Sorsby and Martlew (1991) investigated mothers' representational demands to their children across picture book reading and play-doh modelling tasks. In play-doh modelling tasks, mothers made significantly more high level distancing demands to their children than in the picture book reading context. These studies indicate that the goal of the task may have an impact upon communication between mothers and their children, and may be used to question whether the goal of the task may influence narrative and paradigmatic communication used by mothers across tasks.

Children's Narrative and Paradigmatic Communication Within Tasks

With children, there appears to be even greater variability in the use of narrative and paradigmatic communication within tasks. Again, there is some question as to the stability of these forms of communication, even within tasks.

Tessler (1991) found that children of narrative mothers and of paradigmatic mothers were quite similar to their mothers in the amount of narrative information that they used in the joint mother-child picturebook context. Children of narrative mothers averaged approximately two-thirds narrative information, while children of paradigmatic mothers averaged approximately one-third narrative information.

Lange and Carroll (1995) examined children's narrative and paradigmatic forms of talk in the previously mentioned mother-child conversation about a picturebook. Children showed a large amount of variability in the proportion of narrative information that they used in talking with their mothers. Children of narrative mothers used an average of approximately one-half narrative information and one-half paradigmatic information. Children of paradigmatic mothers used an average of approximately one-third narrative information and two-thirds paradigmatic information. These results indicate that two fairly distinct styles may not be as clearly delineated as Nelson (1993) suggests. Further, these results raise the question as to whether children do show evidence of internalization of their mothers' styles. Although Tessler (1991) found that children of both narrative and paradigmatic mothers appeared to use their mothers' predominant form of talk, the findings of Lange and Carroll (1995) indicate that while children of paradigmatic mothers appeared to use their mothers' predominant form of talk, children of narrative mothers did not.

Children's Narrative and Paradigmatic Communication Across Tasks

Children's relative proportion of narrative versus paradigmatic forms of talk across the picture-taking and picturebook conversational contexts were not examined in Tessler's (1991) study. Rather, Tessler (1991) examined

children's narrative and paradigmatic talk in a question-and-answer session with an experimenter in which children were to recall information about the picture-taking walk. Based on the mother's orientation, Tessler (1991) placed the children in a congruent/incongruent paradigm, in which children of narrative mothers were questioned about the picture-taking experience in either a narrative (congruent) or paradigmatic (incongruent) format, and similarly for children of paradigmatic mothers. Children retained their mothers' orientation in their answers to an experimenter regardless of whether they were questioned in a congruent or an incongruent format (Tessler, 1991). Nelson (1993) uses this result to suggest that the characteristic style of the child, which has presumably been internalized from the mother, is resistant to the influence of a different conversational partner.

In order to further test this suggestion of stability across conversational partners, children's relative proportion of narrative versus paradigmatic forms of talk were examined across two picturebook descriptive tasks (Lange & Carroll, 1995). Children were asked to talk, first, with an experimenter about a picturebook, and later, with their mothers about a second picturebook. The experimenter used neutral (neither narrative nor paradigmatic) comments in the conversation with the child. Both groups, children of narrative mothers and children of

paradigmatic mothers, used approximately forty percent of narrative information with the experimenter. Further, both groups of children showed the maximum range of narrative talk with the experimenter, from essentially no narrative talk to essentially all narrative talk. These results certainly draw into question both the stability of children's narrative and paradigmatic communication across tasks, and the internalization by children of their mothers' characteristic style.

Narrative and Paradigmatic Communication and Children's Memory Proficiency

In Tessler's study, children of narrative mothers verbally recalled more about the picture-taking experience than did children of paradigmatic mothers, although recognition memory for the experience was similar among the two groups of children (Tessler, 1991). Nelson (1993) suggests that use of a narrative orientation during the experience of the event may have been more effective in producing a richer memory of the event than use of a paradigmatic orientation.

Lange and Carroll (1995) investigated more fully Nelson's (1993) theoretical suggestion of implications of narrative and paradigmatic talk for differing forms of memory outcomes in children. In that study, children were asked to perform a series of four memory tasks, and the children's scores on the tasks were considered in

association with the narrative and paradigmatic information which mothers and children used to talk about a picturebook. Both mothers' and children's proportional use of narrative statements was positively related to children's recall in story memory tasks, negatively related to children's recall in location memory tasks, and unrelated to children's object recall scores.

## Objectives of the Study

The objectives of this study were to examine three issues regarding the stability of narrative and paradigmatic mother-child communication. The first issue was whether there are distinct narrative and paradigmatic communicative styles used by mothers and by children. The second issue was the stability of mothers' and of children's narrative and paradigmatic forms of talk, both within and across task settings. The third issue was whether children internalize the communicative style of their mothers, and use that style to communicate in a context outside mothers' communication.

Based on Nelson's theoretical views, the following hypotheses were tested:

Hypothesis 1: Significantly greater numbers of mothers and of children show distinct (narrative or paradigmatic), rather than non-distinct (mixed), styles in conversational tasks.

Hypothesis 2: Under spontaneous conversational conditions, mothers and children display a single style

classification across both halves of the task, at a level greater than chance.

Hypothesis 3: Each of the mothers' and the children's proportion of narrative information across four mother-child conversational tasks show less variance attributable to the people X tasks interaction than to people or to tasks.

Hypothesis 4: The proportion of narrative message units that children use in a picturebook descriptive task with an experimenter is positively and significantly correlated with the proportion of narrative message units that mothers use in a mother-child picturebook descriptive task.

Hypothesis 5: The proportion of narrative message units that children use in a scripted memory task with an experimenter is positively and significantly correlated with the proportion of narrative message units that mothers use in a mother-child picturebook descriptive task.

Hypothesis 6: Children's communicative styles in the picturebook descriptive task with the experimenter and the scripted memory task with the experimenter are the same style classification, at a level greater than chance.

# CHAPTER II

# METHOD

## Subjects

Research evidence used by Nelson (1993) as a basis for her theoretical perspective has been obtained using samples of primarily white, middle- to upper-middle-class families (Fivush & Fromhoff, 1988; Tessler, 1991). Children in these studies were of preschool age, primarily 4- and 5-year-olds. These children were usually enrolled in a preschool for at least half-day sessions. Given the comparative purpose of the present study, it was important to have a similar sample. The sample obtained for the present study included thirty-three highly educated mothers (mean educational level 16.1 years) and their preschool children (18 girls, 15 boys; mean age 62.36 months). These mother-child dyads represented primarily white, middle- and upper-middle-class families (97%). Many of the mothers in this sample did not work outside the home at the time of data collection (39%). As would be expected by the high educational level of these mothers, a wide range of professional occupations was represented in the sample (e.g., anthropologist, artist, biologist, manager/director, musician, physicist, teacher). All children were enrolled in a preschool class for at least a half-day, two days per week.

## Design

Children and their mothers participated in two sessions of data collection. In Session 1, held either at the child's preschool or at the child's home, each child was asked to participate with the experimenter in a rapport-establishing game (a subset of the children's Memory game). Following this game, each child was asked to participate with the experimenter in a scripted memory task and in a picturebook descriptive task. The order of the scripted memory task and the picturebook descriptive task with the experimenter was counterbalanced. During the time that the child was working with the experimenter, each mother was asked to complete a short demographics questionnaire. Following the experimenter-child tasks, each child was asked to participate with his or her mother in a picturebook descriptive task. Session 2 was held approximately a week (mean 6.2 days) after Session 1, at the same location. In Session 2, each child was asked to participate with his or her mother in a picturebook task which had a memory goal for the child. Immediately following the memory picturebook task, each mother was asked to help her child recall the contents of the picturebook used during the memory picturebook task. Each child also was asked to participate with his or her mother in an autobiographical memory task. The order of performance of the memory picturebook task and the autobiographical memory task was counterbalanced.

