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A

PREWRITING MEMORIES:

FROM ANTICIPATORY CONVERSATIONS TO

CHILDREN'S PERSONAL NARRATIVES

by

NECHAMA PRESLER

A dissertation submitted to the Graduate Faculty in Psychology

in partial fulfillment of the requirements for the degree of Doctor of Philosophy,

The City University of New York

2000

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Abstract

PREWRITING MEMORIES:

FROM ANTICIPATORY DISCOURSE TO CHILDREN'S PERSONAL NARRATIVES

by

Nechama Presler

Adviser: Professor Katherine Nelson

The fundamental proposition of this exploratory study was that anticipatory conversations may have a role in organizing future experience and support and facilitate memory. Forty-three dyads of parents and their 55- to 97-month-old children participated in a museum workshop. Three days before the visit, parents and children conducted a preparatory conversation. Children's free recall accounts were assessed two days and seven weeks following the visit.

Three factors were identified in the anticipatory conversations as having possible effects on subsequent memory. *Bridging* was viewed as a form of framing. Parents of younger children linked the visit mainly to past experiences (*bridging to memory*) and parents of older children linked it to knowledge (*bridging to knowledge*). Bridging type was expected to affect the thematic focus of recall accounts. *Distinctiveness* indicated whether the anticipated experience was particularized, and was hypothesized to facilitate recall of unique features. *Reciprocal responsiveness* indicated dyadic shared attunement and was expected to affect the cohesion and narrative structure of recall accounts.

The themes and degree of elaboration in children's accounts were found to be related to age, with an increased focus over time on the specific event. However, whereas

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children's narratives increased with age in length, structure and cohesion, this effect was limited to immediate and not delayed memory.

All 3 conversation variables were found to be related either to themes in the memory accounts or to their structure and cohesion. Bridging to memory facilitated initial reference to activities, but bridging to knowledge did not affect reference to content. Distinctiveness was related only to an increased elaboration on content in delayed memory accounts. Responsiveness, instead of age, emerged as a critical factor in children's delayed memory. Responsive anticipatory conversations were related to longer and more complex delayed memory narratives with more evaluation.

It is suggested that this delayed consolidation of memory reflects a process of gradual integration of several levels of the child's experience, and thus "prewriting" affects children's delayed memory narratives. The effects of bridging and responsiveness in anticipatory conversations are discussed as creating continuity of experience and of self.

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The conversations between the parents and children and the children's stories have continued to entertain and inspire me throughout the work on this project, and I am grateful to them for sharing these moments with me.

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Now the serpent was more cunning than any beast of the field that God had made. He said to the woman, "Did, perhaps, God say: 'You shall not eat of any tree of the garden?'" The woman said to the serpent, "Of the fruit of any tree of the garden we may eat. Of the fruit of the tree in the center of the garden God has said: 'You shall not eat of it and you shall not touch it, lest you die.'"

The serpent said to the woman, "You will not surely die; for God knows that on the day you eat of it your eyes will be opened and you will be like God, knowing good and bad."

And the woman saw that the tree was good for eating and that it was a delight to the eyes, and that the tree was desirable for comprehension,

and she took of its fruit and ate;

Genesis 3;1-6

And the woman saw

that the tree was *good* - to cause one to be *like God.*

And that it was a delight to the *eyes* - (as he said to her) "Your *eyes* will be opened."

And that the tree was desirable for *comprehension* - (as he said to her) "*Knowing* good and bad." (Rashi)

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CHAPTER I

INTRODUCTION

Memory preserves experiences of past events. But what are these events? Who authors the reality to-be-remembered?

In the first dialogue in the bible between the serpent and Eve, the serpent anticipates a sequence of events. The commentary of Rashi calls attention to the inversion of the projected sequence of events caused by the authority of the words of the other: while the act of eating from the tree was predicted to change human experience, Eve's experience was fundamentally changed even *before* eating the forbidden fruit. Each part of what the serpent said unfolded in her experience—"and the woman saw"—"as he said to her." The vehicle for the transformation in Eve's scopic field was the pre-construction of the event in the dialogue by the serpent's anticipation "your eyes will be opened and you will be like God."

The main propositions underlying this study are that events have to be framed and structured and that one of the functions of conversations about the future is to form the notion of "an event." Participation in anticipatory dialogue and its effects on shaping the experience of events and hence memory have not been studied so far, and this is the purpose of the current study.

Memory for personal experiences involves the self and forms the basis for autobiographical memory. Autobiographical memory is viewed here as memory of one's self: a personal story that continuously comes into being in the context of a social process of construction. The process is social in at least two ways: the immediate social world of

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the child is a dynamic part of it, and memory construction unfolds in language. Similarly, construction of events by anticipatory conversations will be studied as an active process in the context of the family. I propose that embedded in this discourse is the dual function of guiding the child into the social world, and, at the same time, mediating the world to the child so that the encounter would be tolerated. This form of future-orientation involves negotiating context and meaning, and transmitting goals, intentions, expectations, and plans.

EVENTS, EXPERIENCES, AND MEMORIES

The significance of the temporal dimension of events is noted by Sartre (1955); the present has meaning only when it is extended into its "not-yet." Consciousness gains its meaning through the possible (which is its future) and not by what it has been in the past. Sartre writes that "[t]he single event does not spring on us like a thief, since it is, by nature, a Having-been-future" (p. 87). The meaning of events, then, lies within their anticipatory aspect.

Psychological theory offers diverse accounts of what events are, with various emphases on the encounter between the individual/environment, personal/interpersonal, or subject/object domain. Significant aspects of this encounter are formative in shaping events; Eve saw the tree "as he told her"— the serpent's words pre-shaped the world and her experience of it. The world is not an independent entity, it is organized in relation to us, and this organization defines the experience. As Werner and Kaplan point out,

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> [t]he human world... cannot claim to reflect an independent "reality per se;" it is rather a coherent, man-specific Umwelt, a representation of "what there is" by means available to the human being... man's objects are always touched with a coefficient of indeterminacy and, as long as he is open to new environments, they are constantly in the process of transformation, changing in their significance... man lives constantly in a world of becoming, rather than in a world of being.
>
> Werner & Kaplan, 1985, p. 13

To position my approach to the development of representation of "what there is" I present in the following sections several theoretical approaches. Although these theories are different, at times incompatible, in their conceptualization of the process, their observations and findings are strikingly similar. I first examine the notion of an event from the perspective of the ecological approach to development. In this view, the human environment is rich and meaningful, and within it the individual actively employs a process of selection to frame events. This perspective overemphasizes agency and neglects the roles of language and of the unconscious as mediators of and constraints on the construction of events. I then discuss the psychoanalytic notion that fantasy is an inseparable aspect of event construction, and its implication for the temporality of event construction. Finally, I focus on the process of event construction. I suggest that intersubjectivity—including its affective and cognitive elements—is the significant framing device of events through social interactions, as proposed by object-relations theory and an experiential model of event representation. In different ways, yet complementing, both approaches conceptualize the dialogic nature of event construction as a joint process of parents and children through direct experience and discourse.

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Another dimension that is central to event construction is how meaning is created. Based on object relations theory and psychoanalysis I propose that events are constructed in relation to their meaning. In this sense, events are constituted in multiple, dinamically-related complex levels. On the intersubjective level, meaning is introduced by the other (e.g. parents), by making sense of the child's expressions and state. The other holds, defines and names the child's gestures (not necessarily in language) as part of socially established event sequences. However, the other is not only the parent: it may be embedded in different kinds of structures, defined by culture, language, fantasy, and interpersonal sequences. The current study aims to explore the intersubjective process of constituting events and how it is actualized in conversations between parents and children about a future event.

Nested Structure of Events

Building on the work of J. J. Gibson, Neisser (1986) claims that events are created in a process of selection and organization of elements in the environment, although we perceive them as external occurrences (I will discuss this perception of events and its implications for memory at a later point). People have different accounts of an event not as a result of reconstructing (or distorting) reality, but due to the richness of the world which supports numerous constructions of an event.

Neisser describes events in the following manner: They are specified by different kinds of information and come to be known in terms of their affordances. Similar to environmental sequences that have cycles embedded in larger cycles, events that are defined at one level of analysis may themselves be constituent of other, larger events. Of

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particular interest here is the idea that the way that "places can be named, but they need not have sharp boundaries (Gibson, 1979, cited in Neisser, 1986)," events too can be named and need not have sharp boundaries. They are not necessarily continuous temporal units. By a process of selection, since things may happen with interruptions or without being noticed, the individual creates a coherent experience of an "event." Associative links between events and their temporal organization are established by their relation to embedding structures.

Neisser defines the complex, nonlinear, and consequently, subjective nature of events, though what is the embedding structure is open, I think, to one's theoretical perspective. On the one hand, Neisser's ecological model of autobiographical memory [1] shifts the emphasis from the internal active work to potentials within the environment. However, departing from Gibson, Neisser goes so far as to equate the structure of both experience and memory with event structure, thus reintroducing the notion of internal representation that Gibson rejects.

Neisser fails to emphasize that the environmental context that gives meaning to events is not independent of and external to people. Rather, as Reed (1993) describes it, the environment is "a rich and meaningful place within which purposeful agents can ... cooperate, and conflict...(p. 46)." Reed maintains that the development of the ability to use affordances of the environment is intrinsically a social process. The selection of potential affordances available in a situation is guided by intentions that are jointly established by an intersubjective process: "...the formation of intentions is frequently an interpsychic and dialectical process, in which more than one individual is involved, and in which social constraints and cultural norms play a major role (Reed, p. 46)."

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By viewing experience and memory as representations, Neisser neglects to acknowledge that the process is mediated by language, which triggers-off elements in the environment. Similarly, the interpsychic and dialectical process that Reed describes occurs within language..

Although the ecological approach which Neisser and Reed represent calls attention to the encounter with the environment, it ascribes substantial control and agency to the individual. It fails to recognize the constructive role (and constrains) of culture and unconscious factors. However, the notion of selection may be useful in highlighting the relation between events and unstable characteristics of both the environment and the individual acting in it.

Condensed Nature of Events

The instability of the very notion of 'the event' is emphasized in psychoanalytic theory. An event is structured in relation to interpretation as the word of the other within the analytic discourse. The formative role of interpretation in event construction is an important contribution of psychoanalytic theory, yet the origin of what is being interpreted should not be overlooked. Interpretation reflects both the discourse within which it occurs and the experience itself, and the gap between the two is always present. Although Freud identified the certainty in the appropriateness of the reconstructed scene to the patient's life with the conviction produced through recollection, it is clear that this reconstruction is interpretive, and should be understood as such.

Another important insight offered by psychoanalytic theory is the inseparability of reality and unconscious fantasy: An event is constructed at the moment the (dynamic)

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balance of the psyche is disrupted by unconscious fantasy which introduces meaning. *Screen memories* and *deferred action* constitute such moments. Both refer to the condensed nature of events in terms of their temporality and meaning. The idea that events are (a) constructed in a nonlinear way, and (b) defined by their relation to the *embedding structure* (e.g. language, scripts, unconscious fantasy) is central. Thus, in addition to the "what there is," events are framed by what is absent or lacking. They are framed by their (unconscious) significance and time becomes nonlinear.

In his discussion of *screen memories,* Freud was concerned with the role of unconscious fantasy in falsifying events and with relation to their 'truth' element. But Freud also stressed their value, viewing them as retaining "all of what is essential from childhood" (Freud, 1914). Like dreams, these childhood memories, characterized by their sharpness and apparent insignificant content, employ mechanisms of condensation and displacement. They represent, and at the same time conceal, repressed fantasies related to other childhood events.

Another example of condensation of events is the revisiting of past events, termed *Nachtraglichkeit*, or deferred action. Although the term is related to trauma, it may clarify how psychological meaning is created. Access to events is never direct since only a revision of the original event can be created. Similar to the constructive notion of memory, Freud contends that experiences may be revised at a later time to fit with new experiences or a new developmental stage. Past events may be endowed with new meaning and psychical effectiveness, so that the occurrence of an event may give a traumatic force to a previous event. The original event is constituted retroactively, for example as trauma. [2]

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The idea of deferred action indicates that psychoanalytic theory should not be reduced to a linear determinism, since it suggests that "...consciousness constitutes its own past, constantly subjecting its meaning to revision in conformity with its 'project' " (Laplanche and Pontalis, 1973, p. 112). I would add that consciousness constitutes its own present as well. However, the world gains its significance subject not only to the intrapsychic project of consciousness, but also to the project of others.

The Intersubjective Constitution of Events

The interpsychic process of establishing meaning is the focus of object relations theory, which emphasizes the primacy of the *other* in constituting events. Describing a most complex individual-environment encounter, Winnicott (1960) terms the mother the 'environment' since, for the infant, she is the total environment. The characteristics of maternal care for the infant become features of the child's developing self experience.

At the stage of first object-relations, the infant is not fully integrated and the mother's holding, physically and figuratively, provides coherence. Although the infant's gestures (or sensori-motor groupings) are spontaneous and may be an omnipotent expression, the mother's adapted response to them helps the child relate to the world. "The good-enough mother meets the omnipotence of the infant and to some extent makes sense of it" (p. 145). This sense, which may be termed 'the transitional object', becomes something that is between the infant and the object, and may join or separate the infant from the object. Only the mother's *good enough* response to the child's gesture may help the child relate to the world without harming the child's omnipotence, and gradually recognize its illusory quality. The mother's sensitive response introduces the object in a

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non-traumatic way, thus enabling to harmonize the external and internal event. The sense the mother gives to the child's gesture is her own sense, and when she does it without harming the child's needs, she enables the child relate to the world in a particular way, shaped by the maternal response.

It is interesting to note that self psychology proposes a similar understanding: in the mirror stage (Kohut, 1971), the child is actively seeking the mother's response through the direction of the gaze. It is this response—the gleam in the mother's eye—that ultimately bounds the event and marks it as significant for the child. However, while Kohut describes the encounter between the gazes of mother and child (directed back at the child/object), Winnicott (1960) identifies the mother-child interaction as a joint direction of a shared gaze at the world/object. The constitution of the world is a process in which the infant establishes an inside and an outside, and external reality becomes part of the internal world of the child, mediated by the maternal very early attuned response to the child.

Event Representation and Experience

The importance of intersubjectivity in forming links between the child's gestures and the social world is central also in the experiential approach to cognitive development (see Nelson, 1997; Nelson & Gruendel, 1981, and Nelson, 1999, for a summary of action-based-cognition). The developmental sequence described by Nelson is very similar to that of Winnicott, but relies on empirical work rather than clinical observations. Although the theoretical emphases are different, both approaches may complement and enrich each other.

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Nelson (1999) asserts that initial representations of events relate the infant's action schemes with social (and nonsocial) consequences, that is, with representations of whole events, organized by adults, including the infant as a participant. It is the social world that conveys meaning of events by arranging environmental settings and activities, interacting with the infant around caretaking and other everyday activities, and finally by communicating with the child about the event. Nelson (1997) clarifies that children need not understand the social significance of events to represent them—this understanding is achieved later, by cognitive operations on represented events.

Event representation and memory are closely related. Nelson & Gruendel (1981) identify levels of generalized event representations—from direct and specific to more abstract and general—which support understanding and memory. Initial representations, based on episodic memories of everyday routines, are subject to schematization and form the basis for general schemas, or scripts (Hudson & Nelson, 1986). Scripts then are the basic building blocks of further memory for events, and, over the course of development, memory for personal experiences gradually "frees" itself from scripted knowledge of events, and results in more flexibility and better ability to retain new information (Nelson, 1997). The relation between scripts and memory will be discussed in more detail.

In Nelson's model, language, initially through its communicative function, is central in the representation of events in that it affects reality and can bring into existence other realities, beyond the 'here and now.' This is a significant addition to the notion of intersubjectivity in object-relations theory. Winnicott's *holding* and Kohut's *gleam in the mother's eye* refer to intersubjectivity as being constituted primarily in a non-verbal

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process, yet language is always present, and the process relies heavily on verbal communication which expands its scope.

MEMORY DISCOURSE IN FAMILIES

> Selves are told through dialogue, in words, images, and enactments, and they are retold by observers whose narrative preferences and strategies express specific aims, values, and competencies.
>
> Schaffer (1992), p. xvi

Children's construction of reality is considerably dependent on the way social reality is presented to them by significant others—parents, caregivers, and other family members. This relation between the telling and retelling of selves is more broadly conceptualized by Vygotsky (1962) as an interdependence between the developing child and the socially provided resources of that development. In his 'general genetic law' of cultural development Vygotsky (1981) states that

> [a]ny function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category... Social relations or relations among people genetically underlie all higher functions and their relationships. (p. 163)

Both the development and organization of higher mental functions are social, and represent *relations among people*. That is to say that memory is social in its origin as well

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as in its organization and content. When considering the construction of memory within social relations, we should bear in mind that the child does not meet culture or relationships; rather, they are embodied in real people and objects and their exchanges. The social environment is richly textured, consisting of parents, siblings, uncles, peers, neighbors, family pictures, television, books, and numerous other real-life components.

Parents do not simply transmit cultural practices and values to the child. They are involved directly, actively, and intentionally in the child's development. Valsiner (1987) maintains that the child is born into an environment that has culturally specified meaning. Parents structure the child's environment in different ways: Children's actions are canalized towards their culturally acceptable form (through the *Zone of Free Movement* and *Zone of Promoted Action*). People around the child set constraints to regulate the child's relationships with the environment to fit the cultural meaning system, and guide the child's action and thought in specific directions. Similarly, Rogoff (1990) suggests that caregivers structure children's participation in activities to support development by their participation in culturally valued activities.