## Materials, Instruments, and Instrument Scoring

### Mother-Child Descriptive Picturebook Task

The Mother-Child Descriptive Picturebook Task was used to assess the stability of narrative and paradigmatic mother-child communication within a task. This task also was one of four tasks (i.e., Mother-Child Descriptive Picturebook Task, Memory Picturebook Task, Child's Recall Task, Autobiographical Memory Task) used to assess narrative and paradigmatic mother-child communication across tasks and used to assess the existence of distinct communicative styles used in mother-child communication. This task was administered, under spontaneous conversational conditions, to assess the mother's and the child's focus on narrative and on paradigmatic information. The materials for the Mother-Child Descriptive Picturebook Task consisted of a picturebook with four uncaptioned, unpaginated, unsequenced pages. These pages could be used as easily with a narrative as with a paradigmatic focus. These pages depicted various settings and included people, animals, objects, and activities. The settings were a city, a playground, a store, and a farm. Analysis of a subgroup (approximately 30%) of mothers and children from a previous sample (Lange & Carroll, 1995) through a paired t-test indicated no bias in the proportion of narrative information used between pages one and two (city and playground) and three and four (store and farm) in the picturebook. The order of the picturebook

pages was counterbalanced. Fifty percent of the mother-child dyads were randomly assigned to Page Order 1, and the remaining fifty percent of the mother-child dyads were assigned to Page Order 2. Page Order 1 received pages 1, 2, 3, and 4 while Page Order 2 received pages 4, 3, 2, and 1.

Instructions to mothers and children are shown in Appendix A. The mother's and the child's talk in the Mother-Child Descriptive Picturebook Task were coded as message units. Message units are single meaningful statements or questions (Davis & Lange, 1973). Message units were then coded as behavior/performance, acceptance, rejection, repetition, narrative, or paradigmatic message units (Lange & Carroll, 1995). Behavior/performance message units refer to either conversational partner's behavior or performance (e.g., verbal reinforcement, attention-drawing statements). Acceptance message units refer to an agreement with the conversational partner's previous statement, while rejection message units refer to a disagreement with the conversational partner's previous statement. Neither acceptance nor rejection message units add information. Repetitions refer to a repetition of either the exact wording or the gist of the conversational partner's previous statement. Narrative and paradigmatic message units were coded using Tessler's (1991) coding system of Bruner's (1986) narrative and paradigmatic modes of thought. Two exceptions were made to Tessler's (1991) coding scheme.

Tessler (1991) indicated that a category for "possessive" in the narrative codes was used infrequently, but Lange and Carroll (1995) found a number of instances in which this category was needed. In addition, the category for "color" was moved from the narrative to the paradigmatic codes, based on the finding that this code was more likely to be found in the conversation of mothers who used predominantly paradigmatic forms of talk (Lange & Carroll, 1995). The narrative and paradigmatic coding scheme is shown in Appendix B. Narrative message units and paradigmatic message units were summed to compute a total number of narrative and paradigmatic message units. The proportion of narrative message units and the proportion of paradigmatic message units used by the mother and by the child were computed. The mother's style and the child's style for pages one and two versus pages three and four of the picturebook were designated. Sixty to one hundred percent narrative message units designated a narrative style, while sixty to one hundred percent paradigmatic message units designated a paradigmatic style, and less than sixty percent of either narrative or paradigmatic message units designated a mixed style.

Memory Picturebook Task

The Memory Picturebook Task was administered to assess the proportion of narrative versus paradigmatic information used by the mother and by the child when the goal of the

task was for the child to remember as much as he or she could about the content of the picturebook pages. The pages for the Memory Picturebook Task were similar to the pages for the Mother-Child Descriptive Picturebook Task and consisted of two uncaptioned, unsequenced, unpaginated pages which depicted settings of a party and a seaside. Instructions to mothers and children are shown in Appendix A. The mother's and the child's proportion of narrative and proportion of paradigmatic talk were coded and computed in the same manner as the proportion of narrative and proportion of paradigmatic information in the Mother-Child Descriptive Picturebook Task. The proportion of narrative and the proportion of paradigmatic information used by the mother and by the child in this task were used to designate communication styles in this context in the same manner as the designation of communication styles in the Mother-Child Descriptive Picturebook Task.

Child's Recall Task

The Child's Recall Task was administered to assess the mother's and the child's use of narrative and paradigmatic descriptions of information during a task in which mothers were encouraged to help their children remember the content of the Memory Picturebook pages. Each child was asked to recall as much as he or she could about the Memory Picturebook, and each mother was asked to help the child remember. Instructions to mothers and children are shown in

Appendix A. The proportion of narrative and the proportion of paradigmatic information in the mother's and the child's talk were coded and computed in the same manner as the proportion of narrative and the proportion of paradigmatic information in the Mother-Child Descriptive Picturebook Task. The proportion of narrative and the proportion of paradigmatic information used by the mother and by the child in this task were used to designate communication styles in this context in the same manner as the designation of communication styles in the Mother-Child Descriptive Picturebook Task.

Autobiographical Memory Task

The Autobiographical Memory Task was administered to assess the mother's and the child's generation of narrative versus paradigmatic information in talk about a past event. The event discussed included both mother and child, although it may have included other family members and/or friends. The event was restricted to a one-time occurrence which took place during the time-span of one day, and which did not include a story line, such as a movie or a play (Reese et al., 1993). Instructions to mothers and children are shown in Appendix A. The proportion of narrative and the proportion of paradigmatic information in the mother's and the child's talk were coded and computed in the same manner as the proportion of narrative and the proportion of paradigmatic information in the Mother-Child Descriptive

Picturebook Task. The proportion of narrative and the proportion of paradigmatic information used by the mother and by the child in this task were used to designate communication styles in this context in the same manner as the designation of communication styles in the Mother-Child Descriptive Picturebook Task.

Experimenter-Child Descriptive Picturebook Task

The Experimenter-Child Descriptive Picturebook Task was one of two tasks (i.e., Experimenter-Child Descriptive Picturebook Task, Scripted Memory Task) used to assess the internalization by children of their mothers' styles, by assessing the child's style in a context outside of mothers' communication. This task also was one of two tasks (i.e., Experimenter-Child Descriptive Picturebook Task, Scripted Memory Task) used to assess the existence of distinct communicative styles used by children in communication with an experimenter. The Experimenter-Child Descriptive Picturebook Task was administered to assess the child's focus on narrative or on paradigmatic information in a conversational context with the experimenter, in which the experimenter maintained neutral (neither narrative nor paradigmatic) comments. The picturebook pages for this task were similar to the picturebook pages for the Mother-Child Descriptive Picturebook Task and consisted of two uncaptioned, unsequenced, unpaginated pages which depicted settings of a park and a marketplace. Instructions to

children are shown in Appendix A. The proportion of narrative and the proportion of paradigmatic information in the child's talk were coded and computed in the same manner as the proportion of narrative and the proportion of paradigmatic information in the Mother-Child Descriptive Picturebook Task. The proportion of narrative and the proportion of paradigmatic information used by the child in this task were used to designate communication styles in this context in the same manner as the designation of communication styles in the Mother-Child Descriptive Picturebook Task.