What this model neglects is the role of language, as well as the active role of the child. When these factors are considered, it is clear that meaning is actively co-constructed by both parents and children. And indeed, from this constructionist perspective, autobiographical memory is best understood as a form of social practice and not as an intrapersonal process (Geregen, 1994). It gains meaning through its usage within social relations. Gergen claims that, by Western conventions, most expressions of self-memory take place in language, an inherently social medium. Thus accounts of personal history are embedded in ongoing social processes. Further, Gergen contends that

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we are scarcely free to report our past life in any way we wish—being constrained by culture and rules of self-narration. However, one need not take an extreme social-constructionist position to understand the role of social interaction in the development of memory. The next section focuses on the shared, intersubjective aspect of memory discourse.

The Socialization of Memory Discourse

Socialization of memory occurs within the family through its influence on constructing the child's world. It reflects organizations of time and space in the family, based on implicit assumptions of coherence and continuity of experience, the family's interpretation of social requirements, and its notion of self. Families have different histories, structures, needs, ideas of parenting, and child-rearing ideologies, all of which are translated into ways of socialization and enculturation, and are likely to organize memory in certain ways rather than others.

How do families exert this influence on children's construction of experience and memory? The nature of the two following explanations is psychodynamic, however they conceptualize differently relationships and experience:

The Family's Construction of Reality. Family systems theory sees the family rather than the individual as the unit of analysis. Family dynamics influences psychological processes and individual development. Combining this perspective and that of information processing, Reiss (1981) proposes a model in which families provide interpretive systems for reality, mutually elaborated by family members. Although Reiss describes stable, implicit, sometimes unconscious attributes of family communication

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patterns, his description of the interaction within families is relevant to the fundamental assumption of the current study . Reiss proposes ways by which families shape anticipated events and subsequent recall, based on a dynamic interaction between the family's history (or structure) and the process of making sense of current experience.

Families have interaction patterns which preserve and produce the family's characteristic way of organizing and interpreting reality. These are shared ways of shaping experience by designating what can, or should, be noted or ignored. Reiss suggests two 'pattern regulators,' of time and space, by which families organize their everyday experiences and represent them in memory. Families use a preferred reference point in time—past, present, or future—to conduct daily life and interpret experience. In addition, families employ preferred sequencing and spacing of events in the flow of family experience. Events may be ordered in a way that maintains clear boundaries between them, so that the current experience is meaningful and connected in a coherent way to the past. But, experience may be organized in a way that creates discontinuity between present and past, blurring the boundaries between activities and events.

Mother-Child Communication Patterns. While Reiss views the construction of experience within the family interaction according to an existing paradigm, attachment theory questions this positioning of 'family' and 'experience' on different planes, and views the relationship as primarily being the experience. Bowlby (1969) focused on the adequacy of mother-child relationship from the perspective of the parent's ability to respond to the child's needs, and its subsequent influence on the way the child experiences the social world. This way, communication patterns between the child and the primary caregiver become relationship patterns. Sensitive and emotionally open

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communication with parents, or rejection, result in an internal model of a securely related, or an unworthy self (Bowlby, 1969). Emotionally open parent-child communication patterns affect the structure and organization of memory, due to coherent working models of self and other. Memory structure may become distorted by defensive processes which interfere with the organization of internal working models (Bretherton, 1993).

In spite of its highly deterministic nature, attachment theory has made an invaluable contribution to the understanding of processes that characterize mother-child communication, or intersubjectivity. It calls attention to sensitivity, responsiveness, empathy (even though it does not use this terminology), and shared attention. However, it does not recognize the unique role of language in parent-child interaction.

Language and Social Construction of Memory. An important perspective on the development of autobiographical memory in the family context is proposed by the social construction model (Hudson, 1990; Nelson, 1993; Pillemer & White, 1989). According to this model, the development of autobiographical memory is intertwined in language acquisition. Dialogues with parents construct both memory content and structure (as theorized by Vygotsky), and the child is active in this process. Young children have to learn how to narrate an event, through guidance by adults (Hudson, 1990). By learning the dominant narrative structure with which events are discussed the child learns to build an organized personal history from autobiographical memories (Nelson, 1993; Tessler & Nelson, 1994). After having learned the format of 'memory talk' the child may generalize this mode of discourse to other events not yet discussed with others. The child is also introduced to other values, as Nelson (1990) puts it: "... the culture (instantiated in parental guidance) values other functions as well, for example,

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telling a coherent story, telling the truth, getting the facts right ...emphasizing some parts of an event and not others" (p. 311).

Other models of the development of autobiographical memory view language as central in the process. The development of language radically changes the nature of autobiographical memory, as Pillemer & White (1989) propose in their description of two functionally parallel memory systems. The first system is non verbal and operates via visual images and affect, and the second is created by verbal communication about personal experiences, and is responsible for the onset of memory for significant personal events. Schactel (1947) and Neisser (1962) propose that the inability to reconstruct past experiences encoded non-verbally (childhood amnesia) is the result of a reorganization of mental structures, due, partially, to the child's increasing reliance on language to represent events..

Autobiographical memory fully emerges between 4- and 5-years of age, when memories become verbally accessible and socially sharable (Nelson, 1993, Pillemer & White, 1989). This development enriches the texture of memory dialogue since children can begin to grasp that what is said by others is a representation which holds knowledge, that is, children are increasingly using verbal representations of other people (Nelson, 1993).

In summary, by sharing memories of past events, families enable the child to establish the cultural and personal significance of memories, and promote an appropriate narrative format for conveying them. Talking about past experiences also enables the preservation of the memory. Memories have to be rehearsed to be remembered, yet

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young children may not engage in such rehearsal on their own, and they need the support of adults.

In this section I have discussed theoretical conceptualizations of the functions of memory discourse in families within a framework of the construction of reality and experience. The proposals of attachment theory and of the social construction model were of special interest for the current project. Both co-construction of memories in dialogue and intersubjectivity created by sensitivity and responsiveness are interrelated, and have an important role in the development of autobiographical memory.

Attributes of Family Conversations about Memories

Talking about the personal past is an important part of the everyday life in families from different cultural backgrounds (Miller, Hoogstra, Mintz, Fung & Williams, 1993). Children are exposed to personal stories in a variety of ways—they hear and participate in stories about themselves, and they hear stories told about other people. Times in which adults are available as conversational partners are good opportunities for reminiscing. Eisenberg (1985) found that adult-child conversations about past experiences were most frequent at mealtimes or when adults were relaxing, sitting outside and chatting. Research on the developing patterns of memory talk in families has focused on the contributions of parents and children to the interaction, and the transmission of narrative styles.

Transitions in the Organization of Interaction. There is evidence that young children require much scaffolding to narrate about the past, and significant adults provide this support, gradually adjusting the amount and nature of their contribution to the child's growing capacity to narrate memories. Lucariello, Kyratzis & Engel (1986) found that 2-

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1/2-year-olds progressed from other-regulated to self-regulated behavior. They suggest that children acquire an organizing structure through the interaction with their mothers, and that the mothers' use of language helps mediate children's representation and recall of the event.

A similar change in the organization of the verbal mother-child interaction is reported by Hudson (1991). An analysis of the structure and content of conversations about past events with a 20-month-old girl revealed that the contributions of the child increased as her abilities to reminisce and narrate developed. The child became more active in participating and then initiating conversations about the past.

Eisenberg (1985) identified three stages in the development of conversations about memories between two girls (between the ages of 2- to 3-years) and their families. The initial dialogic nature of the conversations was adult-guided: adults provided the majority of the content, introducing topics and eliciting information mainly through questions. Adults also provided words that labeled aspects of the experiences they discussed. With time, the girls gradually increased the proportion and elaboration of their answers as well as the rate of responding to adult questions. The girls became less dependent on adult support, which was partially replaced by the support of the girls' general knowledge of events. In the third phase, the girls recounted past experiences without probing and independently of the recall context. Bauer & Wewerka (1997) provide a similar description of the shifting roles in mother-child memory talk.

However, the organization of mother-child interactions about memories are culture-specific, as cross-cultural research shows. Factors such as local dominant narrative modes, general rules of social interaction, the nature of the social hierarchy, and

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parental belief about the role of children, may all affect the organization of memory discourse in families in different cultures (Mullen, 1994). Mullen & Yi (1995) found that Korean mother-child dyads engaged in conversations on past events about one-third as often as did American mothers-child dyads. They propose that the divergent self-concepts associated with the different orientations of self in both cultures (Markus & Kitayama, 1991) may influence socialization goals, which then may be reflected in conversations in families.

Characteristic Narrative Style. Narrative style of parents is another factor in memory discourse. The typical styles of adults in constructing and guiding conversations about the past affect the organization and content of children's memory narratives.

The influence of parental style on children's development of narrative structures was studied by McCabe and Peterson (1990) who found that children provided longer narratives when parents were more persistent in questioning, and asked topic-extension questions. Engel (1986) identified pragmatic and elaborative maternal styles: mothers with pragmatic style discussed concrete events with their children, and elaborative mothers provided rich narratives specifying intentions and causes, and—on the interaction level—invited their children to co-construct the narrative. Similarly, Fivush & Fromhoff (1988) have observed *elaborative* and *repetitive* maternal styles and Tessler & Nelson (1994)—*paradigmatic* and *narrative* mothers. Paradigmatic mothers named objects, actions, and events, focusing on their properties and details. Narrative mothers contextualized the event in a manner suitable to the child's experience, and organized their talk according to the narrative perspective.

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Children of elaborative-narrative mothers engage in more complex memory talk than children of pragmatic-paradigmatic mothers (Fivush, 1991; McCabe & Peterson, 1991). Tessler & Nelson (1994) found that 4-year-old children recounted an experience in a way corresponding with the style preferred by the mother. This finding was consistent when the interviewer used the opposite style to that of the mother. Fivush & Reese (1992), though, argue for a bi-directional influence of mother-child conversations. In their model of reciprocal communicative orientation, parents and children mutually adapt to their respective styles.

Although maternal style is stable, it changes with the child's development and gender. Reese, Haden & Fivush (1993) report that all mothers in their study became more elaborative as their child became older. Mothers also use different affective markers in a gender specific way. They mention more positive emotions, happiness, and sadness when talking with daughters, and more anger with sons (Fivush, 1993). This way mothers implicitly convey what responses are considered appropriate or important, according to gender-specific cultural values.

The above studies support the proposition that, through talking with others, children learn to talk about their lives in the past and share it with others, and this constitutes the beginning of autobiographical memory. Parent-child conversations induct children to the dominant narrative mode that is compatible with the culture and with family practices, and are crucial for the creation of a personal story. This is the ground for the emergence of memory for a continuous self extending into the future.

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MEMORY IN TIME

Remembering is a subjective experience which punctuates time in a particular way: it creates a slice, defined by the past event and its recall in the present. "In perception," Reed (1994) writes, "what is bridged is the separation of self from surround; in memory, what is bridged is the separation of past from present encounters (p. 282)." Autobiographical memory requires a duality of self, it is "the me-experiencing-now becoming aware of a prior-me-experiencing its (prior) environment (p. 283)." The slice in time is a duality of experience, an awareness of a duality of self, which, Reed states, distinguishes memory from perception. And indeed, the methodology in autobiographical memory research echoes this duality of experience, studying the past from the perspective of its recall in the present, or the present, as it becomes a memorable past. This does not mean that the position stated here is common. As we will see, the duality of experience is sometimes addressed as a source for concern because of the discrepancy between the event and its representation in memory.

In this section I explore how memory is understood and studied in the context of possible relations between the time of the experience and that of recall. The theoretical framework of the discussion is social construction, emphasizing the active role of the rememberer, who transforms the representation of original event and subsequent memory. The question at all levels of relationships between different reference points in time should be—can we identify processes by which these transformations occur?

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Reconstruction

Memory is viewed as the product of constructive processes rather than a direct copy of reality. According to Bartlett (1932), memory involves reconstruction of past events using existing schemas, and is inherently interpretive. In a similar vein, Freud (1910) writes that childhood memories are not mere repetitions of fixed representations of experience, rather, they are elicited at a later age, altered and falsified, since they are "put in the service of later trends" (p. 83).

Traditionally, autobiographical memory research was conducted in retrospect. The participants, mainly adults, were asked about their earliest memories (Kihlstrom & Harackiewicz, 1982), memories of historical events (flashbulb memories, Pillemer, 1984), or memory for salient childhood events (such as the birth of a sibling, Sheingold & Tenney, 1984). I limit the discussion in this section to research that (a) focused on children's memory for personal experiences, and (b) addressed factors involved in the dynamic, transformational, reconstructive aspects of memory. General questions asked in this research are—how much, how accurately, and how long do children remember?

What Really Happened? More than any theoretical claim, the methodology of a study and the nature of data may disclose intrinsic assumptions about the linearity and directionality of time, and about causality. Many memory researchers aim at getting information of at least two reference points in time that construe memory: the time of the event and that of the recall situation (reminding us of Reed's notion of duality of experience and self).

Knowing what happened at the time of the event is a challenge for the design of the research. To illustrate, direct knowledge of the event-to-be-remembered may be

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gained by setting up an experimental situation and observing it (for instance, instructing mother-child dyads to play a certain game, as did Lucariello et al., 1986). When there is no direct access to the event, parents and other adults who were present when it took place may serve the source of information of the child's' experience. For instance, in a study of recall of a medical procedure, Ornstein, Shapiro, Clubb, Follmer & Baker-Ward (1997) asked members of the medical staff to rate the child's level of stress. In another study parents were asked to comment on the accuracy of children's spontaneous memories of personal experiences (Eisenberg, 1985).

The theoretical and juridical interest in children's eyewitness testimony, and the concern it evokes, highlights even further the challenge of knowing what the child remembers, but more importantly, of being able to establish 'what really happened.' Having to rely on children's recollection as the only source of information of a past occurrence has given rise to many studies on the reconstructive/misleading nature of memory. It should be emphasized that the contents of the event are of interest mainly to serve as a baseline for comparison with the child's account of what happened. What does this comparison imply?

What I am driving at is to clarify that 'event' and 'memory' are established this way not as dual, but dichotomous processes; 'event' being conceived as an external, objective reality, and 'memory' as internal and subjective. This view suggests that since the event has already occurred, the truth is to be found in the past, mainly by adults whose access to it is more reliable. Given that children and parents may have different accounts of an event because of different perspectives and goals (Stein, Trabasso & Liwag, 1994), and that event representations are constructions as well as memory, this is a troubling

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position since it assigns an element of truth to the event as well as to adults' accounts of it.

The terms used to describe memory as a product of reconstructive processes demonstrate how fundamentally different are the approaches to this issue. We may find side by side terms such as transformation and falsification (using Bartlett's and Freud's words), or facilitation, interference and suggestion. This is also expressed in the choice of measures, such as number of errors in recall, errors of omission and commission, which refers to children's failure to retrieve experiences. On the other hand, measures such as the cohesion of recall accounts, their temporal organization, or tenses the child uses, may represent an emphasis on the manner that memory is facilitated. I do not wish to advocate here an extreme constructionist position, or to deny the importance and even the possibility, under certain circumstances, of clarifying 'what really happened.' But given that events are themselves constructed, as well as memories, the problem should be openly addressed in research, rather than covertly express the position of the researcher by the choice of measures and of terminology.

Post-Event Constructive Processes. A productive approach to the reconstructive nature of memory explores processes that take place between the time of the event and that of recall. I will describe some of the findings of children's long-term episodic recall, which focus primarily on the effects of post-event information on children's recall. Post-event information may be verbal (reinstatement) or non-verbal (reenactment) repetitions of the original event.

There is evidence that post-event discussions are necessary for long-term episodic memory (Nelson, 1990). More specifically, verbal reinstatement and repeated questioning

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were found to facilitate memory (Fivush, 1994; Fivush & Hamond, 1990). Hudson (1990) found that across interviews children gave more coherent accounts of events with improved organization, but as for content, some children's accounts became increasingly more similar to those of their mothers, and some did not change their initial version. The time interval between the event and post-event information is significant; retention was found to be enhanced when the information was presented close before the point of forgetting (Fivush & Hamond, 1989; Sheffield & Hudson, 1994). Similarly, reenactment facilitated retention of toddlers and preschoolers, but not when it occurred immediately after the event (Fivush & Hamond, 1989; Sheffield & Hudson, 1994).

The effects of verbal post-event information on recall are examined in studies on children' suggestibility. According to Loftus (1979), who claims that children are highly suggestible, this information creates an interfering effect, and distorts memory. Others, though, argue that children are more resistant to suggestion about personally significant actions which involve children's concerns, such as desire for personal safety (Goodman, Rudy, Bottoms & Aman, 1990).

In summary, post-event information affects memory dependent on the time and mode of its presentation, the child's age, and its relevance to the child's concerns (see Baker-Ward, Ornstein & Principe, 1997, for a summary of research on the constructive nature of children's memory).

These findings take us back to the initial question of the nature of transformations involved in memory, which is embedded in the comparison of recall to the event as a baseline: In a chapter entitled *Validating Memories*, Ross (1997) suggests using "epistemological and psychological truth criteria" to provide a basis for accepting or

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rejecting memory, since we cannot function in a subjective, fluid reality. Ross compares the constantly changing nature of memory to fantasy and dreams, that should be differentiated from truth. I disagree with this position: unconscious fantasy is always involved in the way we represent the world, yet it does not imply a break away from reality. Moreover, memory for personal events changes under new circumstances, transitions, and with different audiences. This does not mean that we talk about our past in a chaotic way, detached from reality. Memory accounts are constrained by the nature of the unconscious (characterized by processes such as condensation and displacement) as well as by culture, and, as Gergen (1994) proposes, they gain their meaning within social relationships. The challenge is to find what factors affect these changes.

Joint Construction of Ongoing Events

Other research on the constructive elements of memory within social relationships focuses on the co-construction of an event while it is going on. The assumption guiding this research is that this type of construction determines the way the event is encoded, and affects its recall.