Scripted Memory Task

The Scripted Memory Task was used as a measure of the child's generation of narrative versus paradigmatic information in talk with the experimenter about a typical school day. Children were asked by the experimenter to describe what happens at school (Adams & Worden, 1986). General prompts to the child were followed by more specific, temporal prompts (Nelson, 1978). Instructions to the child are shown in Appendix A. The proportion of narrative information and the proportion of paradigmatic information in the child's talk were coded and computed in the same manner as the proportion of narrative and the proportion of paradigmatic information in the Mother-Child Descriptive Picturebook Task. The proportion of narrative and the proportion of paradigmatic information used by the child in

this task were used to designate communication styles in this context in the same manner as the designation of communication styles in the Mother-Child Descriptive Picturebook Task.

Parental Questionnaire

The Parental Questionnaire consisted of 18 questions used to obtain demographic information about the sample (Lange & Carroll, 1995). Questions #1 through #5 included information regarding the child's age, gender, race/ethnicity, and number and ages(s) of siblings. Questions #6 through #12 included information regarding the child's current and previous part-day or full-day preschool enrollment. Questions #13 through #18 included items regarding educational and occupational information about the child's parent(s). The complete Parental Questionnaire is shown in Appendix C.

## General Procedure

Session 1 took place either at the child's preschool or at the child's home. After establishing rapport with the child, the experimenter asked each child to participate in the Experimenter-Child Descriptive Picturebook Task and in the Scripted Memory Task. Each mother was asked to complete the Parental Questionnaire while her child was working with the experimenter. Following these tasks, each child was asked to participate with his or her mother in the Mother-Child Descriptive Picturebook Task. All of the tasks were

audiotaped. At the end of Session 1, the place, date, and time for Session 2 were confirmed with the mother.

Session 2 was held approximately a week after Session 1, at the same location. In Session 2, each child was asked to participate with his or her mother in three tasks. These three tasks were the Memory Picturebook Task, the Child's Recall Task, and the Autobiographical Memory Task. All of the tasks were audiotaped. Following the completion of data collection, mothers and their children were thanked for their participation in the study.

# CHAPTER III

# RESULTS

The results summarized in this chapter were obtained in order to examine the three objectives of the study. These objectives were: 1) to examine evidence of distinct narrative and paradigmatic communicative styles used by mothers and by children, 2) to examine the stability of mothers' and of children's narrative and paradigmatic forms of talk, both within and across task settings, and 3) to examine evidence which would indicate that children internalize the communicative styles of their mothers and use those styles in a communicative context outside their mothers' communication.

## Reliability of Coded Message Units

Inter-rater reliability for coding was determined for mothers and for children by two independent coders, each of whom coded protocols for the Mother-Child Descriptive Picturebook Task and the Autobiographical Memory Task. Eleven protocols (one-third of the sample) were coded for each task. For the Mother-Child Descriptive Picturebook Task, 1542 message units were coded for mothers (mean = 140.18) and 1016 message units were coded for children (mean = 92.36). For the Autobiographical Memory Task, 1131 message units were coded for mothers

(mean = 102.82) and 649 message units were coded for children (mean = 59.00).

Percentage of agreement was obtained for mothers and for children separately in each of the tasks for 1) total number of message units spoken, and 2) overall designations of narrative and paradigmatic codes. For the Mother-Child Descriptive Picturebook Task protocols, percentage of agreement for total number of message units spoken was 99.00% for mothers and 98.18% for children, and percentage of agreement for overall designations of narrative and paradigmatic codes was 94.73% for mothers and 97.91% for children. For the Autobiographical Memory Task protocols, percentage of agreement for total number of message units spoken was 99.09% for mothers and 99.64% for children, and percentage of agreement for overall designations of narrative and paradigmatic codes was 95.64% for mothers and 96.27% for children.

After establishing satisfactory reliability, the remainder of the protocols were coded by the present author, who had established reliability with at least one other person using Tessler's (1991) coding system in a previous study (Lange & Carroll, 1995). In that previous study, percentage of agreement was based on more than 1300 message units. Percentage of agreement for total number of message units spoken was 96.40% for mothers and 97.30% for children. Percentage of agreement for overall designations of

narrative and paradigmatic codes was 89.60% for mothers and 90.20% for children (Lange & Carroll, 1995).

For each of the four mother-child conversational tasks, narrative and paradigmatic message units were summed for each individual, and the proportion of narrative talk and the proportion of paradigmatic talk were calculated. For the two experimenter-child conversational tasks, narrative and paradigmatic message units were summed for each child, and the proportion of narrative talk and the proportion of paradigmatic talk were calculated.

General Comparisons of Performance Across Tasks

The present study employed four tasks for assessing mother-child narrative and paradigmatic communication and two tasks for assessing children's narrative and paradigmatic communication with an experimenter. The four mother-child tasks were selected in order to provide differential task goals for mothers. The Mother-Child Descriptive Picturebook Task had a descriptive goal, whereas the Memory Picturebook Task had a teaching-for-memory goal. The Child's Recall Task had a retrieval assistance goal and the Autobiographical Memory Task had a reconstructive goal. These four mother-child tasks also were carefully selected on grounds that some tasks were expected to yield more narrative communication (i.e., the Mother-Child Descriptive Picturebook Task and the Autobiographical Memory Task), whereas other tasks were expected to yield less narrative

communication (i.e., the Memory Picturebook Task and the Child's Recall Task). Similarly, of the two experimenter-child tasks, children were expected to exhibit more narrative information in the Scripted Memory Task than in the Experimenter-Child Descriptive Picturebook Task.

Table 1 shows comparisons of the mother-child tasks, both in raw numbers of message units and in proportions of narrative and paradigmatic message units. As can be seen from the last column of Table 1, mothers used more message units than did children in each of the tasks ($p < .01$ for all mother-child comparisons). The finding that both mothers and children had significantly more message units in the Mother-Child Descriptive Picturebook Task than in each of the Memory Picturebook Task ($p < .001$), the Child's Recall Task ($p < .001$), and the Autobiographical Memory Task ($p < .001$) is not surprising as the picturebook for the Mother-Child Descriptive Picturebook Task consisted of four pages while the picturebook for the Memory Picturebook Task and Child's Recall Task consisted of only two pages, and the Autobiographical Memory Task was typically completed in a shorter period of time than the Mother-Child Descriptive Picturebook Task.

The comparisons of primary interest here involve mothers' and children's relative use of narrative and paradigmatic talk in tasks having different goals. Contrary to expectations, the proportion of narrative message units

Table 1

Mean Number and Proportion of Message Units Used Across Mother-Child Tasks (Standard Deviations in Parentheses)

| | Number of Narrative Units | Proportion of Narrative Units | Number of Paradigmatic Units | Proportion of Paradigmatic Units | Number of Total Units |
|---|---|---|---|---|---|
| Mother-Child Descriptive Picturebook | | | | | |
| Mothers | 72.85 | 64.46 | 37.39 | 35.54 | 110.24 |
| | (44.89) | (11.49) | (23.56) | (11.49) | (62.39) |
| Children | 43.00 | 49.14 | 41.64 | 50.86 | 84.64 |
| | (24.97) | (12.78) | (18.24) | (12.78) | (38.97) |
| Autobiographical Memory Task | | | | | |
| Mothers | 51.45 | 78.58 | 14.24 | 21.42 | 65.70 |
| | (30.81) | (12.17) | ( 9.31) | (12.17) | (36.65) |
| Children | 24.58 | 67.60 | 11.73 | 32.40 | 36.30 |
| | (17.08) | (17.55) | ( 8.72) | (17.55) | (20.62) |
| Memory Picturebook | | | | | |
| Mothers | 41.67 | 60.70 | 24.36 | 39.30 | 66.03 |
| | (31.29) | (15.50) | (18.07) | (15.50) | (43.10) |
| Children | 20.55 | 55.44 | 16.12 | 44.56 | 36.67 |
| | (11.54) | (18.35) | (11.09) | (18.35) | (16.69) |
| Child's Recall | | | | | |
| Mothers | 32.09 | 59.56 | 19.94 | 40.44 | 52.03 |
| | (19.93) | (13.92) | (11.18) | (13.92) | (27.62) |
| Children | 17.21 | 54.07 | 14.79 | 45.93 | 32.00 |
| | ( 9.35) | (18.48) | ( 9.04) | (18.48) | (14.75) |

used by mothers in the Mother-Child Descriptive Picturebook Task did not exceed that used by mothers in the Memory Picturebook Task ($t^{(32)} = 1.44$, $p > .05$), and was only marginally higher than the proportion of narrative message units used by mothers in the Child's Recall Task ($t^{(32)} = 1.97$, $p = .058$). Also contrary to expectations, children exhibited significantly lower proportions of narrative talk in the Mother-Child Descriptive Picturebook Task than in the Memory Picturebook Task ($t^{(32)} = -2.03$, $p = .05$).