Nelson & Tessler (1994) investigated the effects of maternal style in conversations between 3-year-old children and their mothers during a museum visit and subsequent memory. The intriguing finding in the study was that children remembered only items that had been talked about both by mother and child, and none of children remembered details that had not been discussed with their mothers. In a second study Tessler (1991) found that 4-year-old children of narrative mothers recalled more

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information of the experience, and recalled it in a narrative form, regardless of the way recall was elicited.

Haden, Ornstein, Diidow & Eckerman (1997) report that children as young as 2-1/2 years of age were able to benefit from conversations with their mother about the here-and-now when recalling an event. Mother-child joint activity—verbal and non verbal—during the initial encoding of the experience contributed to what was later remembered. An analysis of conversation patterns revealed better recall for features named by mothers and elaborated by the child. Haden et al. propose that by naming certain features of an event, a mother may focus her child's attention to salient aspects of the event, and if this is followed by elaboration, a more enriched representation may be established. Thus, the event may be constructed in a way that makes it more accessible to recall.

Reciprocal mother-child interaction about an event makes it memorable, and affects the organization of its recall. These studies indicate that shared attention to aspects of the experience is achieved by verbal communication, and that this is a most significant factor in the transition to the child's memorial representations. Rommetveit (1985) articulates the role of verbal communication in attaining states of shared social reality: "A state of intersubjectivity with respect to some state of affairs... is attained at a given stage of dyadic interaction if and only if some aspect ... is brought into focus by one participant and jointly attended by both of them (187)." In the following sections I propose that events are represented not only in conversations with others as they occur, but also by creating expectations and motivation, which organize events prior to their occurrence.

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Future Orientation: The Pre-Construction of Experience

The term future-orientation is used in different contexts, referring to such concepts as intentionality, expectation, future-thought, goal-setting, prediction, set, preparation, anticipation, and planning (Haith, Benson, Roberts & Pennington 1994, Friedman & Scholnick, 1997). Other structures, such as knowledge structures, schemas, and scripts, are inherently constitutive of future-orientation.

In the current study future-orientation is understood in terms of its appearance and employment in the social world. This perspective is suggested by Lutz (1987) in her study of goals and Ifaluk emotion theory. Lutz points out that the possible range of variables that can be included in a schema is culturally constructed, partially by goals. Goals can be general or specific, and more or less salient in different cultures. In their theory of knowledge structures, Schank & Abelson (1977) maintain that "[b]oth the prediction and the production of behavior is predicated on detailed knowledge of the plans that can be used for achieving particular goals" (1977, pp. 70-71, cited in Lutz). Lutz clarifies that the role of goals in understanding the organization and motivation of behavior is similar to that of the traditional position of values. Both knowledge about goals and goals themselves are culturally constructed. Lutz defines the relation between goals and knowledge as a dialectical relation between direction (goals or values) and structure (knowledge) in human meaning system.

In her discussion of expectations and frames, or contexts for understanding, Tannen (1993) contends that people approach the world not as naïve perceivers who take in stimuli as they exist in some independent way. Rather, they are "experienced and sophisticated veterans of perception who have stored their prior experiences as 'an

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organized mass,'" (using Bartlett's language) "and who see events and objects in the world *in relation to each other* and *in relation to their prior experiences*" (p. 20-21, my italics). Prior experience and organized knowledge take form of expectations about the world, which enable the perception and interpretation of events.

As Tannen notes, future-orientation may have the role of establishing a sense of continuity in addition to organizing experience. Memory creates a link to the past, thus building a sense of an extended self (see for example Engel, 1997; Neisser, 1989). Reed (1994) states that "(m)emory provides a bridging ... between earlier and later aspects of one's self... Memory thus serves an integrating function, helping to keep more or less united an individual who has engaged in numerous diverse encounters, experienced many different situations, and suffered and enjoyed a whole host of feelings. (p. 278)." Yet, as already mentioned, maintaining a sense of a continuous and integrated self is achieved by creating bridges to the future as well as to the past. Both are necessary to the creation of meaning of experiences. Furthermore, I would argue that future-orientation has a significant role within families in our culture, serving the function of planning, creating, and controlling the future as an extension of past and present experiences, motivated, perhaps, by anxiety and hope.

It is interesting to note that the effects of parental preparation on children's subsequent experiences were studied mainly in pediatric psychology. Studies on coping with procedural stress have indicated that in preparing children in advance for medical procedures, information seeking in the parent-child interaction is the best coping strategy (Bearison, 1997).

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Most research on future-orientation as guiding experience has addressed the issue of planning. Plans are mental representations of what we want to do and feel committed to do. Planning is a form of active, intentional construction of future experience, which aims at achieving positive results, or avoiding negative scenarios. Friedman & Schcolnick (1997) define planning as "formulating in advance an organized method for action," which involves "the orchestration of diverse and interdependent cognitive and motivational processes that are influenced by context and that are brought together in the service of reaching a goal." (p. 14).

Children demonstrate future-oriented behaviors from very early on: Benson (1994) found that infants engaged in future-oriented behaviors even before they were able to verbally express their expectations. Trabasso & Stein (1994) report that children as young as 4 years of age were able to engage skillfully in planning, which involves emotions and coping.

The transition from anticipatory behavior to planning indicates that future thought is essential for the development of planning skills. How do children develop future-thought?

According to parents' reports, children first learn about the future from familiar routines, and they form expectations for familiar events several months earlier than for unfamiliar events, whether or not language is the means of communicating the expectations (Haith, 1997). Routines provide temporal knowledge, which includes an understanding of sequence, duration, frequency, and location of events and actions (Benson, 1997). Benson found that 4- to 7-year-old children were most accurate when sequencing activities for the past than for the future, suggesting that they had more

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difficulty thinking about activities that will happen in the future, which is unknown, in contrast to the known past. Benson speculates that children recognize that the future involves a degree of uncertainty even if the activity is highly familiar, and this is the reason for the lower degree of accuracy in sequencing future events.

The development of planning occurs in a social context. Haith (1997) notes that, although plans are far more complex than expectations, children are involved in planning even before they are able to plan from a cognitive point of view, by participating in plans designed by others. This is a scaffolded transition to internalized self-generated plans. Similarly, Rogoff (1990) claims that young children can plan when supported by adults. Rogoff views planning not as an intrapsychological cognitive process, but as part of social experience. As such, planning involves co-construction, since people attempt to coordinate and direct future activities in ways that satisfy mutual needs and goals. A second aspect of the social nature of planning is Rofogg's observation that parents identify for children culturally valued goals and help them organize their activities to meet these goals.

In summary, future orientation develops on the basis of everyday routines and the child's participation in other social activities. The research I briefly discussed so far represents two theoretical perspectives that Goodnow (1997) identifies as guiding planning studies. The first is cognitive, emphasizing the individual's ability to construct sequences, strategies, and to plan effectively. The second perspective emphasizes beliefs and motivation to plan, and social and cultural value placed on planning.

Focusing on the social context in which planning occurs, Goodnow (1997) calls attention to moral issues involved in planning. She raises issues such as the expected

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involvement of others, transfer of responsibility, and ways in which some modes of thought become "privileged," determining in what areas planning is appropriate (for instance, planning one's death). Moreover, since planning involves more than one person, different plans require various degrees of coordination. Plans also involve assigning part of the action to others, and there are normative beliefs held regarding the age- and gender-appropriateness of assignments. Goodnow contests Rogoff's notion of the amicable cooperation of parents and children in planning, pointing out that parents and children do not always agree on how much or what parts of the plan should be controlled by each of them. Parents and children may not share the same expectations that, as children demonstrate competence, parents will transfer responsibility to them.

Goodnow's analysis was of particular interest for the current project, since one of the methodological goals of this research was the identification of an event that would be relevant to parental values, ambitions, concerns, and socialization goals.

Future-Orientation and Memory

The effects of future-orientation on memory have not been studied directly. The studies discussed below use different kinds of discourse and represent several theoretical positions. However, they are significant for this discussion in that they indicate that knowledge structures, contexts, and styles that have been found to influence memory reveal in fact its anticipatory structure, as it is carved out by processes which pre-organize both experience and memory.

Research in various cognitive approaches has focused on the effects of different kinds of knowledge on memory. Though not conceptualized by researchers as future-

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orientation, knowledge is constructed and organized in many instances prior to the event to-be-remembered. On the basis of the experience of the world, knowledge about it is organized and used to predict interpretations and relations regarding new information, events, and experiences. And indeed, knowledge has been found to have a significant effect on the processing of information and on its recall (Bartlett, 1932; Chi, 1978, 1988; Nelson & Gruendel, 1981).

Knowledge as Context. How does abstract, objectified knowledge affect memory? Chi (1978, 1988) maintains that recall is related to accessibility of knowledge, which depends on the way knowledge is organized. Knowledge cannot be retrieved when it was not properly organized to begin with, or when it is represented in a way that is not accessible as a result of a mismatch between the conditions under which it needs to be retrieved and the conditions under which it was stored. The result is that children's knowledge is contextually bound, so that it can be accessed in one context and not another.

Social Context. The importance of the social and physical setting in which cognition unfolds has been recognized especially by memory researchers, viewing context not as an adjunct to cognition but a constituent of it (Ceci, Bronfenbrenner & Baker, 1988). Ceci et al. (1988) found that children were more anxious in their proactive memory (future time-monitoring) when the study was conducted in a laboratory versus home, and when the task was not gender appropriate. What provides the context for the child's cognition and action in similar situations is the representation of prior experience (Nelson & Gruendale, 1981). However, contrary to the traditional assumptions of experimental psychology, context determines the evaluation of an event in a subjective

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way (Nelson, 1997), which is not isolated but reflects interpersonal and cultural processes, as we can see in the following study.

Drawing on information-processing model, Denhie're (1988) studied memory for stories. Children and adults were asked to rate story units for importance, in addition to recalling the stories. One finding that is relevant for this discussion was considered by Denhie're paradoxical: younger children did not recall most frequently those story units they judged as most important, but rather, units that adults and older children had judged as most important. Denhie're concluded that children have two sets of rules which develop at different rates. Their recall could be explained by preexistent knowledge, and their importance ratings could not account for their recall since this system was not fully developed. Another possible interpretation to these findings is related in the understanding memory processes as a socially mediated. The mismatch between children's recall and importance ratings was a result of a their inability to evaluate the importance of story units. Rather, it reflected their implicit knowledge of which aspects of the situation are important. This knowledge is transmitted to them by adults, and this is what guided the organization of the experience and its recall, even before they were able to articulate it.

Knowledge Structures--Scripts. Tannen (1993) suggests using the term 'structures of expectations' for different notions used by researchers for processes that organize experience, such as schemas, frames, and scripts. Knowledge structures are structures of expectations that refer to people's expectations about people, objects, events, and settings in the world. Further, Tannen claims that the only way anyone could

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understand any discourse is by filling in unstated information that is known from prior experience in the world (see also Schank & Abelson, 1977).

Scripts are a specific form of knowledge structures. Young children have knowledge of routine and familiar events, organized as generalized event representations, which are termed 'scripts' for these events (Nelson, 1986). These are organized schematic, skeletal representations of knowledge about the world (Nelson & Hudson, 1988), derived from experiences of real world events (Nelson & Gruendel, 1981). Scripts can be viewed as a form of future orientation: Reliance on generalized event representations provides children with a framework for anticipating event sequences when planning for future occurrences of familiar events (Hudson, Sosa & Shapiro1997). Understanding an event is at least partially a function of how it fits into previously established schemas. This understanding may be employed to aid memory from a very young age (Hudson & Fivush, 1983). Bartlett (1932), whose work underlies much of the present day schema theory, has described such effects on memory as influence in the direction of pre-existing schema.

Script knowledge may affect memory for both content and organization of events. It enables predicting and planning for future similar situations, guiding action and interpreting what is said about events. It provides organization that enables the child to sequence components (Nelson & Hudson, 1988), so that when memory for an event fades, children reconstruct it according to an existing script (Hudson, 1986).

Hudson & Nelson (1983) compared 5- and 7-year-olds' recall of script-based stories. While children's recall at both ages was influenced by scripts, a developmental effect was found: Pre-school children relied more on the activation of familiar scripts

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than did older children, and their recall was better for familiar events. They were less able to recall information that did not match their event representation. First graders remembered unexpected information better than younger children. With age, children revealed more flexibility in the use of scripts for recall. The greater dependency of younger children's recall upon the organization provided by scripts brings up a question relevant to this study, of whether young children are more dependent than older children on the organization provided by parents-child anticipatory conversations.

Prior Knowledge. In an effort to distinguish between the effects on memory of script-driven knowledge and more specific event knowledge, Ornstein et al. (1997) investigated whether prior knowledge of doctor's office visit routines fostered the general reconstruction of the event, or served as a guide for retrieving specific memory. Preschool children were asked about a visit to the doctor's office at 3 delay intervals. For each component of the check-up, recall scores were correlated with knowledge scores (obtained in another sample). The findings revealed a high correlation between knowledge and encoding scores (obtained immediately after the check-up) and not with recall, suggesting that prior knowledge was more related to encoding than to memory. Script analysis (for language used in scripted narratives, and for more familiar items) revealed better and more consistent recall for scripted than for non-scripted items.

Ornstein et al. (1997) suggest that scripted knowledge influences children's understanding of the event and enhances the construction of its underlying representation. As for recall, children use scripts as retrieval guides, and test for information concerning the presence of specific activities in the particular situation. This explanation is consistent

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with the expectations of script theory, and is also supported by the finding that children recalled better scripted than non-scripted items.

I would add here that changes over time in the knowledge-memory relation should not be discussed only in terms of errors, decrease in number of items in the recall narrative, and differences between retrieval and encoding. I see this relation as a developing process of consolidation that occurs in the context of what we expect and know. This is how prior expectations and knowledge get intertwined into memory.

Goals and Knowledge. Nelson & Hudson (1988) propose that scripts aid memory because of the relation of both to goals. Understanding the goal for remembering improves memory, and as the goal of an event is incorporated into its structure, when a script is used to aid memory, the embedded goal makes the task more meaningful.

Goals organize knowledge, provide meaning, and support memory, as Stein et al. (1997) propose in their model of goal-structured knowledge. Situations are understood according to personal goals and emotional reactions operating at the time of the experience. It is through understanding that events take on meaning and emotional valence, all of which affect the organization and content of subsequent recall. Goals, actions, and memory are influenced by prior knowledge and beliefs brought to the situation. For example, children's memories of procedures involving physical touch cannot be understood unless we know how the child understands its context and consequences. Children's understanding may be different than that of their parents. Stein et al. (1994) found differences between children's and parents' accounts of an event in which the child had expressed anger. Even though parents and children participated in the same situation, they encoded it differently, each focusing attention on a different part of

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the event, or creating different interpretations of the situation. As a result, their subsequent memory for the event was different.

Internal Working Models. Bowlby's attachment theory (1969) offers yet another significant structure of expectations around which experiences and memory are organized. The mechanism it describes is similar to that of scripts, with an emphasis on affect within the interpersonal domain. Children develop internal working models of the self and other based on their primary caregivers' sensitivity and responsiveness to their needs. Internal working models are cognitive and affective knowledge structures which form the basis for the child's expectations of others. Parental attachment style was found to be predictive of their communicative style, and communication affects children's memory for stressful events (Bretherton, 1993). It facilitates the release of frightening feelings, and eventually this will enable the child to think in a calmer way, using fewer defenses, and consequently to have better recall of the event. Goodman & Quas (1997) studied children's memory for an invasive medical test. Children (of 3- to 10-years of age) were observed during the test, and were asked to recall it at 2 time points. Parents' attachment scores were related to the child's stress during the test, and stress was associated with more memory errors. Interestingly, the results revealed that correct memory was related to the child's age, but parents' attachment style, rather than stress, was related to memory errors.Goodman and Quas speculate that children of anxious-ambivalent parents may become preoccupied with attachment-related issues during a stressful event, which may influence the encoding and the amount of inaccurate information they report in their recall narrative. Thus, parental communication and support may be important in understanding children's memory. Sensitivity and

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responsiveness to children's needs may be of importance not only when children cope with stressful events, but also when parents interact with children concerning future experiences, because of a degree of uncertainty that is inherent in anticipating the future.

The findings reviewed in this section constitute the effects of expectation on memory, though not studied under the rubric of future-orientation. Knowledge, scripts, contexts, goals, expectations and working models may be formed in direct experience. However, many times they are conveyed to children by parents, mainly by talking about the future, preparing the child for an event, sharing stories about expectations, or planning. Parents' interpretation and understanding of the anticipated experience are central dimensions in the process.

Future Talk

Very few studies have investigated future-talk as such, even though most research of future-oriented processes has derived its data from verbal reports of children and adults about future occurrences. These processes unfold in language in different ways: when children are old enough to use both their own and others' verbal representations, and even before that, when parents talk to children about what is going to happen.

Conversations about the future are very common in families. Lucaiello and Nelson (1987) found that more that three quarters of observed conversations between mothers and their 2-year-old children focused on future-oriented routines and events. Consistent with this is Benson's (1994) finding that parents often talk with children about the future even as early as at the age of 9 months, even though they believe their child understands

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little about the future. They believe that by establishing routines and talking about what will happen, they teach their children about the future.

The following studies examine aspects of future-talk; its form, thematic focus, and the structure of verbal interaction about the future.

Structure of Future-Talk. Nelson's analysis of pre-bed monologues of a child (1993b) reveals that Emily's accounts of the future were based on accounts that her parents had provided before they left the room about what they would do later, and she often repeated these accounts. Based on both her conversations with her parents and general event knowledge, she projected into the future.