As expected, mothers used a significantly higher proportion of narrative message units in the Autobiographical Memory Task than in the Memory Picturebook Task ($t^{(32)} = 4.87$, $p < .001$), the Child's Recall Task ($t^{(32)} = 5.81$, $p < .001$), and the Mother-Child Descriptive Picturebook Task ($t^{(32)} = 4.55$, $p < .001$). For children, the proportion of narrative message units used in the Autobiographical Memory Task was also significantly higher than that used in the Memory Picturebook Task ($t^{(32)} = 3.00$, $p < .01$), the Child's Recall Task ($t^{(32)} = 3.33$, $p < .01$), and the Mother-Child Descriptive Picturebook Task ($t^{(32)} = 4.83$, $p < .001$).

Comparisons of the experimenter-child tasks are shown in Table 2. As expected, children used a significantly greater proportion of narrative message units in the Scripted Memory Task than in the Experimenter-Child

Table 2

Mean Number and Proportion of Message Units Used By Children Across Experimenter-Child Tasks (Standard Deviations in Parentheses)

| | Number of Narrative Units | Proportion of Narrative Units | Number of Paradigmatic Units | Proportion of Paradigmatic Units | Number of Total Units |
|---|---|---|---|---|---|
| Experimenter-Child Descriptive Picturebook Task | | | | | |
| | 12.61 | 44.69 | 18.88 | 55.31 | 31.48 |
| | (12.22) | (28.44) | (17.78) | (28.44) | (23.77) |
| Scripted Memory Task | | | | | |
| | 10.97 | 84.20 | 2.09 | 15.80 | 13.06 |
| | ( 4.98) | (13.57) | ( 2.26) | (13.57) | ( 5.48) |

Descriptive Picturebook Task ($t^{(32)} = 8.38$, $p < .001$). Although interpersonal expectancy effects in experimenter-child communication should be acknowledged (e.g., Rosenthal, 1976; 1985), it appears likely that the goal of the task may have influenced children's narrative and paradigmatic communication.

Evidence of Distinct Narrative and Paradigmatic Styles

Evidence for distinct narrative and paradigmatic styles was examined through one-way chi-square analyses with two

groups. The two groups were "distinct style" (narrative or paradigmatic) and "non-distinct style" (mixed). The distinctiveness of an individual's style was determined by the proportion of narrative and paradigmatic information used by the individual in the task. A distinct narrative style was designated by sixty to one hundred percent narrative message units, a distinct paradigmatic style was designated by sixty to one hundred percent paradigmatic message units, and a mixed style was designated by less than sixty percent of either narrative or paradigmatic message units. A large amount of variation in style designation was found across the conversational tasks, as shown in Table 3.

Chi-square analyses were performed separately on mothers' and children's style designations (distinct or non-distinct) for each of the four mother-child tasks. In addition, chi-square analyses were performed on children's style designations for the two experimenter-child tasks. Expected frequencies for distinct versus non-distinct styles were set a priori; fifty percent of the individuals were expected to show a distinct style and fifty percent of the individuals were expected to show a non-distinct style.

Significantly more distinct than non-distinct styles were found for mothers in the mother-child tasks, with the exception of the Child's Recall Task. A majority of mothers showed distinct styles in the Autobiographical Memory Task (narrative, n=32, paradigmatic, n=0; $\chi^{2(1)} = 29.12$,

Table 3

Percentage of Individuals Showing Narrative, Paradigmatic, and Mixed Styles (60% Criterion) in Conversational Tasks

| | Narrative | Paradigmatic | Mixed |
|---|---|---|---|
| Autobiographical Memory Task | | | |
| Mothers | 97 | 0 | 3 |
| Children | 73 | 9 | 18 |
| Mother-Child Descriptive Picturebook Task | | | |
| Mothers | 70 | 3 | 27 |
| Children | 18 | 30 | 52 |
| Memory Picturebook Task | | | |
| Mothers | 64 | 9 | 27 |
| Children | 49 | 21 | 30 |
| Child's Recall Task | | | |
| Mothers | 52 | 9 | 39 |
| Children | 33 | 21 | 46 |
| Experimenter-Child Descriptive Picturebook Task | | | |
| Children | 33 | 43 | 24 |
| Scripted Memory Task | | | |
| Children | 94 | 0 | 6 |

$p < .001$), the Mother-Child Descriptive Picturebook Task (narrative, n=23, paradigmatic, n=1; $\chi^{2(1)} = 6.82$, $p < .01$), and the Memory Picturebook Task (narrative, n=21, paradigmatic, n=3; $\chi^{2(1)} = 6.82$, $p < .01$). For mothers in the Child's Recall Task, the chi-square did not reach significance (narrative, n=17, paradigmatic, n=3; $\chi^{2(1)} = 1.48$, $p > .05$). In each of the four tasks, it is clear that mothers who were using a distinct style were overwhelmingly using a narrative style. There was little evidence for a distinct paradigmatic style.

Children showed less evidence of having distinct styles than did mothers in the mother-child tasks. A majority of children showed distinct styles in the Autobiographical Memory Task (narrative, n=24, paradigmatic, n=3; $\chi^{2(1)} = 13.36$, $p < .001$) and the Memory Picturebook Task (narrative, n=16, paradigmatic, n=7; $\chi^{2(1)} = 5.12$, $p < .05$). Chi-square analyses for children's distinct styles did not reach significance in the Child's Recall Task or in the Mother-Child Descriptive Picturebook Task; in each of these tasks, approximately half of the children tended to focus on similar amounts of narrative and paradigmatic information. These results indicate that when evidence for distinct styles was found for children in the mother-child tasks, children were using primarily narrative styles.

Chi-square analyses were less conclusive in identifying distinct styles among children in the two experimenter-child

tasks. Although significantly more distinct than non-distinct styles were found for children in both the Experimenter-Child Descriptive Picturebook Task ($\chi^{2(1)} = 8.76$, $p < .01$) and in the Scripted Memory Task, ($\chi^{2(1)} = 25.48$, $p < .001$), the relative numbers of narrative and paradigmatic styles were quite different in the two tasks. Whereas narrative styles (n=11) and paradigmatic styles (n=14) were fairly evenly distributed in the Experimenter-Child Descriptive Picturebook Task, children overwhelmingly used a narrative style in the Scripted Memory Task (narrative, n=31, paradigmatic, n=0).

Stability of Mothers' and Children's Narrative and Paradigmatic Communication

Analyses of Stability Within A Task. Within-task stability was examined, with kappa coefficient analyses, for mothers and for children, by examining the consistency of style classification across the first half and the second half of the Mother-Child Descriptive Picturebook Task.

Kappa values range from -1.00 to +1.00 (Suen & Ary, 1989). A kappa value of +1.00 would indicate perfect agreement of style classification across both halves of the task, while a kappa value of -1.00 would indicate complete disagreement. A kappa value near 0 indicates no more agreement of style classification across both halves of the task than would be expected by chance (Suen & Ary, 1989).

Table 4

Numbers of Mothers Classified as Narrative, Paradigmatic, or Mixed Style (60% Criterion) Across the First and Second Halves of the Mother-Child Descriptive Picturebook Task

| | | First Half of Task | | |
|---|---|---|---|---|
| | | Narrative | Paradigmatic | Mixed |
| Second Half of Task | Narrative | 20 | 2 | 1 |
| | Paradigmatic | 0 | 1 | 1 |
| | Mixed | 7 | 0 | 1 |

Table 4 shows that, when using a 60% style criterion, although 22 of the 33 mothers held the same style classification (narrative, paradigmatic, or mixed) across the two halves of the task, this result is not greater than would be expected by chance (K = .1713). Using the more lenient 50% style criterion used by Tessler (1991), Table 5 shows that 24 of the 33 mothers had a consistent narrative or paradigmatic style across the first and second halves of the task, again yielding a non-significant result for the kappa coefficient analysis (K = .0326).

It can be argued that the kappa coefficient imposes too rigorous a standard in judging the stability of mothers' styles within a task, and that a fairer procedure is to examine bivariate correlations of the proportions of

Table 5

Numbers of Mothers Classified as Narrative or Paradigmatic Style (50% Criterion) Across the First and Second Halves of the Mother-Child Descriptive Picturebook Task

| | | First Half of Task | |
|---|---|---|---|
| | | Narrative | Paradigmatic |
| Second Half of Task | Narrative | 23 | 3 |
| | Paradigmatic | 6 | 1 |

narrative message units that mothers use across both halves of the task. However, this correlation of mothers' proportions of narrative message units used in the first and second halves of the task was not statistically significant ($r = .28$, $p > .05$).

Table 6 shows that when using a 60% style criterion only 11 of the 33 children can be classified consistently as using a narrative, a paradigmatic, or a mixed style across the two halves of the task. This result is not greater than would be expected by chance ($K = -.0239$). Using the more lenient 50% style criterion, Table 7 shows that only 14 of the 33 children can be classified as using a narrative or a paradigmatic style consistently across the first and the second halves of the task. Again, this result is not

Table 6

Numbers of Children Classified as Narrative, Paradigmatic, or Mixed Style (60% Criterion) Across the First and Second Halves of the Mother-Child Descriptive Picturebook Task

| | | First Half of Task | | |
|---|---|---|---|---|
| | | Narrative | Paradigmatic | Mixed |
| Second Half of Task | Narrative | 2 | 4 | 4 |
| | Paradigmatic | 1 | 3 | 4 |
| | Mixed | 6 | 3 | 6 |

greater than would be expected by chance (K = -.1422). Similarly to the results obtained for mothers, the correlation of children's proportions of narrative message units used in the first and second halves of the task was not statistically significant ($r = .17$, $p > .05$).

However, given the increasing evidence that mother-child communication is bidirectional (e.g., Yoder & Kaiser, 1989), the stability of narrative and paradigmatic communication within a task may be influenced by mothers' and children's narrative and paradigmatic communication to each other. Mothers' and children's proportional use of narrative message units are marginally correlated for the entire task ($r = .32$, $p = .067$), are not significantly correlated in the first half of the task ($r = .27$, $p > .05$),

Table 7

Numbers of Children Classified as Narrative or Paradigmatic Style (50% Criterion) Across the First and Second Halves of the Mother-Child Descriptive Picturebook Task

| | | First Half of Task | |
|---|---|---|---|
| | | Narrative | Paradigmatic |
| Second Half of Task | Narrative | 9 | 12 |
| | Paradigmatic | 7 | 5 |

but are significantly correlated in the second half of the task ($r = .42$, $p < .05$). These results indicate mothers' and children's narrative and paradigmatic communication is more similar during the second half of the task. Although the possibility of interpersonal expectancy effects between the experimenter and the mother-child dyad should be noted (e.g., Rosenthal, 1976; 1985), the experimenter typically sat at some distance from mothers and children as they performed the task.

Analyses of Stability Across Tasks. Across-task stability was examined separately for mothers and for children, with crossed generalizability analyses, in order to examine whether mothers' and children's scores on one task generalize to other tasks. In each analysis, the

scores for an individual were the proportions of narrative message units used in each of the four mother-child tasks.

In each crossed generalizability analysis, an analysis of variance was computed, yielding sums of squares and mean squares for each of three factors: 1) people (mothers or children), 2) tasks, and 3) people X tasks interaction. An expected mean square for each factor was then calculated to obtain separate estimates of each variance component. The sum of the estimated variance components was then used to calculate the percentage of the sum that was accounted for by each estimated variance component.

Estimated variance components are interpreted by their relative magnitudes (Shavelson & Webb, 1991). If the greatest percentage of the variance is attributed to the factor for people (e.g., mothers or children), relative to the tasks and the people X tasks interaction, then the results would indicate that most of the variability can be attributed to differences between people regardless of task. If the greatest percentage of the variance is attributable to the factor for tasks, relative to the factors for the people and the people X tasks interaction, then the results would indicate that most of the variability can be attributed to the tasks themselves. However, if the greatest percentage of the variance is attributable to the factor for the people X task interaction, then the results indicate that most of the variability can be attributed to

Table 8

Percentage of Total Variance Attributable to Mothers, Tasks, and the Mothers X Tasks Interaction

| Source of Variation | Sums of Squares | df | Mean Squares | Estimated Variance Components | Percentage of Total Variance |
|---|---|---|---|---|---|
| Mothers | 8728.409 | 32 | 272.763 | 31.389 | 12 |
| Tasks | 7589.061 | 3 | 2529.687 | 72.196 | 29 |
| Mothers X Tasks | 14131.865 | 96 | 147.207 | 147.207 | 59 |

differences in the relative standing of persons across tasks (Shavelson & Webb, 1991).

Results of the crossed generalizability analyses for mothers and for children are shown in Tables 8 and 9, respectively. Clearly, for both mothers and children, the greatest percentage of the variance in the proportion of narrative message units is attributable to the interaction factor. These results indicate that both mothers and children appear to shift positions in their own distributions, depending upon the differential requirements of the tasks. Tables 10 and 11 show bivariate correlations of mothers' and of children's proportional use of narrative message units across tasks. These results indicate that, for both mothers and children, the Mother-Child Descriptive Picturebook Task, the Memory Picturebook Task, and the

Table 9

Percentage of Total Variance Attributable to Children, Tasks, and Children X Tasks Interaction

| Source of Variation | Sums of Squares | df | Mean Squares | Estimated Variance Components | Percentage of Total Variance |
|---|---|---|---|---|---|
| Children | 16290.915 | 32 | 509.091 | 73.905 | 22 |
| Tasks | 6081.023 | 3 | 2027.008 | 54.956 | 16 |
| Children X Tasks | 20493.352 | 96 | 213.472 | 213.472 | 62 |

Child's Recall Task are all related to each other (although for children, the Mother-Child Descriptive Picturebook Task and the Child's Recall Task are only marginally related). The Autobiographical Memory Task is unrelated to the other three tasks. While some stability is evident across three of the tasks, it is apparent that the goal of the Autobiographical Memory Task may have been sufficiently different from the other mother-child tasks as to influence mothers' and children's narrative and paradigmatic communication.