Comparing talk about the past, present and future, Nelson (1993b) argues that talk about an event after it has occurred has the characteristics of a narrative, and talk about an ongoing event has the form of an ongoing commentary. Nelson discusses the question of whether future talk reflects a narrative form. Usually such discourse has a temporal structure, locating events in time and sequencing them. It often projects intentions, attitudes and evaluations, and contains what is necessary for the landscape of action and the landscape of consciousness (Bruner, cited in Nelson, 1993b), but lacks 'trouble'. Returning to Emily, events that were novel to her were familiar to her parents, thus presented in the canonical event form of a script. Nelson further claims that, even if parents anticipate trouble and are anxious about certain aspects of the event, they will not convey it to the child as part of the report. It is interesting to note that when Emily talked to herself about future events, she added anticipated 'trouble', which had not been included in her parents' accounts (Nelson, 1993b).

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Preliminary findings of a study about parent-child conversations in preparation for summer camp (Presler, in preparation, a) indicated that parents covertly introduced 'trouble' in their future-talk. When they anticipated trouble, they did not convey it directly to the child as part of the content of the talk but in other forms. Parents revealed their concerns by choices they made of what to discuss and which aspects of the situation to highlight, and by using other ways as well, such as empathic failures, failing to respond, shifting the topic of the conversation, repetitions, and implementing positive evaluative terms.

Organization and Time-Orientation of Interactions about the Future. The social context of future-talk underlies studies on the organization of parent-child interactions about the future. Gauvain & Huard (1998) studied the development of planning-talk in families, hypothesizing that children's participation in conversations about future activities with other family members, in particular parents, may play an important role in the development of planning skills. Although Gauvain & Huard use the term 'planning skills,' their data consisted of conversations about planning, and we know that the ability to talk about planning and planning skills do not develop at the same rate (Haith, 1997). Therefore, I use here the term planning-talk. The longitudinal data set consisted of naturalistic observations at home around dinner- and bed-time, and was collected at three stages: preschool (4-year-olds), primary school (9-year-olds), and adolescence (15-year-olds). A thematic analysis revealed that short-term (same evening) concerns, both personal and family, dominated families' planning-talk. With development, there was an increasing mixture of long- and short-term concerns: in childhood, short-term concerns

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dominated planning-talk, and by adolescence, long-term concerns took on a salient role in family interactions.

Analysis of participation patterns indicated that the primary initiators of planning-talk at all time periods were mothers, but this pattern changed with children's development. Over time mothers' rate of initiation decreased, and children increased their active participation in future-oriented talk, especially in the late school years. This pattern of interactions was constrained by parenting styles. Families with noninductive parenting styles (Baumrind, cited in Gauvain & Huard) promoted more planning-related behaviors, and authoritarian styles—the lowest rates of children's future talk. Only families with neglecting/rejecting parents had fewer instances of child-initiated future talk. These findings support the proposition of the current study, that by talking about the future parents regulate and canalize children's actions. The adults in Gauvain & Huard's study regulated interactions about the future in two ways: by determining the amount of planning talk, related to parenting styles, and by maternal initiations of planning-talk. Children's active involvement in planning-talk changed with development and was expressed by an increased rate of initiations.

Consistent with Gauvain & Huard are Benson's (1994) findings that parents of very young children reported talking most frequently with their children about events occurring in the near-term future, compared to longer-term future. Surprisingly, the reported frequencies of short- and long-term future talk did not change much with the age of the child, that is, in contrast to Gauvain & Huard's findings, parents did not adjust the nature of their future talk to the degree they believed their child understood future-time units.

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The finding that interaction patterns of planning-talk changed with development (Gauvain & Huard, 1998) does not imply that plans are always shared and reflect cooperation between parents and children. Rather, in many cases parents may introduce plans about the future in an effort to cause children to cooperate and perform according to the purposes and goals set for them. For instance, interactions and discursive processes can be used to inhibit the child's perspective and draw attention away from knowledge, or to enhance understanding and joint processing of situation relevant knowledge. From this perspective, the following study is of particular interest since it identifies possible strategies that parents use to achieve children's cooperation and enthusiasm about a future plan.

Eisenmann (1996) studied communicative processes between mothers and their 17- to 36-month-old children prior to a brief separation. Two modes of the mothers' verbal processing of the plan were identified: (a) In the space of interaction, which is established for representation and for possibly negotiation of the plan, mothers involved the child in a process of joint imagining as a presupposition of understanding, and (b) in the space of execution, in which separation related actions were at the same time verbally represented and performed. In this space, mothers made the action known, not involving the child in a common space of action.

Independent of age but related to gender, mothers displayed different modes of structuring the future event. Mothers of girls established a space of interaction, and within it carried out more separation relevant propositional acts (referring to the propositional structure of the preparation). Mothers of boys tended not to establish a space of

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interaction; they made their plans known, if at all, and negotiated them in the space of execution of the action.

These findings imply that mothers construct communication about a future event according to their own, sometimes implicit, expectations of the child's reaction to the maternal plan—understanding or resistance. The mothers in the study expected girls to understand and boys to resist, and prepared them for the future separation accordingly. By subtly changing the length of the temporal gap between verbally representing the plan for action and its realization, mothers manipulated the child's ability to respond to the plan, thus ensuring that they would be able to it carry out.

Functions of Future-Talk: Facilitation and Control. Parents are usually very good at adjusting to the developmental level of their child when they discuss past experiences (Bauer & Wewerka, 1997; Eisenberg, 1985; Hudson, 1991) and plans for the future (Gauvain & Huard, 1998). How, then, can we explain the findings that parents did not adjust the nature of anticipatory discourse to their child's age (Benson, 1994; Eisenmann, 1996)? I suggest that the explanation is related to different functions of future-talk according to its implications for action.

Parent-child conversations about the future studied by Gauvain & Huard took place in what Eisenmann defines the 'space of interaction,' where goals and plans for activity are negotiated. The findings revealed dynamically changing patterns of communication, sensitive to the child's developing ability to initiate planning-talk. However, the children in Gauvain & Huard's study were much older than the children facing separation in Eisenmann's study. It is possible to hypothesize that parents need to feel confident in order to let the child participate in the conversation, because of concerns

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and anticipated disagreements about the child's ability to understand and take responsibility (Goodnow, 1997). When parents and children reminisce about past events, parents seem to have a good and intuitive ability to adjust their participation and scaffold the child's memory narratives, encouraging the child to take an active role in the conversation. We may speculate that future discussions have direct implications and a potential to actually cause changes in the daily life of the family. Therefore, to avoid trouble and interference with their plans, parents may tend to delay enabling the child take an active role in the conversation.

Another possible explanation is related to the different nature of data and analyses of Eisenmann and Gauvian & Huard. Eisenmann used a functional pragmatic linguistic micro analysis of videotaped actions and verbalizations till the actual mother-child separation, in contrast to Gauvain & Huard's thematic analysis of summaries of field notes of conversations that took place much before the plan was carried out. It is possible that, with age, children initiated more planning talk, but the parents' response to the plan, as well as children's actual ability to carry out plans in the context of the family were not discussed. As Gauvain & Huard note, since they studied initiations and self- and family-related plans, information about the affective tone, other opinions expressed, and the outcomes of the conversation was missing, which might have been contrary to the content of the conversations. We don't know that parents adjusted their interactions with children on the 'plane of execution.'

It is possible, then, to speculate that when parents' expectations, beliefs, and their own plans are concerned, they either do not necessarily adjust their talk to the child's developing understanding and skills, or they delay their adjustment till the child is older,

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depending on the nature of the future event. When anticipatory conversations do not lead to immediate action or consequences, parents may conduct them in a way similar to conversations about the past, and scaffold the child's participation in the conversation.

Narrated Preparation and Memory. A study that directly investigated the effects of talking about an event before children experience it on their recall was conducted by Pipe (1996). Five- to 6-year-old children were prepared for an event ("visiting a pirate") by a story about the event. The main findings indicated very little influence of preparation for the event on its recall. When the event was followed by narration, children who had been told the story before the event did not recall more information than children who had not been prepared. According to Pipe, this was due to the lack of additional information provided by the story to the full narration that followed the event. When the event was not narrated, verbal recall of children with either pre- or post-event story reading was better and more accurate than that of children with no story reading. Pipe concludes that meaningful narration provides a framework for children's interpretation of an event, by familiarizing it and enhancing understanding, which facilitates recall.

Pipe's study provides some support for the proposal of the current study that talking about a future event affects its recall. However, in contrast to naturally occurring conversations about the future, preparation for the future in Pipe's study consisted of narrating the event by story-reading. This method raises two issues: First, the dynamic aspects of conversations about the future within families—the nature of parent-child interaction, and parental expectations and motivation such as that the child is properly prepared for the event—are missing when an investigator reads a story to the child. Second, there is no reference in the study to the child's input during the preparation, so

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that little is known about the active role of the child in the pre-construction of experience, even though the preparation itself was standard and highly structured. These two dimensions are of central interest in the current project.

To summarize, children are dependent upon adults and their world is socially shared. Parents are a powerful source of knowledge about the world, especially knowledge about the future, as it always has an element of uncertainty. It may seem obvious that families discuss not only past and present experiences but future events, goals, and plans as well, and that these conversations have an important role in children's lives and considerable impact. Yet there is little systematic research on parent-child interactions about future events (Nelson, 1993a), especially concerning the effects of future-orientation on the child's experience. The question of its effects on memory has not been addressed so far.

As discussed above, autobiographical memory—an intersubjective process that is constructed in language—has been studied from the perspective of the time of recall, viewing memories as reconstructions of past experiences, or from the perspective of the ongoing event, focusing on joint construction of experience. We know that conversations both during and after an event is experienced have a central role in the establishment, maintenance, and modification of the underlying event representation, and serve to organize it. If memory for an event is at least partially shaped while it is experienced (Bauer & Wewerja, 1997; Haden et al., 1997; Nelson & Tessler, 1994, among many others), then the boundaries of 'event', or even of 'memory', are formed in a subjective, psycho-social domain rather than by an external, objective reality. 'Event' and 'memory'

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are not dichotomous but dual aspects of an experiencing self. The proposal here is that 'event' is not bounded to the time of its actual occurrence, as it may become an 'event' in different forms after or prior to its existence in reality. One way that events come into existence is by being anticipated in conversations, which direct the child's attention to particular aspects of the experience, create meaning and provide contexts for understanding.

PRELIMINARY STUDY

A previous study explored to what extent and in what manner adults frame an anticipated experience, and to what extent children integrate these frames into their anticipatory representations of the event, as well as their memory of it (Presler, 1996). The effects of preparatory conversation on children's anticipation and recall of a novel event were studied in two kindergarten classes (T1 and T2), whose teachers had different teaching styles, that were selected based on previous observations. The classes were observed when the teachers prepared the children for a visit of a mobile planetarium. Thirteen children, ranging in age from 67- to 74-months, 8 from T1 class and 5 from T2 class, were interviewed at three times points: one day following the preparation talk, and 2 days and 5 weeks following the show.

At the first time point, the children were asked an open-ended, general question about the show ("Can you tell me about the planetarium show, what is it going to be like?"). The interview at the other two time points consisted of a general question about the show, and a series of specific open-ended questions.

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The analysis of the preparation talks revealed that they were similar in length and specific information the teachers provided. However, the conversations were different in the way teachers framed the show and the organization of the talk. Teacher T1 prepared the children as part of a game about space and framed the show as a learning activity. Children's participation in the talk focused on the content of the show and on knowledge. Teacher T2 prepared the children between two other unrelated class activities and framed the show as a fun activity. In her preparation she created an atmosphere of drama, excitement, and suspense, and presented the show as an adventurous event. The children in this class commented about situational-procedural aspects of the show.

The organization of the conversation in class T1 was child-centered: the interaction in the class determined the way the conversation evolved. The teacher's narrative was divergent; she responded to the children, shifted from topic to topic according to children's initiations, and elaborated on their ideas. The conversation in class T2 was teacher-centered: the organization of the teacher's narrative was linear, she told a cohesive story, elaborated on children's comments only to advance it, and questions were briefly answered.

The following topics were explored in reference to the thematic focus of children's accounts, and their organization in terms of cohesion and narration:

1. The effects of preparation on children's expectations and recall; did the teacher preparation create a 'shared culture' in children's event representation?

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2. The relation between children's anticipatory accounts of the event and subsequent memory.
3. Changes in children's recall of the event over time and their relation to the anticipatory talk.

Children's accounts were coded for content (procedure- and content-related objects and descriptions), cohesion (total number of conjunctions; additive, causal, and temporal), and narration (total number of clauses, independent and subordinate).

The question of 'shared culture' was addressed by using a qualitative approach—*Interpretive Profile Analysis* (Daiute, 1994), which is a spatial description of how children orient themselves to a target concept domain. The analysis revealed that before the show T1 children concentrated on content-related items and demonstrated larger within-class variability. T2 children concentrated on procedure-related items, tending to mention the same items. Immediately following the show children of both classes increased their elaboration on both procedure and content of the event, but T1 children elaborated more on content. Five weeks after the show T1 children increased the number of both content- and procedure-related items, demonstrating more variability, and T2 children decreased the number of items in both categories. These findings were supported by quantitative analysis.

Thus, the thematic analysis of children's anticipatory and recall accounts revealed different and developing patterns in both classes: There were different emphases on content and procedure, and this pattern changed over time. There was also an increase or decrease over time in the amount and diversity of themes mentioned. In their anticipatory accounts, T1 children focused on "things to be learned," and T2 children on "things that

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will happen at the show." Children's anticipation reflected the different framing of the show by the teachers. It seems that both preparation talks were effective at this point in that the story was already formulated for the children by the teachers as a verbal representation, and they were able to use this in their narratives as their own representations of the anticipated event.

After the short delay, compared to their anticipatory accounts, all children increased their elaboration on the procedure and content of the show. Despite several differences between the classes in emphases and diversity, children's immediate recall accounts did not reflect either the preparatory conversations or the children's expectations of the show, and it is possible to speculate that this is due to the salience of the show they had just attended. The accounts of the event were transformed verbal representations of what they had just experienced.

A fundamentally different pattern was revealed after the long delay. T1 children continued to increase their elaboration on content and procedure, and their accounts became more diverse. T2 children's accounts became less elaborate and less diverse for both content and procedure. This emerging difference between the classes in children's memory accounts was revealed in the cohesion and narration of children's accounts as well. T1 children's delayed memory accounts were more cohesive compared to their immediate recall accounts, and more cohesive than T2 children's accounts at any other time point. The delayed recall accounts of T1 children were more narrated than their anticipatory accounts, and more narrated than the accounts of T2 children. The increased cohesion and narration were unique to T1 children's recall accounts 5 weeks following the show, and was not found at the other time points.

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Another aspect was addressed by correlating the cohesion and narration measures between anticipatory and recall accounts. For T1 children, high correlations were found between the anticipatory and delayed recall accounts for both cohesion and narration. No such pattern was found for T2 children. This indicated that there was continuity in "telling a story" in T1 children accounts when anticipating the show and recalling it 5 weeks later.

What was the reason for the differences in the evolving stories in the two classes? In the intervening time between the show and the second memory assessment children's stories of the show consolidated: T1 children developed a detailed, more coherent story, with personal characteristics. The event was internally transformed into the child's typical style as the child's own story, which was revealed also in the child's anticipatory account of the show. T2 children's accounts became more simplified and general, and the event lost its unique features in their stories.

To further address the research questions, another measure of recall—the percentage of correct answers to specific questions—was analyzed. This enabled a comparison between free recall and what children remembered when asked directly about details of the show. It was expected that the children would demonstrate better recall in their answers to specific questions than in free recall.

The questions were divided into two categories according to their relation to aspects of the show identified previously: (a) Procedure, both experienced but not discussed, and discussed and experienced, and (b) content, discussed and experienced, and only discussed but not seen. Overall, there were no significant differences between T1 and T2 children in the percentage of correct answers at both recall interviews, and no

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significant differences were found between the two memory assessment times. Children in both classes recalled better the procedure of the show than its content.

These findings are surprising since they indicate that the thematic and structural differences between the children and the changes observed over time cannot simply be related to differences in recall. First, the increase in elaboration of content, cohesion and narration in the accounts of T1 children, and the decrease in those of T2 children five weeks after the show did not reflect children's amount of recall. Second, the focus on content or procedure was not related to differences in recall of content and procedure, since children in both classes better recalled information related to procedure than to content.

It is possible to state at this point that preparatory conversations affected children's anticipatory accounts and were related to the emergence of personal features in the spontaneous recall narratives over time. The child-centered, divergent structure of the preparation of teacher T1, which was sensitive and responsive to the children's contributions, enabled T1 children to express their own ideas and knowledge and possibly, to form a rich representation of the event. Thus, their accounts were more continuous and personal than those of T2 children. The nature of the interaction in anticipatory conversations may be a significant factor in the effectiveness of such discourse.

The effects of framing provided by the preparation talks need further consideration. When not guided by adults' questions, children reminisced about the event in a similar manner to the way it had been presented to them, not necessarily reflecting the aspects of the event of which they had better recall. An alternative explanation of the

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emphasis on content despite better recall of procedure in T1 children's accounts may be related to the interview setting. In addition to teachers' emphasis on the importance of the event for learning, the context of the event as well as the interviews was school. Children's memory accounts may have reflected not only the experience itself, but their understanding of the interview situation, their interpretation of the interviewer's expectations, and their own expectations of themselves in school.

Another aspect of the preparation talks that may explain their powerful influence on children's memories of the show is teachers' interest in the future event which guided the children. Being responsible for many aspects of the event, the teachers wanted the children to cooperate, to attend the show without trouble, and to experience what the teacher perceived as important about the event—fun or learning. This perspective refers to adults' construction of the children's environment and guidance of their actions (through the Zones of Free Movement and Promoted Action of Valsiner, 1987). Support for this explanation was provided in another study (Presler, in preparation, a): parents of 4- and 6-year olds reported that preparation for future events was intuitively planned by them, depending on the nature of the event (positive, negative, or neutral), and on their goals regarding the child's participation in it. When parents were interested in attending a future event, they considered and anticipated the child's responses, and the possibility of the child not wanting to cooperate. This exemplified what Eisenmaan (1996) refers to as communicating in the space of execution. When expecting resistance, parents prevented negotiations about carrying out the plan. When the event was judged by parents as neutral, or parents did not feel involved in the decision to attend the event, they tended not to plan the preparation for the anticipated event.