Children's Internalization of Mothers' Styles

Correlational Analyses. In an attempt to examine whether children internalize their mothers' styles and use these styles in different tasks, bivariate correlational analyses were performed between mothers' and children's use

Table 10

Bivariate Correlations of Mothers' Proportional Use of Narrative Message Units Across the Four Mother-Child Tasks

| | Memory Picturebook Task | Child's Recall Task | Autobiographical Memory Task |
|---|---|---|---|
| Mother-Child Descriptive Picturebook | .41* | .38* | -.13 |
| Memory Picturebook Task | | .50** | -.15 |
| Child's Recall Task | | | -.03 |

(* $p < .05$, ** $p < .01$, *** $p < .001$)

of narrative and paradigmatic talk in different contexts. Mothers' proportional use of narrative message units in the Mother-Child Descriptive Picturebook Task was found to be unrelated to children's proportional use of narrative message units in the Experimenter-Child Descriptive Picturebook Task ($r = .03$, $p > .05$) and the Scripted Memory Task ($r = .28$, $p > .05$), indicating little evidence that children have internalized their mothers' styles for use in talking with an experimenter. Given that bidirectionality in mother-child communication appears to be influencing both mothers' and children's narrative and paradigmatic

Table 11

Bivariate Correlations of Children's Proportional Use of Narrative Message Units Across the Four Mother-Child Tasks

| | Memory Picturebook Task | Child's Recall Task | Autobiographical Memory Task |
|---|---|---|---|
| Mother-Child Descriptive Picturebook | .39* | .31 | -.02 |
| Memory Picturebook Task | | .53*** | .16 |
| Child's Recall Task | | | .16 |

(* $p < .05$, ** $p < .01$, *** $p < .001$)

communication in the Mother-Child Descriptive Picturebook Task, however, it may be that children's proportional use of narrative message units is comparable across similar tasks with their mothers and with the experimenter. Children's proportional use of narrative message units in the Mother-Child Descriptive Picturebook Task and in the Experimenter-Child Descriptive Picturebook Task are significantly correlated ($r = .39$, $p < .05$). However, when comparing a dissimilar task (i.e., the Scripted Memory Task), children's proportional use of narrative message units in the Mother-Child Descriptive Picturebook Task is unrelated ($r = .20$,

Table 12

Number of Children Classified as Narrative, Paradigmatic, or Mixed Style (60% Criterion) Across Scripted Memory Task and Experimenter-Child Descriptive Picturebook Task

| | | Scripted Memory Task | | |
|---|---|---|---|---|
| | | Narrative | Paradigmatic | Mixed |
| Experimenter-Child Descriptive Picturebook Task | Narrative | 11 | 0 | 0 |
| | Paradigmatic | 12 | 0 | 2 |
| | Mixed | 8 | 0 | 0 |

$p > .05$), indicating that the goal of the Scripted Memory Task may have influenced children's narrative and paradigmatic communication with the experimenter. Additionally, bivariate correlations of children's proportional use of narrative message units in the Experimenter-Child Descriptive Picturebook Task and the Scripted Memory Task are only marginally related ($r = .34$, $p = .056$).

Kappa Coefficient Analyses. Since internalization by children of their mothers' styles presumes that children use a preferred mode of talk in different conversational contexts, kappa coefficient analyses were used to determine whether children would be classified with the same style designations across the two tasks in which children talked

Table 13

Number of Children Classified as Narrative or Paradigmatic Style (50% Criterion) Across Scripted Memory Task and Experimenter-Child Descriptive Picturebook Task

| | | Scripted Memory Task | |
|---|---|---|---|
| | | Narrative | Paradigmatic |
| Experimenter-Child Descriptive Picturebook Task | Narrative | 13 | 0 |
| | Paradigmatic | 19 | 1 |

with an experimenter (i.e., the Experimenter-Child Descriptive Picturebook Task and the Scripted Memory Task). Given the marginal correlation of children's proportional use of narrative message units across the two experimenter-child tasks, it is unsurprising to find (as shown in Tables 12 and 13) that only approximately one-third of the children can be classified as maintaining a narrative, a paradigmatic, or a mixed style across the two tasks. This result is not greater than would be expected by chance, and it holds regardless of whether a 60% ($K = .0082$) or a 50% ($K = .0397$) style criterion is used.

Taken together, the correlational analyses and the kappa coefficient analyses show similar results. Across the two experimenter-child tasks, children did not appear to use

a consistent style of talk. These results show little evidence which could be used to indicate that children have internalized their mothers' styles or are using those styles to communicate with an experimenter.

# CHAPTER IV

# DISCUSSION

The purpose of the present study was to investigate communication of mothers and of children within and across routine activities to examine several assumptions of Nelson's (1993) theoretical perspective regarding relationships between mother-child communication and children's cognitive development. Mother-child communication within Nelson's (1993) theoretical perspective is explicitly unidirectional. Mothers are assumed to have a distinct narrative or paradigmatic style which is "a characteristic passed from mother to child" (Nelson, 1993, p. 12). This statement presumes that mothers will use distinct styles in a stable manner, both within and across contexts. Further, these distinct styles used by mothers are assumed to be internalized and used by children for communication both within and across contexts. However, relatively little evidence has been collected to support these assumptions.

In order to examine these assumptions, a sample was obtained which was comparable to the sample obtained by Tessler (1991). Tessler's (1991) sample included highly educated mothers (mean educational level 17.5 years) and their preschool children (mean age 4 years, 4 months),

representing white middle- to upper-middle-class families. The sample obtained for the present study included highly educated mothers (mean educational level 16.1 years) and their preschool children (mean age 5 years, 2 months), representing primarily white, middle- to upper-middle-class families (97%). Nevertheless, the relationships between mothers' and children's narrative and paradigmatic communication patterns are not as consistent with Tessler's findings as was expected.

Distinct Narrative and Paradigmatic Styles

Research used by Nelson (1993) to support her theoretical perspective indicates that mothers (Fivush & Fromhoff, 1988; Tessler, 1991) use distinctive styles in communicating with their young children in differing contexts. Fivush and her colleagues first described elaborative and repetitive styles in mother-child talk about past events (Fivush & Fromhoff, 1988), but more recently, used style designations of high elaborative and low elaborative styles (Reese et al., 1993). Tessler (1991) used style designations of narrative and paradigmatic styles in mother-child talk about a picturebook. In comparing narrative and paradigmatic styles, Tessler (1991) used a 50% style criterion, in which fifty percent or greater narrative information designated a narrative style and less than fifty percent narrative information designated a paradigmatic style. Although Tessler (1991) found no overlap between the

narrative and paradigmatic distributions, it is worth noting that she oversampled in order to obtain equal numbers of narrative and paradigmatic mothers. In Tessler's (1991) total sample, 56% of the mothers were designated as having a narrative style, and the data from the narrative oversample were not used in the study. Lange and Carroll (1995) used a 61% criterion, and found that in mother-child talk about a picturebook, although 45% of the mothers used sixty percent or greater narrative message units, only 19% of the mothers used sixty percent or greater paradigmatic message units. In the present investigation, a 60% style criterion was used in order to examine distinct styles (i.e., narrative or paradigmatic) versus non-distinct styles (i.e., mixed). In the mother-child descriptive picturebook task, which was similar to the task used by Tessler (1991) and Lange and Carroll (1995), 70% of the mothers used sixty percent or greater narrative message units, and only 3% of the mothers used sixty percent or greater paradigmatic message units. Compared to Tessler's (1991) and Lange and Carroll's (1995) results, the range of variation in the proportion of narrative message units used by mothers in the present sample was relatively narrow. Across the mother-child tasks in the present investigation, mothers showed primarily distinct narrative styles in the mother-child tasks, with little evidence for distinct paradigmatic styles. When distinct styles were found for children in the mother-child

tasks, these styles were also primarily narrative. In talking with an experimenter, children also showed distinct styles, but primarily narrative styles were found in one task while both narrative and paradigmatic styles were found in another task. Although Tessler (1991) found both narrative and paradigmatic styles, the results of Lange and Carroll (1995) and the present investigation show evidence of a distinct narrative style used by mothers, but little evidence of a distinct paradigmatic style. This variation in evidence for distinct paradigmatic styles across samples provides only partial support for Nelson's (1993) theoretical assumption that both distinctive narrative and distinctive paradigmatic styles will be found in mother-child communication.