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This perspective suggested that choosing the "right" event was of methodological and theoretical importance. It was assumed that parents' interest in the event (in executing a plan, transmitting values, and shaping the child's future interests) would be reflected in increased involvement in the anticipatory conversations.

OVERVIEW AND PURPOSE OF THE CURRENT STUDY

The proposed study sought to describe the developmental process of integrating social and direct representations of an event into a personal story. The findings in the previous study (Presler, 1996), that conversations about a future event have different effects on children's anticipation of the event as well as on long-term recall, were taken as initial evidence for both the anticipatory structure of memory, and the effectiveness of the social nature of the preparation. The effects of anticipatory interaction on children of different ages was explored as well.

In addition, the current study aimed to identify attributes of the development of individual recall accounts of children. This goal was twofold: First it dealt with the challenge of documenting parent-child interactions about a future event, and how they affected the representation of the experience in memory, on the level of the individual child. Second, it involved examining whether and how recall of the event developed from reflecting its social origin to expressing the child's personal story. Naming the child's account a story implied that it was created in language and told to others. My proposal was that *personal* referred to an interpretive work that was in process, and to other layers in the child's life rather than the immediate interaction about the event.

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The *event* in the study was the participation of mother-child dyads in a science workshop of the Discovery Room at the American Museum of Natural History in New York. The general longitudinal design was similar to that of the preliminary study; however, children between 5- to 8-years of age were studied.

The following issues were raised in the previous study and were subject to further exploration:

1) The social context of the anticipatory conversations and the study's unit of analysis; the way the conversations were documented; the attributes and functions of anticipatory talk, and the implications for the role of intersubjectivity in these conversations.

The preliminary study was carried out in a class setting in which teachers prepared the children for the event. Since the social world of young children consists primarily of family members—peers, school, and teachers appear at a later phase—it was important to investigate how dyads of parents and children talked about an event in their lives in which they were about to participate. Another reason for exploring attributes of future-talk within the family was the expectation that it would add to our knowledge about the emergence of memory discourse, a topic that has been studied in families. It is interesting to note that this focus on the family in research has begun to shift, as demonstrated in Engel's (1997) study of the emergence and development of exchanges of autobiographical information among young children.

Another reason for studying mother-child interactions was methodological: in the preliminary study the preparation session was observed in a macro, global way, and the unit of analysis was the class interaction. In the present study the unit of analysis was mother-child dyads. This also enabled investigating in detail the effects of specific

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features of the anticipatory conversation on children's memory, thus gaining insight to the development of parent-child conversations about the future. This issue has been addressed by Benson (1994) in a study of the origins of future-oriented processes in 18- to 36-month-old children, but her data consisted of parental reports of such interactions rather than direct observations. Moreover, the reports of parents in this study consisted of ratings in response to pre-set questions, so that there is limited information available.

Specific questions concerning the attributes of anticipatory conversations were of relevance here. Of main interest were examining the structure of the interaction; its organization in relation to child- or parent-centered dialogue; different ways of framing of the anticipated event; and finally, identifying how this framing was carried out in the context of the interaction.

Finally, in the discussion of future-talk, I argued that one of the functions of such conversations is to structure the child's environment, and that when parental beliefs, plans, and expectations are involved, parents may use different strategies to transmit them to the child, and even to prevent the possibility of the child not cooperating in carrying out plans (see Eisenmaan, 1996). In a pilot study for this project (Presler, in preparation, a), parents were asked to talk with 4- and 6-year-old children about going to summer camp in the following week. When children expressed resistance to the plan, parents used different strategies to clarify that going to camp was not negotiable.

The present study explored how these issues of parenting and socialization were manifest in conversations about the future. The question was how parents use this kind of discourse to guide, constrain, and regulate the child's relationship with the environment. Analyzing conversations about the future in terms of parental sensitivity to the child's

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comments, and whether empathic failures serve the purpose of guiding of the child's action and meaning making, may give insight into this function of anticipatory conversations.

2) The preliminary study did not explore the age-related developmental perspective of anticipatory conversations and their effects on memory. The present study addressed development in two ways: by studying children of different ages and by the longitudinal design of the study.

Between 5- to 8-years of age there are changes in several aspects of the child's life. In terms of language development, the representational function of language is increasingly established, and, in addition, around the age of 5 children are able to differentiate between their experience and that of others' [because of their increasing ability to keep competing representations separate, as Nelson (1999) argues]. From this perspective, the child may incorporate the anticipatory conversation in different ways, according to the child's age. The way parents talk to children of different ages about the future may be different as well. Keeping in mind Benson's (1994) and Eisenmaan's (1996) reports, that parents did not adjust the level of future talk to the child's developmental level, this aspect was further explored in the present study.

The social world of children expands between the ages of five to eight, and their sense of self is established (Kohut, 1971). Going to school and then learning to read and write are other major transitions. Younger children are more dependent on the way the world is presented to them by adults, because the family is their world, and because of the lack of other sources of knowledge about the world. Thus the study explored the

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possibility that anticipatory conversations have a different influence on the expectations of younger and older children.

Development in the second sense was examined in the study by focusing on transitions from talk about the anticipated event to the construction of the experience in memory over time. Of major interest was the issue of consolidation of memory suggested in the preliminary study, and the differentiated effects of preparation styles on delayed recall of the event, as it became related to other aspects in the child's life.

PILOT WORK

As mentioned above, there is very little research on future-talk and most of the work that has been done focused on planning. Two exploratory studies were conducted to help design the study, formulate research questions and parameters to be analyzed, and gain more insight into aspects of experience that were of interest in the current research: conversations about the future in naturalistic settings, and mother-child construction of experience. The pilot studies addressed technical and methodological as well as theoretical questions.

Parent-Child Conversations about the Future

The first study (Presler, in preparation, a) was designed to explore attributes of conversations about the future which had not been directly addressed in research. Ten dyads of parents and 4- and 6-year-old children were asked to discuss two future events in the child's life—going to summer camp, and another future event that the parents were

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asked to choose. The conversations took place during the week before camp started. Following the conversations about the future events, parents were asked about their perspective regarding conducting such conversations with their children, their thought about the two specific events discussed, and general aspects of talking to children about the future.

A preliminary analysis revealed that parents consciously used different strategies when preparing children for future events. The strategies were related to the parents' perception of the nature of the event for both children and parents (positive, negative, and neutral), parental assessment of the child's personality and history, anticipation of the child's reaction to the preparation, and experience with older children in the family. The strategies included decisions such as when to initiate future-talk, how often to do it, and how elaborate it had to be.

Other preliminary findings of the analysis of the interaction revealed subtle ways that parents employed to avoid anticipated resistance and problems. When children expressed lack of enthusiasm about camp, parents used diverse strategies to prevent the child from negotiating the issue. Parents repeated the phrase "isn't it fun?" or "won't it be fun?"; they directed the child's attention to what they perceived as tempting aspects of the activity; they switched from one aspect to another when the child protested: "Don't you want to go swimming, like your sister?", "swimming is fun," or "let's see who else is going." The most interesting and subtle strategy was revealed by parental empathic failures, in which—contrary to other segments of the conversation—parents did not respond to the child's comments; responded only partially, and failed to understand by responding after the child had made a comment, but referring to a non-related topic.

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Joint Construction of Experience in the Context of the Child's Life

A second study explored the way children and parents jointly constructed the experience of visiting the museum (Presler, in preparation, b). Four dyads of mothers and their 4-year-olds were asked to visit the African Mammals Dioramas in the Natural History Museum in New York. Their verbal interactions were audio-taped and they were observed by me as well. Several facets of the question of what happens when a child visits the museum with a parent were addressed: who guides the visit; what strategies are used for guiding and for resisting; how tensions are solved; and most importantly, how the above issues are related to the child's life. This last perspective was of important for the current study, since it emphasized that the visit was part of the child's life, and focused on the nature of bridges that were created, and on the question of who created these bridges.

Preliminary findings indicated that children preferred exhibits that were relevant to their lives, in terms of previous related experiences or other personal significance. The affective component of the experience was salient in children's choices. To illustrate, a child wanted to see the zebras, since he had a book about them he liked. Another child wanted to go back to the buffalo diorama, because it reminded him of his dog that had died several weeks before the visit.

To conclude, the preliminary findings in the two pilot studies indicated that a) the choice of the "right" event was important, because its perception by parents influences the way they talk about it; b) one direction (and challenge) of analyzing the anticipatory conversations should consider ways to grasp empathy and empathic failures in the

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interaction, and c) the analysis of children's memory accounts should consider the child's personal perspective.

MAJOR RESEARCH QUESTIONS

1. What features of parent-child conversations about the future may be related to children's subsequent memory?

   Because of the lack of sufficient data on anticipatory conversations this first research question was not specific and aimed at identifying possible factors that would emerge in the analysis of the conversations. The following aspects were the starting point of the analysis:

   a) Framing in the anticipatory talk.

   b) The structure of the interaction (for instance, is the interaction child- or adult-centered).

   c) Parents' adjustment of their talk to children's age and gender.

2. How do children between preschool- and early school-age recall an event, and how does their recall change over time? Children's memory reports were analyzed for content, narrative structure and cohesion.

3. a) To what extent can children's recall accounts be related to the anticipatory conversations and how? Does the experience override the effects of the anticipatory talk, or do the recall accounts integrate both?

   b) Are there developmental differences with age in the effects of anticipatory conversation on memory accounts?

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c) Is it possible to trace changes over time in children's memory accounts to processes in the anticipatory conversations?

Because of the exploratory nature of the study, the question of the effects of anticipatory conversations on children's subsequent memory was further specified, based on the analysis of the conversations for factors that may affect memory.

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CHAPTER II

METHOD

PARTICIPANTS

Parents and their 55- to 97-month-old children were recruited from public schools in the New York metropolitan area and Jewish private suburban schools. The schools were contacted with the help of the American Museum of Natural History in New York. The parents were sent a flyer describing the study and the museum workshop. Parents who expressed interest in participating received a consent form and a flyer including more specific information about the workshop topic, location, and time. As a 'bonus' for participation in the study, the museum invited the parents and children to visit the Diamond Exhibit. Permission to interview the children during lunch-time or other school hours was obtained from the school principals.

Forty-three dyads are included in this report. Fifteen other dyads completed the first part of the study but were missing sessions for other parts. The conversation data of 5 other dyads who participated in all sessions were not available because of technical problems with the recording.

Most parents who participated in the study were mothers (only 3 fathers participated). The children came predominately from middle- to upper-middle-class homes, 41 European-American. Only 1 father and 1 mother were not college graduates. Of the 43 children, 1 was an only-child and 9 were first-borns. Of the 43 parents, 4

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mothers were single parents. All other children were living by the time of the study with both parents.

The children were divided into 4 age groups matching, with 3 exceptions, the relevant grade level. For simplicity I will refer to them in terms of grade levels.

(1) Pre-K: 11 children (6 boys and 5 girls) with a mean age of 5 years 1 month (range 55—65 months).

(2) K: 8 children (4 boys, 4 girls) with a mean age of 5 years 9 months (range 67—72 months).

(3) 1st Grade: 14 children (9 boys, 5 girls) with a mean age of 7 years (range 78—87 months).

(4) 2nd Grade: 10 children (6 boys, 4 girls) with a mean age of 7 years 8 months (range 88—97 months).

The Families

As we will see later, the data analysis in the study explored intersubjective qualities of parent-child conversations, e.g. framing and interactive style, as well as qualities of children's memory narratives. This focus is a move away from external social attributes of the parents and children who participated in the study. Many features of the conversations studied (between parent-child and experimenter-child) are tied to the social interaction, to properties of the ongoing conversational situation and to the way it is understood and interpreted by the children. The question, though, is whether it is possible to attribute these features to external and obvious social factors such as social class, place

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of residence, and parents' education and religion that characterize the participating parents and children.

However, since the majority of the participants belong to a particular community, let me describe it, bearing in mind that the relation between these social features and the current research questions is not known and was not examined in the study.

Thirty-six dyads were recruited from 2 suburban Jewish private schools (*yeshivas*). The label *private school* may be misleading, since the philosophy of these schools is to admit any child whose parents are interested in Jewish education. The schools subsidize the cost of children whose parents cannot pay mainly by the high tuition. Thus, the social texture in *yeshiva* is not uniform, and families' income may be very high or very low. Although all families live in the same towns, their homes vary from apartments to big houses and even mansions.

Although the 2 schools are defined as Modern Orthodox, their religious-political position is not identical. The dress code in one school is stricter, and most teachers come from ultra-Orthodox communities and dress accordingly. Another, related, difference between the schools is their view of women's role in the religious world. In one school girls learn the Talmud whereas in the other, girls learn only the Bible and Jewish Law.

For all participating families (with one exception) English is the first language, but Hebrew has a central ideological role in school and at home. Most children refer to their parents by the Hebrew word for *father* and *mother*, and in school, certain Hebrew words are used as markers of the social order and of the daily routine. Paradoxically, the children are not Hebrew speakers, although prayers and Jewish subjects are conducted and taught in Hebrew.

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Most fathers and some mothers are professionals. Although all mothers have at least a college degree, 26 are homemakers and 5 work as teachers in Jewish schools. This may be partially related to the fact that 23 children come from families with 4 or 5 siblings. This combination of being part of the outside world and raising relatively traditional families was reflected in families' history of museum visits: Most mothers reported they had repeatedly visited the museum with their older but not younger children, because they could no more spend time only with one or two children. Parents volunteered to participate, and although they knew that the workshop would be about myths of the Plains Indians, they did not express objection to the topic (with few exceptions). However, potential discrepancies between the museum message and culture were expected. This perspective was not brought into the analyses, and will be addressed in the future.

Finally, an important attribute of this community is the high degree of involvement in community causes. This contributed to the high participation rate, compared to the response rate in the public schools that I approached. Another factor that may have contributed to parents' responsiveness is that I belong to the same community. Although the parents did not know me, there was a sense of familiarity in our conversations. Some parents even conveyed it to their children by engaging in an effort to differentiate me from other women with the same first name, by referring to me as *Morah* (teacher) instead of *Mrs.* or *the lady*, or by talking about their wish to help me.

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THE 'EVENT'

The Beginnings of Things: Stories of the Plains Indians—Participating in the Museum Science Workshop

Parents and children together attended a science workshop conducted by the Discovery Room of the American Museum of Natural History in New York City. Similar workshops are offered to visitors on Sundays and are intended for one parent and one child. Surveys of children's activity at different programs of the Discovery Room report that it offers an age-appropriate program, and that children enjoy the activity (Cora Group. 1995; Giusti, Tottman and Levine, 1997).

For the purposes of the current study, participation in the workshop was limited only to the study's participants, and the parents knew that it was not an open workshop. To enable parents in the study more flexibility, the museum offered the program on six different Sundays, in the late afternoon. The same museum educator was in charge of all six workshops. The workshop was planned by both the head of Discovery Room activities and the museum educator in coordination with me, with the notion that, although the workshop is a dynamic event, the educator's part should be as scripted as possible across workshops. The 3-part structure of the workshop was similar to that of other workshops offered by the Discovery Room: an introduction of approximately 10 minutes, exploring the museum for about 30 minutes, and finally, creating an art project for 20 minutes.

The topic of the workshop was *The Beginnings of Things: Stories of the Plains Indians*. The museum goal was to teach children a topic in anthropology in an enjoyable

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way and to guide children in relating to the museum experience. Another goal was to provide a learning experience for parents and children, enabling them to explore together Museum collections.

Participation in the workshop was as follows:

- The participants gathered in a museum classroom, sitting around tables. The museum educator used this first part to frame the activity in the Museum. He presented the topic, suggested a relativist approach to Creation stories, and asked children for versions they knew. He showed children a model of a tipi, and a drum with a drawing of a spider on it ("Grandma Spider").
- Next, guided by the educator, parents and children went to the Plains Indians exhibit hall, to see the dioramas. The exhibit was explored in the context of three stories: (1) the Beginning of the World; (2) the White Buffalo Calf Woman (or, as one child suggested, "the Beginning of Respect"), and (3) the Beginning of Music. The museum educator played two Indian flutes and assigned roles of characters from the stories to a number of children .

  During the story session all participants were sitting on the floor in a circle. In workshop after workshop, children and parents seemed increasingly fascinated as the museum educator who was a gifted story-teller and musician was telling the stories. Some children would get closer to their parents during the story-telling, and some would even put their heads on the parent's shoulder. Other museum visitors would stop to listen and form another circle around the workshop participants.
- Finally, the participants went back to the classroom to create an arts and crafts object to take home. This last part of the workshop was less structured than the two other

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parts. The museum educator told the children they were going to make an Indian "Memory Blanket" to help them remember in the Indian way their favorite story, or any other aspect of the workshop. Children got cut outs shaped as buffalo hide and crayons and markers to paint with. Since parents were not explicitly invited to participate in this activity, some were observing the child work, some worked with the child and some were standing behind, socializing with other parents. As the workshop ended, children presented their paintings and were able to play the drum. At this point, I took pictures of the children and their memory blankets.

Visiting the American Museum of Natural History—Where Is the Event?

The focal event in the research and the stated subject of the anticipatory conversation was the workshop about the Plains Indians. However, it was not obvious that for children—or for adults who were not familiar with the museum—the workshop was indeed "the event." Many other factors are involved in a museum visit, such as the size of the museum, the numerous entrances, halls and exhibits, and the long distances one has to walk in an unfamiliar environment. All these could be very salient, exciting, and overwhelming for children. Several parents talked about the frustration they had experienced in previous visits to the museum, not knowing where to go and what to see. However, they viewed the workshop as an opportunity to see the museum in a methodical way, and expressed their expectation for an exciting rather than exhausting experience. How did the children represent the experience? An attempt to answer this question started in the coding process, which involved identifying what shared topics children talked about.

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This study investigated parental framing of the museum visit, which is an aspect of their representation of it, and children's representations that emerged from their personal narratives of the museum visit. These representations involved a description of location, people, time, content and activity that were embedded within each other, and did not fit a chronological organization.

MEMORY ASSESSMENT

One of the challenges of studying young children's recall is how to interpret the limited way they express themselves. The way young children retrieve information, their inability to express themselves, or lack of cooperation with the experimenter may all contribute to how they narrate a personal experience. The issue of the 'right' way to interview children has been addressed by many researchers, especially since questioning children seems effective in eliciting talk. On the other hand, there is much evidence that repeated questioning may cause the child to provide information implied in the questions, rather than representing the child's recall.

Hudson & Nelson (1986) report that 3- to 5-year-old children provided more detailed information when asked about memories of special episodes than routine events. Fivush (1984) proposes that the use of specific cues, as opposed to general temporal terms (yesterday), is more successful in eliciting memory talk in young children. Pillemer & White (1988) report studying whether specific questions might be effective in cueing 5-year-old children's recollections of routine events. In addition to "what happened at dinnertime last night?" they asked about specific aspects of the situation: "what did you

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do just before dinner last night?", and "what did you eat for dinner?". When asked direct questions, children usually provided information not present in their answers for the open-ended general question. The details were often consistent with parental independent reports.

Therefore, in this study, the children were asked a general open-ended question: "What happened when you went to the museum with your mom/dad?" The probes used to elicit memory talk were general. They included repetitions of the child's last words, or questions such as "what else?" and "can you tell me more about it?".

The considerations of how to elicit memory talk from children highlight the dialogic nature of children's memory reports. My comments to the children, though not identical, were similar, and they are brought in this work as part of the children's narratives. Since I defined children's free recall as their reply to the first open-ended question and to probes that did not disrupt the sequence of the narrative (see Data Analysis and Coding: Recall Accounts), I did not include my comments in the analysis.

PROCEDURE

Anticipatory Parent-Child Conversations about the Museum Visit

On the week before the workshop I contacted the parents to set a time for conducting the parent-child anticipatory conversation. The parent who was planning to participate was asked to speak with the child about the visit to the Museum about two days before the visit, and to audiotape the conversation. Parents were asked a) to conduct the conversation as they would normally do, at a time they usually conduct such

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conversations with their child; b) to try to avoid discussing the museum visit before the scheduled conversation, and c) to use their own tape recorders (the parents were told they would get in return a blank tape). Parents who planned to attend the workshop with more than one child were asked to conduct the anticipatory conversations on different days, not in the presence of the other sibling.

In a pilot study of parent-child conversations, children had seemed distracted by my presence while they were talking with their mother, even when I waited in another room. Therefore in this study I was not present during the anticipatory talk session.

Follow-up. Following the conversation, parents were asked over the phone about previous experiences at museums of both mother and child, and about the specific preparation for the current visit (see Appendix B, # 1). A second part of this follow-up addressed the parent's expectations of the visit. Parents were also asked about specific personal recollections of the Museum of Natural History. Parents' responses were not analyzed, but were used to get an idea of individual differences.

Child Anticipation Assessment

Children's anticipation narratives which were obtained in school about 2 days prior to the visit are not included in the current analysis. Children were asked an open-ended question about the future visit to the museum: "Can you tell me about going to the museum, what is it going to be like?". General probes, such as "can you tell me more about it?", and "what else?", were used to elicit more talk. Additional questions referred to children's ideas about museums. This part is not included in the analyses in this study.

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The Visit to the Museum

Parents and children participated in the workshop of the Discovery Room (see under The 'Event' for a more detailed description of the workshop). I attended the workshops, at the end of which I took pictures of the children holding their arts-and-crafts project. The narration of the Museum educator was audiotaped each time. Following the workshop, the parent-child dyads visited the Diamond Exhibit.

Follow-up. One to 2 days after the visit, I called the mothers to ask follow-up questions (see Appendix B, # 2). The goal was to get a sense of children's reactions to the visit and to get information on possible post-event conversations about the visit.

Immediate Memory Assessment

Two to 4 days following the museum visit I interviewed the children at school (see Appendix A for interview protocol). A second part of the interview consisted of a series of open-ended specific questions about the details of the visit that were composed after the first workshop.

Delayed Memory Assessment

Seven weeks after the visit to the museum, I interviewed the children at school. They were asked the same questions as in the first memory assessment (see Appendix A for interview protocol).

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TRANSCRIPTION

Parent-child conversations and children's immediate and delayed memory accounts were transcribed using the CHAT transcription system (part of the CHILDES system, MacWhinney, 1995). Both parent-child conversations and children's memory accounts were transcribed using the same criteria for utterance boundaries and the same transcribing conventions. Not all aspects that guided the transcribing were included in the final analysis of the results, but they give a sense of the rhythm and affective tone, especially in the conversations. Including them in the transcripts may enable further analyses in the future.

Transcribing Conventions

The transcribing conventions that were used out of the full CHAT system were determined with special consideration to the parent-child interaction and to markers of framing. The following aspects were coded (see Appendix C for a complete list of codes):

Characteristics of the Interaction.

Speech contours of utterances.

Overlaps.

Interruptions, pauses and quick uptake, which may mark resistance or rapport between the speakers.

Markers of Framing.

Stressing and repetitions , but not retracing.

Lengthening of words.

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Changes in speech volume, such as whispering to create suspense, or slowing down.

Utterance Boundaries

The CHAT system requires a separate line for each utterance. The issue of utterance boundaries was of particular interest because of its implications for the nature of the parent-child interaction.

An utterance was defined in this study by the combination of speech contours and pauses rather than its grammatical structure. This approach to utterances seems appropriate for oral discourse. The intonation that marks the end of an utterance communicates the speaker's intentions regarding the conversational partner's participation and its desired nature. Thus, the actual response of the partner was understood within this framework.

Using this approach to an utterance stemmed from the view that all forms of intonational contours (such as retracing, pauses and stress) convey sociolinguistic information and indicate important aspects of the interaction (MacWhinney, 1995). More specifically, I used a modification of the intonation unit proposed by Chafe (1993). That is, brief pauses were considered part of the utterance, and only the combination of both intonational contours and longer pauses guided decisions on segmentation. The advantage of this approach is that it is based on listening—not only to what is said, but also to intonation and affective tone. To compare this segmentation to another measure, parents' MLU was computed, and the results indicated that it was above 6, which is within the expected length. Children's MLUs were much shorter.

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DATA ANALYSIS AND CODING

Anticipatory Conversations

The main objective of this project was to explore the effects of conversations about a future event on children's memory. Prior research on future-talk has not addressed this topic. The focus of this research has been on the relations of future-talk to future-oriented behavior and planning, and it has investigated factors of future-talk that are relevant to these domains. This study differed from the research on future-talk and planning in that it explored relations to subsequent memory for an event, with a particular emphasis on the special role of parent-child conversations about an expected event.

Because of the exploratory nature of the study, the first purpose of analyzing the conversations was to define relevant dimensions that would then enable the formulation of more specific questions and guide further analyses of the memory data. Transcripts were analyzed in their entirety in an attempt to identify factors which may have been related to children's memory of the event.

Close examination of the transcripts revealed great variation in conversations, among dyads and within conversations, rather than a general, collaborative and uniform process. The variation was on different levels, such as conversation length, pace of turn switching, rapport between parent and child, uses of teasing and humor, degree and nature of the child's involvement, parental control over the child's participation, topics that were discussed, and the way the future museum visit was described.

The goal of the analysis at this stage was to find, within the variation, ways to compare the conversations in terms of themes and structure of the dyadic interaction. In

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particular, I was interested in processes which were responsible for expanding the *here and now* in different ways, and thus possibly affecting memory. Special attention has been given to the uneven nature of the conversations, and different ways that parents approached talking about the future event.

In previous research, maternal style variations have been found to relate to the content and structure of children's memory. However, the focus of this study was to identify other factors, possibly unique to future-talk, that might have potential effects on the content and structure of children's memory of the event. In addition, I was interested in the psychodynamic aspect of parent-child conversations about the future. This was another axis that guided the preliminary analysis.

The categories that emerged from the data present a complex picture. Two of the categories, *bridging* and *reciprocal responsiveness*, are related to expanding time and space, thematically or through the interactive style of the conversation partners. The third category, *distinctiveness of visit-description*, refers to how the future event was particularized in the conversation.

One dimension that emerged in all conversations and was not further analyzed should be noted here: Parents prepared their children not only for the museum visit but for being interviewed by me as well. The child's participation in the study was mentioned by parents as a context for the museum visit or as part of the anticipated sequence of events. This factor will be addressed in future research, since it may serve to interpret the meaning that is assigned to the visit and the child's understanding of the context of the memory assessment.

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In the following sections I describe each of the three conversation variables I identified, and hypothesize with regard to their possible relations to memory—immediate and delayed—for the anticipated event. Because this is the first study to examine such relations, no strong predictions could be made. A detailed analysis of the conversation factors is reported in the results section.

Bridging. *Bridging* is defined as talk about topics familiar to the child that related the museum visit to some aspect of the child's prior experience. It is viewed as a particular form of framing with similar functions (Tannen, 1993) that (a) provides the child with a familiar frame, thus facilitating memory; and (b) directs the child's attention and perception to certain aspects of the event, affecting the way the event is then experienced and represented in memory. Two main types of bridging talk were found: event-based and knowledge-based.

The following questions were addressed:

1. Would children whose parents related the event to other museum visits focus on experiential aspects of the visit when recounting the memory later? That is, would they talk about the visit as an activity or focus its content?
2. Would children whose parents linked the future visit to the child's knowledge perceive it as a learning experience? This is, when recalling the event, would they talk about the content of what was learned rather than the visit as an activity?
3. Relations between the type of bridging parents did and children's age and gender were examined as well, in order to gain a better understanding of what parents construed as the desired goal of the visit for children of different ages and genders.

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Each conversation was coded for type of bridging—to *memory* or to *knowledge*. The following examples illustrate the way parents introduced the two types of bridging (the child's age is in parentheses). It is interesting to note the differences and similarities among these introductions to bridging.

(4;7) "Have you ever been to the museum where they have great big big big bones of dinosaurs and everything?"

(4;8) "D'you remember Thanksgiving? Did you learn about the Indians?"

(4;1) "We haven't been there for a long time. I don't know if you remember it. Remember what they have there?"

(5;2) "D'you remember we once went to the Museum in New York City with the dinosaurs?"

(5;2) "D'you remember the dinosaur museum in New York? D'you remember we went there a long time ago?"

(5;7) " ... so ... you know what the Indians are?"

(7;2) "You know something about the Plain Indians?"

(7;3) "You remember going to that museum? That's the one that when you walk in....there's a great big enormous room # with a bear."

(7;3) "Remember the book we have about the Indians? Totem poles are great big enormous trees that are carved to look like different animals..."

(7;3) "Those Indians that live in the middle of where it's flat -.. The ones that live in tipis -.. "

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(7;5) "D'you remember when we went -,.
And we saw all the animals [!] that aren't really alive anymore?"

(7;7) "Do you know anything about the Plains Indians?"

(8;1) "Do you know where these Indians used to live? In what country?"

Conversations that did not include any bridging talk were coded as *no bridging*. (See Appendix D for a further description of both types of bridging and other examples)

Distinctiveness of Event Description. A second factor in the conversations about the future visit was the way parents described the visit as different from other experiences or from the child's present knowledge. While bridging framed the visit as a familiar activity, thus allowing the child to link it to past knowledge or existing scripts, in order to be memorable the visit had to be perceived by the child as unique.

This factor deals with the way that talking about the future visit was interwoven in the conversation. Parents did this in different ways: Some parents presented the visit as a separate activity, emphasizing how it differed from other topics they discussed. Some did not explicitly discuss the differences, but still described the visit in a distinct way, merely by discussing it in a segment of the conversation separate from other segments where other topics were discussed. Other parents moved in a seamless way between past and present, the future visit and other family plans. Some talked about the visit as part of discussing the life of the Indians, incorporating the description of the visit into their explanations, at times even providing information they imagined about what the workshop would be about. It is interesting to note that these imaginary descriptions were

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not imaginative or original, but mostly resembled each other. They merely reflected, it seems, parents' version of the content of a workshop about Indians.

The way that the event was particularized and distinguished from the familiar was expected to affect the child's memory. A non-distinct description of the visit was expected to contribute to assimilating the visit into the child's existing scripts of museum visits or knowledge about Indians. The child would then be more likely to provide a general memory account of the visit, with a structure reflecting the sequence of events that are usually part of museum visits. In contrast, a distinct description of the anticipated visit would contribute to recall of its unique features. It was expected that children who had experienced a distinct description would provide contexualizing information and provide an evaluative perspective.

In addition, a distinct description of the museum visit involved making a distinction between themes that were discussed in relation to bridging (familiar knowledge and experiences), and even contrasting them with the anticipated visit. I hypothesized that, since a distinct description of the museum visit included direct and clear reference to its components, it would be related to an increase in elaboration on both content and activities of the particular museum visit in the child's memory accounts, even immediately after the visit.

All conversations were globally coded for distinctiveness of visit description as distinct or not distinct. Conversations, in which the parent emphasized the difference between the anticipated visit and the child's previous knowledge or memories, were

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coded as *distinct*. When parents did not refer to the different and unique aspects of the visit, the conversation was coded as *non-distinct*. Conversations in which parents did not engage in bridging were coded as distinct if the visit was discussed, and non-distinct if the visit was not discussed.

The following are examples of the way parents distinguished between the anticipated visit and other aspects in the conversation:

(1) "Remember the museum?
... But this time we will be doing something different."
(2) "What do you know about Indians?
... Well this [!] time you are lucky!
You get to have a guide who will explain to you all about Indians."

Another way of marking the distinctiveness of the visit was by describing it in a separate segment of the conversation, usually in the beginning. This way, the visit was discussed separately from other topics in the conversation even though the parent did not explicitly discuss the difference.

Twenty percent of the conversations were globally coded by a second rater for distinctiveness, and the intraclass correlation (two-way random model) for intercoder absolute agreement on distinctiveness was .87 .

Reciprocal Responsiveness. The last variable concerns parent-child shared attunement (although not necessarily shared understanding) in the conversations about the anticipated museum visit. This shared attunement was achieved in particular segments in which the parent and child responded to each other's internal state or to topics of the

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conversation, thus creating and negotiating personal meaning. That is, in these segments, they responded to *what* was said by the other, or to *how* it was said.

I identified this process of meaning-making as *reciprocal responsiveness*, in analogy with the analysis of Belsky, Taylor-Dawn and Rovine (1984) of mother-infant reciprocal interaction as a component of attachment. Reciprocal interaction is related to maternal sensitivity and interchange synchrony. Belsky et al. state that reciprocal interaction is a dyadic construct, regardless of whether it is mother or infant who initiates it, and that it is a basis for the quality of the attachment. Similarly, my approach to reciprocal responsiveness in parent-child conversations considers it to be a dyadic measure that affects the quality of the conversation.

Support for the significance of this variable is its grounding in findings of previous research, indicating that children's memory was affected by the quality of the future-oriented interaction with the child (Presler, 1996). In the current study, I hypothesized that memory accounts of children with more responsive anticipatory conversation would be more coherent and cohesive.

The approach of Belsky et al. (1984) to the operationalization of reciprocal interaction is by defining it as a three-step-interaction sequence, taking place at any time during the interchange between mother and child, which involves three or more contingent exchanges (any combination of vocalization, smile, jiggle—initiated by mother or infant). In this study I coded sequences of three or more contingent exchanges in the conversations as responsive segments.

It is important to clarify that reciprocal responsiveness does not necessarily refer to expressions of agreement, confirmation or support. At times, parents and children did

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not agree but were still very attentive to each other's position, related to it, and even tried to change it. Thus, responses that were confirming (simple yes or no responses) or evaluative in nature, known-answer questions, as well as dismissive responses (ignoring or rejecting previous utterances), were not considered responsive.

The anticipatory conversations were coded for reciprocal responsiveness in the following manner: responsive segments in the conversations were marked, and the total number of responsive utterances was obtained. The number of responsive utterances was also calculated for the parent and child separately.

Reciprocal responsive segments were identified as a sequence of 3 or more responsive speech-turns (see Appendix E for a complete discussion regarding the criteria used to determine responsiveness.)

Twenty percent of the transcribed conversations were coded by a second rater. Reliability was calculated on the basis of agreement as to the number of responsive utterances for children and for parents separately. Intercoder absolute agreement was calculated for parents' as well as children's number of responsive utterances. Intraclass correlation (two-way random model) of the number of responsive utterances was .96 for parents, and .97 for children.

Recall Accounts

Before coding, I read through each transcript to mark the beginning and end of the memory account. The problem of setting the boundaries of the narrative has been approached in different ways in previous research. Narrative boundaries may be

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determined by raters (Fivush et al., 1995), or they may be defined as everything the child says, including all responses to the investigator's questions (Peterson & McCabe, 1983).

As I was interested in what children recounted when asked what had happened when they went to the museum, I did not look specifically for narratives but considered any response of the child as appropriate and relevant. However, there was the question of how to consider children's responses to my comments. My planned involvement in the conversation was minimal—repeating the child's last words, or generally asking the child for more information (What else? Can you tell me more?). In reality, my comments sometimes served as a way of encouraging the child to continue talking, but at other times they served as probes for further recall.