Stability of Mothers' and Children's Communication Within and Across Tasks

Within-Task Stability. Narrative and paradigmatic style designations have been investigated primarily in mother-child talk about a picturebook (Lange & Carroll, 1995; Tessler, 1991). However, the stability of mothers' and of children's styles within that type of task has not been examined previously. In the present investigation, there was little evidence, either through kappa coefficient analyses or through correlational analyses, for stability of mothers' or children's styles within a task. Further, the kappa coefficient results held regardless of whether a 60%

or Tessler's (1991) 50% style criterion was used. Therefore, the results of this study provide little support for Nelson's (1993) theoretical assumption of stability of mothers' and children's narrative and paradigmatic communication within a task. Given this lack of stability within a task, one explanation may be that bidirectionality in mother-child communication may be operating, not the explicit unidirectionality that Nelson (1993) suggests. There is increasing evidence that mother-child communication is bidirectional (e.g., Smith et al., 1988; Sokolov, 1993; Yoder & Kaiser, 1989), that is, that mothers and children change their communication in response to each other. If mothers and children are changing their narrative and paradigmatic communication in response to each other, then one might expect a lack of stability in individuals' narrative and paradigmatic communication when comparing the first half and the second half of a task, but increasing similarity between the narrative and paradigmatic communication that mothers and children use as the task progresses. In the present investigation, although there was little evidence for stability of mothers' or children's narrative and paradigmatic communication within the mother-child descriptive picturebook task, mothers' and children's proportional use of narrative message units were more similar (i.e., more highly correlated) in the second half of that task than in the first half.

Across-Task Stability. There is little research evidence available regarding the stability of narrative and paradigmatic communication across tasks. Tessler (1991) examined mothers' communication across contexts, and found high correlations of mothers' styles across a picturebook task and a picture-taking walk. Lange and Carroll (1995) examined children's communication across contexts, and found a moderate correlation between children's proportional use of narrative message units when talking about a picturebook with their mothers and with an experimenter. The present investigation was designed to examine both mothers' and children's narrative and paradigmatic communication across four mother-child tasks. The goal of the task clearly influenced the proportional amounts of narrative and paradigmatic communication used by both mothers and children. For example, in the four mother-child tasks, both mothers and children used a considerably higher proportion of narrative message units in the autobiographical memory task than in the descriptive picturebook task, the memory picturebook task, or the child's recall task.

Separate crossed generalizability analyses were used to examine whether mothers' and children's proportional use of narrative message units in one task could be generalized to the other tasks. Results of the crossed generalizability analyses indicated that both mothers and children appeared to shift positions within their own distributions across the

tasks, suggesting differential responses to goal orientations in one or more of the tasks. Further examination of differential responses to task goals through correlational analyses revealed that the proportional amount of narrative message units used by individuals in a task in which mothers and children talked about a past shared event was unrelated to their proportional use of narrative message units in the three tasks which used information from picturebooks. Although Tessler's (1991) results indicated that mothers' styles were consistent across contexts, the two tasks which were used may have included similar task goals. Additionally, Lange and Carroll's (1995) examination of children's proportional use of narrative message units, to their mothers and to an experimenter, involved picturebook descriptive tasks which may have included similar task goals. In the present investigation, if the three tasks which involved picturebooks had been the only tasks used, it is likely that more stability in mothers' and children's communication would have been found. Additionally, as previously indicated, the range of proportional use of narrative message units used by mothers in this sample was more restricted than in Tessler's (1991) and Lange and Carroll's (1995) samples, which may have influenced the stability of mothers' narrative and paradigmatic communication. Nevertheless, the present investigation has extended the previous research by showing

conditions where mothers' and children's narrative and paradigmatic communication is not consistent across tasks. These results indicate that neither mothers' nor children's proportional use of narrative message units can be assumed to generalize across tasks which have different goals. Although the forms of communication which mothers and children typically use during every-day interaction may not include each of the goals provided by tasks in the present study, there appear to be at least some conditions under which both mothers' and children's narrative and paradigmatic communication, like other forms of mother-child communication (e.g., Hoff-Ginsberg, 1991; Sorsby & Martlew, 1991), vary with the goal of the task.

Children's Internalization of Mothers' Styles

Nelson (1993) has suggested that children are predisposed to internalize their mothers' communicative styles, and use those styles to perceive, interpret, store, and retrieve information about their experiences. In order for children to internalize their mothers' styles, one would expect that maternal style would be distinctive as well as consistent across contexts. However, in previous research, these expectations have met with mixed evidence. Although there is evidence for distinctive maternal narrative styles, there is, at best, mixed evidence for distinctive maternal paradigmatic styles. However, as previously noted, the evidence for primarily distinct narrative maternal styles in

the present research may have been influenced by the restricted range of variation in the proportion of narrative message units used by the mothers in this sample. Regarding consistency across contexts, previous research has shown consistency in mothers' narrative and paradigmatic styles across tasks; however, the tasks involved were few in number and very similar in goal structure. The present research used four mother-child tasks that varied considerably in goal structure, and in the present case, both mothers and children used more narrative communication in some tasks than in other tasks.

If internalization had occurred, one would expect children to use narrative and paradigmatic communication styles similar to those used by their mothers. Moreover, children would be expected to use these styles consistently across contexts. There is correlational evidence from both Tessler (1991) and Lange and Carroll (1995) for similarity between mothers' and children's narrative and paradigmatic communication in mother-child talk about a picturebook. Although there was only a marginal correlation between mothers' and children's narrative and paradigmatic communication in the mother-child descriptive picturebook task in the present investigation, these results may have been influenced by the restricted range of variation in the proportion of narrative message units used by the mothers in this sample. However, although Tessler (1991) found that

children retained their mothers' narrative or paradigmatic orientation when questioned by an experimenter about their recall of a picture-taking walk, Lange and Carroll (1995) found that mothers' proportional use of narrative message units in mother-child talk about a picturebook was unrelated to children's proportional use of narrative message units in experimenter-child talk about a picturebook. The lack of similarity that Lange and Carroll (1995) found between mothers' narrative and paradigmatic communication in a mother-child task and children's narrative and paradigmatic communication in an experimenter-child task also was found for both of the experimenter-child tasks in the present investigation. In addition, if internalization had occurred, one would expect children to use narrative and paradigmatic communication which is consistent across contexts, yet in the present investigation, children did not use proportional amounts of narrative and paradigmatic message units consistently across the two experimenter-child tasks. Therefore, there appears to be little evidence for Nelson's (1993) suggestion that children internalize their mothers' communicative styles and use those styles in communication outside the context of their mothers' communication.

Conclusions and Recommendations

Evidence from the present investigation indicates that the stability of mothers' and children's narrative and

paradigmatic communication may be influenced by at least two factors: bidirectionality and the goal of the task. These factors should be included in future investigations of relationships between mother-child narrative and paradigmatic communication and children's cognitive development.