The function of my statements and questions was then determined, not only by my intentions or the nature my comments, but was also established in the interaction. It was the child's response that clarified the function of my comment. For this reason, the criteria for defining the boundaries of the account in this study were based, not only on the content and timing of my comments (in relation to child's speech), but on the child's responses to them as well.

Children's memory accounts were defined as including everything that was said in response to the question "What happened when you went to the museum with your mom?" Anything that was added following my next comments ("tell me about it", or "what else?") was considered to be part of the narrative only if it was either in temporal (the next thing that happened) or thematic (same topic) continuity with the first segment. This approach to the data seemed reasonable since many times, in response to my

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comment or question, the child started such utterances with "and", or even interrupted me and ignored what I had said.

Volume of Speech. The smallest unit of analysis in the study was the utterance and not the proposition or clause, as in other memory studies (Fivush & al., 1995; the Chinese-Korean study; Peterson & McCabe, 1995). Using the utterance seemed relevant to the analysis of children's oral narratives, since it is based on idea units rather than grammatical structure. The number of utterances of which the narrative consisted was obtained. This number indicates the degree of elaboration of the memory account.

Thematic Analysis—Shared Themes. The museum visit was a complicated experience: it included getting to the museum, getting to the room where the workshop took place, meeting other children and adults, going in a group to the Plains Indians hall, listening to stories and to music, making an arts and crafts object, planned and incidental visits to different parts of the museum and encounters with people, and more. Thus mentions of the "same" event were expected to be diverse, and to include any number of the museum visit components. However, within this diversity are found similarities, which are important because they may help gain insight about the collective and unique perspectives of the museum visit.

The analysis of *shared themes* is based in previous research (Daiute, 1998), and addresses questions of the range of topics that made their way into children's memory narratives, and of shared topics across age groups and over time.

In order to identify these topics, the narratives were analyzed as follows: First, an exhaustive list of activities, people, places, and topics mentioned was constructed, based

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on the immediate and delayed memory accounts of each child. Terms that referred to the same topic were given the same label. For instance, children referred to the museum educator as "the man", "the guide", "he", "the teacher", or "the head of the program". The arts and crafts object the children made was mentioned as "picture", "project", "collage", "animal skin", "the bear" or "buffalo rugs."

Next, a summary list of the topics children mentioned was created. The list was organized to reflect the museum visit as a complex event, consisting of a series of more local events, in which people, activities, their content and location were all embedded within each other. The summary list represents these "sub-events" that constituted the museum visit, rather than nouns, descriptions and activities. The list includes topics such as the stories, the project, visiting the Indian Hall, listening to the music, Indians, and visiting other exhibits (see Appendix F for the complete list of topics).

Most topics consist of the following categories:

- Mentions of topic (naming).
- General and specific activities related to topic.
- General and specific content of topic.
- Objects related to topic.

Finally, two general themes to which children referred in their narratives were extracted from the list of topics:

(a) Themes related to the stated goal of the visit—the workshop about the Plains Indians. This theme included two categories: content and activities related to the workshop.

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(b) Themes related to the representation of the size of the museum and the large number of exhibits. This theme included two categories: other exhibits and procedural activities.

The number of different mentions (types) of each of the categories of the shared themes was obtained for the two narratives of each child.

Content: This category includes reference to general and specific mentions of content of the workshop, the stories and the project (e.g., Plains Indians). A general reference to content is, for instance, "we heard stories about the Native Indians". A specific reference is "I drew a picture of Grandma Spider" (a mythical character mentioned in one of the stories), or "I liked the story about the Buffalo people."

Activities: This category refers to own activities related to the stated goal of the visit—the workshop—such as " we listened to the man", "I saw the statues", "we made our own rugs", "we had to draw something", "we talked about Indians", "I colored". General (but not specific) activities related to the stories ("heard stories"), project ("made a project"), and the museum ("went to the museum") were not included. Most children who mentioned the topic (e.g., "stories") mentioned the related activity as well (e.g., "we heard"). It seemed that stories and project were represented without a clear distinction between topic and activity (and even the location where the event took place), so that it was not clear that the child indeed referred to an activity.

Other exhibits: This category consists of references children made to exhibits in the museum that were not part of the workshop.

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Procedural activities: Many children included in their accounts not only reference to their activities during the workshop (or other aspects of the visit), but a description of their activities in the transitions between events. This theme refers to the way children described specific activities—how they moved through the museum: "went upstairs", "went back to the art room", "we went along", "came back", "went the other way", "went out of the room". Reference to getting to the museum and going home is not coded as procedural activities.

Each segment in the narratives was coded for each of the topics in the summary list, when mentioned. The scores for all the topics that were related to the two different types of themes—content and activities, and mentions of other exhibits and of procedural activities—were collapsed for each child for the 2 memory accounts.

For activities, the score refers to the total number of different mentions of own activities related to Indians, specific activities related to the project, music-related activities, and general and specific activities related to the workshop.

For content, the score reflects the total number of different mentions of the general and specific content of the workshop and project. The only exception was reference to the general and specific content of the three stories the children heard. Since children talked about the stories in different degrees of elaboration, any reference—general and specific—to the content got a score of 1.

For other exhibits, the score reflects the total number of different mentions of any other exhibit, including the diamond exhibit and dinosaurs.

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The score for procedural activities reflects the total number of mentions of activities that described moving through the museum.

Narrative Structure. All memory accounts were broken down into narrative clauses. Each clause was then coded for narrative structure into one of the following mutually exclusive categories, adapted from previous research (Peterson & McCabe, 1983; Fivush et al., 1995).

1. Referentials: Simple and complex actions. Referentials express the sequence of events that the narrative represents. Their order is important to understanding what happened.

2. Orientations: Information about background, characters, time, and place, as well as about objects and content. These are free clauses that add contextual information that is known to the speaker but not to the listener. Changing their location in the narrative does not interfere with the ability to understand the it. Using orientations involves stopping the recounting of the flow of events and helping the listener understand. It indicates an ability to see the perspective of the listener.

3. Evaluations: This is a code for evaluation about the perspective in the past, as reported in the story "I liked all of them", "it was fun". It also refers to a response in the present to the event (but not to the telling of the story). This means that I distinguished between expressing internal states, as in "I think" and "I will always remember it", and between comments directed at me on the child's competence to tell the story, as in "I forgot", "I remember only two stories". These were coded as comments. Similar to

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orientations, evaluatives are free clauses. Using evaluation indicates the personal meaning that the experience has for the child.

4. Appendages and codas : Introductions and summaries, such as "this is what we did when we went to the museum."

5. Meta-comments on the narrative: Comments such as "I remember the story," "I forgot," "I don't know his name." Such comments reveal the child's present perspective about herself as a story-teller.

Narrative clauses were coded for their main function in the narrative. Referentials may include orienting or evaluative information, yet they are coded as referentials because of their being part of a sequence in the narrative. An orientation or evaluation clause is less bound to time, and to its particular location in the sequence of the events may be changed without changing its meaning. .

Narrative Cohesion.

Temporal markers: To get a measure of temporal cohesion of the account, I coded for temporal markers, simple and complex. Simple temporal markers were words indicating chronological time (e.g., *first, second, then, next, before, after*). Complex temporal markers were words indicating complex temporal relations, including conditional states (e.g., if-then, when, until), causal relations (e.g., *because, so, in order to*), and optional states (e.g., *sometimes, usually, always, or, probably*). Because of their small number, total number of temporal markers was collapsed for statistical analyses.

Conjunctions: Number of conjunctions—additive, causal, and temporal—was calculated for each child to assess cohesion among propositions (subject-verb constructs).

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Compared to what temporal markers assess, this is a more basic indication of cohesion. It is not a measure of the relation between narrative clauses, but of relations between smaller units of discourse.

Summary Table of Variables

	Age			
	Anticipatory Conversations			
Memory Accounts (Time 1—Time 2)	Length (# of utterances)	Bridging (Memory / Knowledge)	Distinctiveness (Distinct / Non-distinct)	Responsiveness Ratio
Shared Themes (Activities / Content) (Other Exhibits / Procedural Act.s)				
Length				
Cohesion (Conjunctions / Temporal Markers)				
Structure (Reference / Orientation / Evaluation)				

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CHAPTER III

RESULTS

The main objectives of this research were:

1. To examine themes and structure of children's memory narratives of the museum visit, and to examine changes over time in repeated memory accounts.
2. To analyze features of parent-child anticipatory conversations about the upcoming museum visit.
3. To analyze the relation between children's memory narratives and the anticipatory conversations, and to explore whether it is possible to trace changes in memory over time to the conversations about the future.

Results are presented in three major sections. First, changes over time in content, structure and cohesion of children's memory accounts of the museum visit are examined. Next, further characterization of the anticipatory conversation variables hypothesized as having possible effects on memory is presented in relation to age and gender. General structural elements in the conversations are examined as well. Finally, the effects of conversation variables on content, structure and cohesion of both immediate and delayed memory are analyzed. The role of these factors is explored in both differences between age groups and in the development of memory narratives over time. Results of findings of gender effects are reported when significant, or when they are of interest.

All analyses in this exploratory study were conducted at the $p<.05$ level of significance, and results at the $p<.10$ level are reported as marginally significant when

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they are of interest. When appropriate, significant effects were further analyzed using post-hoc tests at the $p<.05$ level.

IMMEDIATE AND DELAYED MEMORY

To explore consistency and change over time in the repeated recall of the museum visit, children's two memory accounts following delays of two days and two months after the visit were analyzed. The following analyses address two questions: (1) Would the memory accounts show developmental differences with age? And (2) would there be systematic changes in the delayed recall as compared to the immediate recall? All memory accounts were analyzed for shared themes, length, narrative structure and narrative cohesion. Between age groups comparisons of children's memory narratives, and within-subject comparisons of repeated recall of the same event were made for all parameters.

Shared Themes

Two sets of analyses are presented in this section: The first refers to shared themes that were related to the stated goal of the museum visit—its content and associated own activity. The second set deals with shared themes that were related to the way that children talked about the museum's size and its large number of exhibits—references to other exhibits, and mentions of procedural activities of moving through the museum. These themes present in the narratives reflect different ways of coping with the museum's size and variety of exhibits.

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TABLE 1

Immediate and Delayed Memory Accounts: Means (and Standard Deviations) of Mentions of Activities and Content per Narrative by Age-Group

			Activities		Content		Total	
	Age Group	N	Mean		Mean		Mean	
Time 1	Pre-K	11	.67	(.98)	.83	(.94)	1.50	(1.57)
	K	8	.50	(.71)	1.10	(.99)	1.60	(1.26)
	1st Grade	14	1.00	(1.00)	2.47	(2.03)	3.47	(2.03)
	2nd Grade	10	.82	(.75)	3.36	(1.75)	4.18	(1.89)
	Total Mean	43	.78	(.88)	1.98	(1.82)	2.75	(2.05)
Time 2	Pre-K		2.00	(2.09)	1.92	(1.31)	3.92	(2.77)
	K		1.00	(.67)	1.60	(1.35)	2.60	(1.43)
	1st Grade		.80	(1.03)	2.60	(2.38)	3.40	(2.80)
	2nd Grade		2.09	(1.70)	4.45	(2.66)	6.55	(3.42)
	Total Mean		1.44	(1.56)	2.65	(2.25)	4.08	(3.01)

Content and Activity. As described in the coding section, the number of different references to content and references to activity related to the visit was calculated for each of the two memory accounts for all children. These means and standard deviations are presented in table 1.

A 2(time point) X 4(age-group) X 2(theme: activities, content) univariate analysis of variance, with time point and theme as within-subject factors and age-group as a between-subject factor, was conducted in order to examine the thematic emphasis in the narratives. The findings showed main effects of time point, $F(1,44)=10.37$, and of type of theme, $F(1,44)=24.66$. Overall, from time 1 to time 2, children increased over time the total number of references to both activities and content. Children generally made more references to content than to activities, and this pattern was consistent for the 2 time points.

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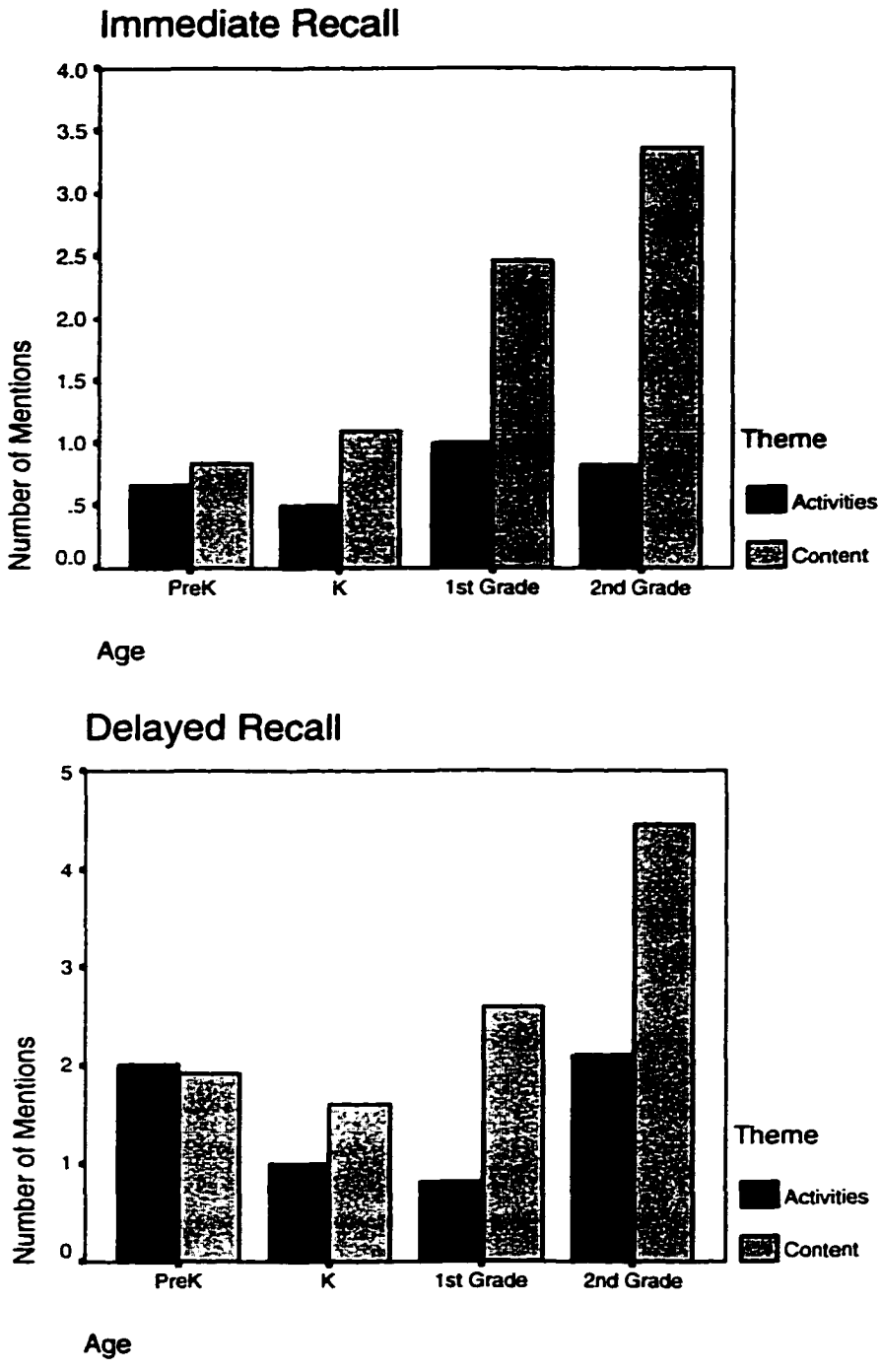

Fig. 1. Immediate and delayed recall: Mean number of mentions of content and activities by age-group.

A main effect of age indicated an overall increase with age in the total number of references to themes (content and activity combined), $F(3,44)=7.30$. Second graders had

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a larger total number of references (4.18 and 6.55 at time 1 and time 2 respectively) than PK and K children, with no differences between the 2 younger age groups. The total number of references to content and activities of 1st graders at Time 1 was between that of the older and the younger groups, but the difference did not reach significance.

The main effects of age and type of theme were modified by a significant interaction between type of theme and age-group, $F(3,44)=54.99$. This interaction suggests that comparing mentions of activities to mentions of content within age-groups may show the overall thematic focus of memory accounts at different ages. As Fig. 1 indicates, whereas the accounts of the two younger age-groups did not have a significantly different number of references to content as compared to activity, the 2 older age groups talked significantly more about content than about activity (see Table 1).

To further examine the interaction of theme and age-group, two separate 2(time point) X 4(age group) analyses of variance were conducted for each of the two themes. Results for content indicated a main effect of time, $F(1,44)=4.17$, with an increase in number of references to content from time 1 to time 2, and a main effect of age, $F(1.44)=8.36$, with a general increase in number of references to content with age. The age difference was in the same direction as the age difference found for the total number of references to themes, namely, 2nd graders with the largest number of references to content, the two youngest groups with significantly fewer references but not differing from each other, and 1st graders in the middle, but not significantly different. The analysis of variance conducted for number of references to activities indicated an increase over time in mentions of activities (see Fig. 2), $F(1,44)=9.93$, but no age differences.