Mother-child communication, as a communicative process, is inherently bidirectional. Adults may be adept at using both narrative and paradigmatic cognitive frames, but young children likely lack the experience to see the world from multiple perspectives which would help them to use the narrative and the paradigmatic modes of thought in an adept manner (Bruner, 1986). Children may, however, be able to use both cognitive frames in some workable form (Bruner, 1986). Investigations of bidirectionality in mother-child narrative and paradigmatic communication may show more clearly ways in which mothers and children are responding to each other, as conversational partners, as well as ways in which mothers are using narrative and paradigmatic communication with their young children to respond, either implicitly or explicitly, to children's workable forms of narrative and paradigmatic communication. For example, mothers may be providing opportunities for their children to use the forms of narrative and paradigmatic communication at which their children are proficient as well as providing opportunities for their children to become increasingly

competent in these types of communication.

Information processing theory and research have provided evidence which furthers an understanding of the development of the paradigmatic mode of thought in children, but much less is known about how children become adept at the narrative mode of thought (Bruner, 1986, 1990b). Nevertheless, there is some tantalizing evidence which indicates that a narrative mode of thought may be of particular importance when the goal of the task, either implicitly or explicitly, involves memory for information which is context-specific to a narrative mode of thought; that is, information regarding what Bruner (1990a) and Bruner and Lucariello (1989) have delineated as agents and their actions, intentionality, causality, and sequences of events. Information which is context-specific to a narrative mode of thought is likely to be present in recollection of past shared events (Nelson, 1993), as in Tessler's (1991) study, or in recall of information presented in a story format (Nelson, 1993), as in Lange and Carroll's (1995) study. Tessler's (1991) findings indicated that when children and mothers used greater than fifty percent narrative information in mother-child talk during a picture-taking walk, those children recalled more about the picture-taking experience than did children who, with their mothers, used less than fifty percent narrative information. Lange and Carroll (1995) found that both children's and

mothers' proportional use of narrative information in mother-child talk about a picturebook showed positive and significant relationships with children's cued recall in a story memory task. These results, taken with the results of the present investigation, indicate the importance of consideration of the goal of the task on mothers' and children's narrative and paradigmatic communication in investigations of the relationships between that communication and children's cognitive development.

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# Appendix A

## Instructions to Mothers and Children

### Mother-Child Tasks

#### Mother-Child Descriptive Picturebook Task

"We're interested in how mothers and their children talk back and forth with one another in everyday settings, that is, just like you usually do. So, we have a picturebook for you and (child's name) to look at together, and to talk about together. I'll be taping your conversation, so that we'll have a chance to hear both of you again when we get back to the university. Try to make sure to look at each page."

#### Memory Picturebook Task

"Now we'd like for you and (child's name) to work together with another picturebook, but this picturebook has only two pages. This time, try to do everything you can to help (him or her) remember what is in the picturebook. When you finish talking about the picturebook, I'll ask (child's name) to remember as much as (he or she) can about the picturebook. You'll be able to help (him or her) remember. I'll be taping your conversation so that we can hear both of you when we get back to the university."

#### Child's Recall Task

When mother and child indicate they have finished with the Memory Picturebook, say to mother and child, "Now we want (child's name) to remember all (he or she) can about the picturebook, but you (child's mother) can help (him or her). You can do whatever you usually do to help (him or her) remember. Just like before, I'll be taping your conversation so that we can hear both of you when we get back to the university."

Mother-Child Tasks (continued)

Autobiographical Memory Task

"We're also interested in how mothers and children talk about past experiences, just like you usually do. So, we'd like you and (child's name) to talk about an event that you and (he or she) did together. You can choose the event, but it must be one that only happened one time, and that did not last longer than one day. You might talk about something specific you did on vacation, or a trip that you took one time to a zoo or museum or amusement park. I'll be taping your conversation so that we can hear both of you when we get back to the university. Do you have an event in mind?"

The experimenter helps the mother choose a shared event that meets the restrictions of the task: a one-time event than lasted no longer than one day, and that did not involve a story line, such as a movie or play. Family members and/or friends may have shared the event with mother and child.

## Experimenter-Child Tasks

### Experimenter-Child Descriptive Picturebook Task

"I brought a picturebook to show you, and this time I'm going to ask your mom to let just you and me talk. I'm going to tape what we say with this tape recorder." The experimenter continues with comments to the child, in a conversational format, such as the following:

"Oh, look at this."
"Tell me about this."
"Anything else?"
"Tell me some more."

### Scripted Memory Task

"I know that you have been going to school now at (name of child's preschool). Your teacher is (name of child's teacher), right? I'm really interested in what children do at school, and so I'm going to use this tape recorder to tape what you tell me about what children do at school. What do you do when you are at school?"

The experimenter continues with probes which go from general information to specific information:
"What else?"
"Why?"
"Then what?"

These three probes are used until the child indicates that he or she has told the experimenter all he or she knows about what happens on a typical school day.

# Appendix B

## Narrative and Paradigmatic Coding Scheme (Tessler, 1991)

Narrative

| | |
|---|---|
| Interpretation: | Utterance going beyond the basic information given about the feelings, intentions, or possible sequence of events or behaviors relating to the person or object. |
| Autobiographical: | Reference to something in the (usually shared) personal past; often a way of explaining the means of connecting the sight/activity/occurrence with something already experienced by the child. |
| Describe Activity: | A depiction in basic, "surface" (as differentiated from interpretive) form of a behavior or occurrence taking place within the view of mother and child. |
| Affective: | Expression of an emotion or attitude toward the thing observed. |
| Aesthetic: | A depiction in aesthetic rather than informative terms. |
| Location: | Reference to an actual place. Utterance locating the object or person in a visual context. |
| Temporal: | Reference to past, present, or future. Reference to sequence. |
| Theme: | References (more than 2) establishing a leitmotif that recurs throughout the experience. |
| Possessive: | Utterance indicating possession. |

Paradigmatic

| | |
|---|---|
| Quantity: | May be a specific reference. May be an interrogative. |
| Knowledge Base: | As with Autobiographical, often used for purpose of explaining something in the present situation by reference to something the child already knows. Unlike Autobiographical, reference is to child's "semantic" knowledge rather than "episodic" experience. |
| Describe Category: | Utterance labelling an object (or person), defining the class to which it belongs. |
| Size: | Self-explanatory. |
| Color: | Self-explanatory. |
| Specific Physical Properties: | Reference, often for purpose of focusing attention, to perceptual (rather than more content-laden informational) properties of object. |
| What Part Of: | Used in an attempt at specification. |
| Another: | Often used in conjunction with Category in classification mode. |
| Same/Different: | Used as a form of classification. |
| Which One: | Used as a specifier. |

## Appendix C

### Parental Questionnaire

ID # ____

1. Child's Name _____
2. Child's Birthdate _____
3. Child's Gender: ( ) Male ( ) Female
4. Child's Race/Ethnicity _____
5. Please list the age and gender of child's siblings:

| Name | Age | Gender |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

6. Child's Preschool _____
7. Child's Teacher _____
8. Is your child's preschool/kindergarten experience this year
   ( ) Half Day
   or ( ) Full Day?
9. Did your child attend preschool last year?
   ( ) Yes
   ( ) No
10. If yes, was that preschool experience
    ( ) Half Day
    or ( ) Full Day?
11. Did your child attend preschool year before last?
    ( ) Yes
    ( ) No
12. If yes, was that preschool experience
    ( ) Half Day
    or ( ) Full Day?
13. Education (last grade in school) of mother of the child's present household _____
14. Education (last grade in school) of father of the child's present household _____
15. Occupation (specifically) of mother of the child's present household _____
16. Is household mother currently employed? ( ) Yes
    ( ) No
17. Occupation (specifically) of father of the child's present household _____
18. Is household father currently employed? ( ) Yes
    ( ) No