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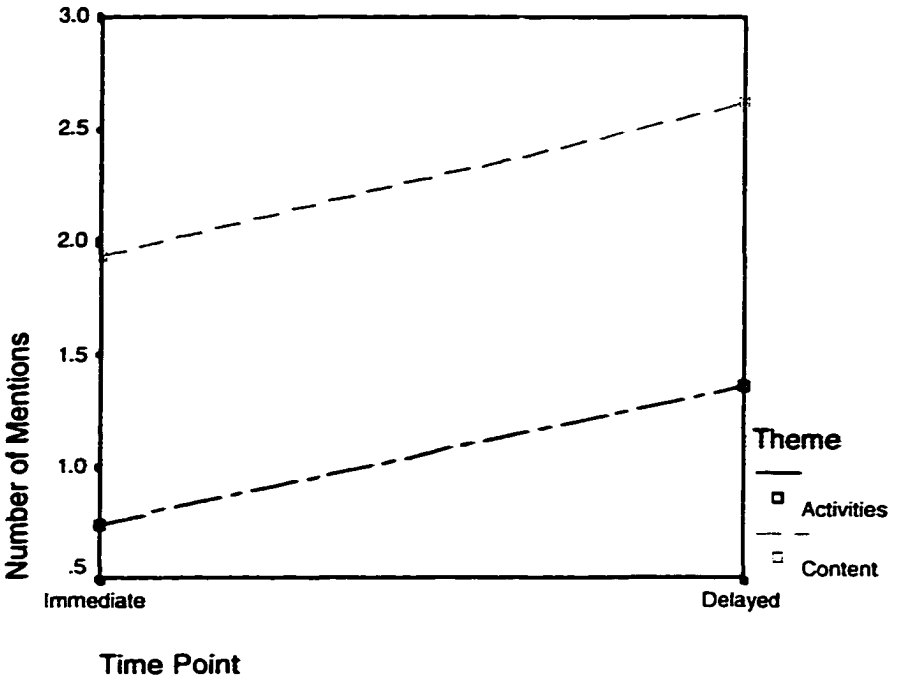

Fig. 2. Mean number of mentions of content and activities over time.

The increase with age in number of references to content but not in references to activities raises the question of what reference to activity might be related to, especially since the number of references to activities increased over time. This question will be addressed in the context of the effects of bridging in anticipatory conversations on reference to activity in memory narratives.

Overall, these results indicate that children's memory accounts become increasingly oriented to the themes of the event even over a relatively short period of two months. As for age differences, older children tended to talk more about content than younger children, and more about content than about activity. Reference to activities was not related to age.

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Procedural Activities and Other Exhibits. The number of different mentions of other exhibits and of procedural activities was calculated for each child (see table 2). In order to examine the way children expressed other aspects of what they experienced during the visit in their narratives, a 2(time point) X 4(age-group) X 2(reference type: procedural activities, other exhibits) univariate analysis of variance, with time point and reference-type as within-subject factors and age-group as a between-subject factor, was conducted.

The results revealed no significant main effects for age or time point, but yielded significant interactions between type of theme and age-group, $F(3,44)=3.76$, and between time point and type of theme, $F(1,44)=11.27$.

TABLE 2

Immediate and Delayed Memory: Means (and Standard Deviations) of Mentions of Other Exhibits and Procedural Activities by Age Group

		Procedural Activities		Other Exhibits	
Time 1	Age Group	Mean		Mean	
	Pre-K	.67	(1.23)	1.75	(1.54)
	K	.40	(.70)	1.40	(2.50)
	1st Grade	.53	(1.30)	1.07	(1.39)
	2nd Grade	.73	(1.27)	.27	(.65)
	Total Mean	.58	(1.15)	1.13	(1.65)
Time 2	Pre-K	.75	(1.22)	.67	(1.23)
	K	.00	(.00)	.20	(.42)
	1st Grade	.53	(1.13)	.13	(.52)
	2nd Grade	1.73	(1.42)	.27	(.65)
	Total Mean	.75	(1.23)	.31	(.78)

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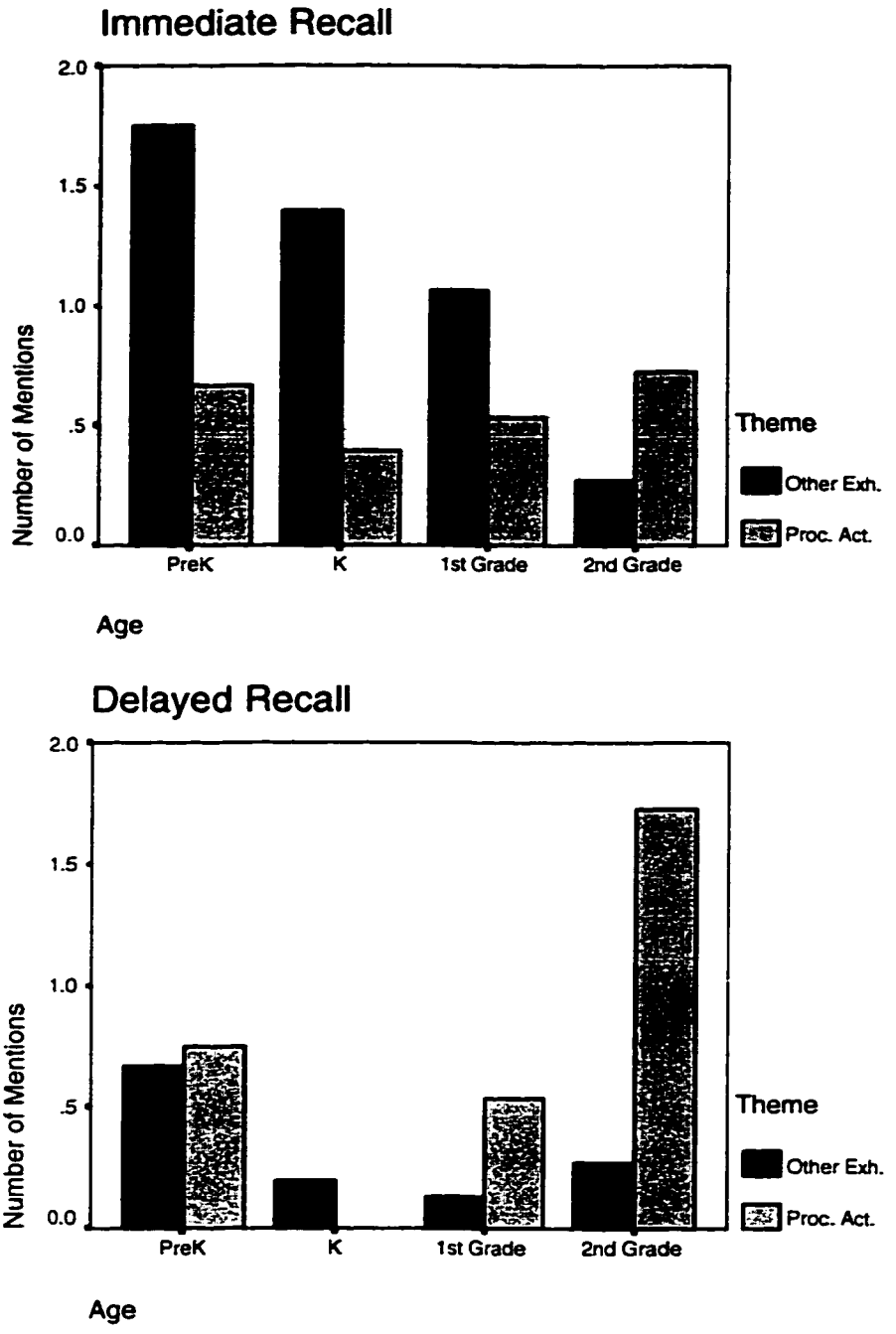

Fig. 3. Immediate and delayed recall: Mean number of mentions of other exhibits and procedural activities by age group.

As shown in Fig. 3, within age groups, there were differences between the number of references to other exhibits compared to references to procedural activities. Only the

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oldest children made more references to procedural activities than to other exhibits. Note that, although there appears to be a gradual decrease in references to other exhibits with age, the variability was very high and none of the comparisons among age-groups reached statistical significance.

In order to further explore the interactions, two 2(time point) X 4(age group) univariate analyses of variance were conducted separately for each type of reference. Results for reference to other exhibits indicated a main effect of time point, $F(1,44)=10.82$, with a significant decrease in mentions over time, from a mean of 1.13 at the immediate memory account to .31 at the delayed memory account (see Fig. 4). However, this decrease in reference to other exhibits was a result of a decrease in number of mentions of the 3 younger age groups, while the number of mentions of other exhibits of 2nd graders did not change with time ($M=.27$ at both time points). Results for reference to procedural activities revealed no main effect of time point, indicating that the number of reference to procedural activities did not change with time (see Fig. 4). A main effect of age indicated that, overall, 2nd graders mentioned more procedural activities than K children, $F(3,44)=2.85$, with PK and 1st grade children between these 2 age groups (see Table 2). The comparison of the means for PK and 1st grade children with the 2 other age groups did not reach significance.

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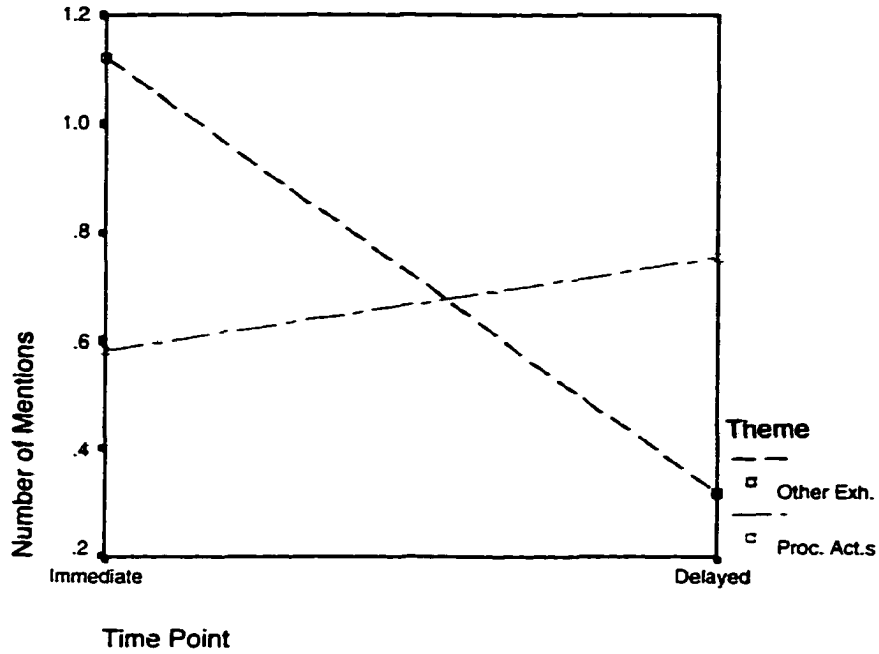

Fig. 4. Mean number of mentions of other exhibits and procedural activities over time.

Thus, children in all age-groups, even the youngest, referred to procedural activities in their narratives. However, there were differences between 2nd graders and younger children. In the narratives of younger children, from PK to 1st grade, the number of references to other exhibits was not significantly different from the number of mentions of procedural activities, indicating that talk about procedural activities was not related to eliminating 'peripheral' information, and thus increasing the focus on the stated goal of the visit. Only with time did younger children focus more on the stated goal in their narratives, decreasing the number of references they made to other exhibits. For the oldest age-group, reference to procedural activities was higher than reference to other exhibits, suggesting that older children referred to the size and large number of exhibits in

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the museum by mentioning the way they got to different places, and not by directly telling about other exhibits they saw.

In summary, the above analyses suggest that with time all children focused more on the workshop and other relevant aspects of the visit: they increased their reference to content and to activity, and decreased reference to other exhibits. The museum's sometimes overwhelming size was reflected in younger children's narratives in a description of other exhibits. Older children represented it in the narrative by including a description of how they moved among the halls. The thematic changes in narratives over time with their increasing focus on the workshop itself also suggest a possibility that memory narratives consolidate with time. Possible relations to anticipatory conversations are examined in the third segment of Results.

Length

A major problem adults face when conducting conversations with children, especially young children, is their short and sometimes only prompted contribution to the conversation. When children respond at length to a certain topic, it may imply interest, involvement, pleasure, and the quality of the interaction with their conversational partners. Peterson & McCabe (1983) comment on children's willingness to provide narratives in response to prompts, that "[t]ask and topic, among contextual factors, clearly affect their speech" (p. 25).

The length of the memory accounts was assessed by the number of utterances. The accounts ranged from 1 to 45 utterances. Table 3 lists means (and standard deviations) of number of utterances in the four age-groups. In order to assess age and

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gender effects on narrative length, and changes over time in the two memory accounts, a 2(time point) X 4(age-groups) X 2(gender) univariate analysis of variance was conducted with age-group and gender as between-subjects factors, and time point as a within-subject factor. Results indicated a main effect of age-group, $F(3,38)=4.61$. Overall the accounts of 2nd graders were longer that the accounts of K children.

TABLE 3
Immediate and Delayed Memory: Means (and Standard Deviations) of Number of Utterances by Age Group

	Time 1		Time 2	
Age Group	Mean		Mean	
Pre-K.....	8.67	(9.12)	12.17	(10.70)
K.....	4.60	(3.37)	5.20	(3.68)
1st Grade.....	10.29	(7.70)	10.29	(8.93)
2nd Grade.....	18.90	(11.49)	13.10	(5.13)
Total Mean.....	10.50	(9.51)	10.28	(8.21)

The main effect of age is modified by a marginal interaction between age and time point, $F(3,38)=2.52$, p=.07. K children's immediate memory accounts were shorter than those of 2nd graders ($M=4.60$ and $M=18.90$ respectively). This difference did not persist over time and 2nd graders decreased their accounts from 18.90 to 13.10 utterances (the comparison did not reach significance) so that delayed accounts of both groups were not significantly different in length. No gender differences were found, and at both time points, boys' and girls' narratives did not differ in length.

Contrary to what might be expected, there were no age effects on the length of delayed memory accounts, and children in all age groups (with the exception of K children) produced narratives of about the same mean length, ranging from about 10 to 13 utterances.

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In summary, immediately following the visit, the length of children's narratives was age related, but this effect did not persist with time. These findings raise two questions: (1) Since the length of delayed memory accounts was not age-related, what factors other than age affected children's narrative length? (2) What did the decrease (though not significant) in length from time 1 to time 2 indicate?

The first question is addressed later, in an attempt to find what factors other than age may account for variability in narrative length. Following the assumption that was discussed previously, that responsiveness allowed children to create meaning of the anticipated event, it is possible that, over time, responsiveness affected children's active involvement in recalling the event, hence the length of their narratives. Finally, the decrease in length of 2nd graders' narratives suggests a tendency for their accounts to become more general and summary-like over time, compared to their immediate memory accounts, which were more elaborate. This should also be reflected in the structure of 2nd graders' delayed memory narratives, with less orientating and especially less evaluative information.

Narrative Structure

To examine children's narrative structure, all narrative clauses, dependent and independent, in the immediate and delayed memory accounts were coded for narrative structure. Because of the small number of appendages and codas, as well as comments, only referentials, orientations and evaluations were analyzed (see Data Reduction and Coding for a detailed description of these codes). The means of types of narrative clauses (and standard deviations) are presented in Tables 4a and 4b. The actual amount of

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orienting and evaluative information in the narratives was higher than indicated by the numbers in the table, since many clauses, coded as referentials because of their function in the narrative, included additional information.

The following analysis assessed the effects of age on the use of different types of narrative clauses. A 2(time) X 4(age-group) X 2(gender) X 3(type of clause) univariate analysis of variance was conducted, with time point and clause type as within-subjects factors, and age group and gender as between-subjects factors. Results revealed main effects for age-group, $F(3,35)=7.38$, and type of clause, $F(2,35)=22.00$, an interaction between time point and age-group, $F(3,35)=3.48$, and a marginal interaction among time point, age group and type of clause, $F(6,35)=2.13$, $p=.06$.

TABLE 4a
Immediate Memory: Frequencies (and Standard Deviations) of Type of Narrative Clause by Age Group

Type of Clause:	Reference		Orientation		Evaluation	
Age Group	Mean		Mean		Mean	
Pre-K.....	3.45	(2.50)	1.00	(1.48)	1.91	(2.81)
K.....	2.63	(1.30)	.25	(.46)	.13	(.35)
1st Grade.....	4.50	(3.92)	1.57	(1.74)	1.93	(2.37)
2nd Grade.....	5.60	(4.03)	3.50	(3.92)	8.30	(6.96)
Total Mean.....	4.14	(3.34)	1.63	(2.47)	3.07	(4.79)

TABLE 4b
Delayed Memory: Frequencies (and Standard Deviations) of Type of Narrative Clause by Age Group

Type of Clause:	Reference		Orientation		Evaluation	
Age Group	Mean		Mean		Mean	
Pre-K.....	3.82	(2.23)	1.00	(1.34)	2.36	(2.62)
K.....	2.50	(1.69)	.25	(.46)	.88	(1.46)
1st Grade.....	4.07	(3.95)	1.07	(1.44)	3.36	(4.62)
2nd Grade.....	5.60	(2.12)	1.80	(1.69)	3.40	(2.91)
Total Mean.....	4.07	(2.91)	1.07	(1.40)	2.65	(3.37)

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The main effect of age is consistent with the analysis of narrative length. The main effect of type of clause indicated that overall children used more references than any other type of clause.

To examine the structure of the narratives in the different age groups, the use of different types of clauses within narratives was compared. The marginal interaction between time point, type of clause and age indicates that narrative structure changed over time and with age (see Fig. 5). At both time points children used more references than orientations, with the exception of 1st graders at time 2 and 2nd graders at time 1. Younger children also used more references than evaluations in their immediate recall accounts. This suggests that immediately following the museum visit, compared to younger children, older children tended to provide more orienting and evaluative information while recounting the sequence of events. Younger children focused more on recounting the sequence of events, and provided relatively less orientating and evaluative information than referential information. However, these differences in structure changed with time, and the delayed accounts of 2nd graders, compared to their immediate accounts, consisted of more referential than evaluative information.

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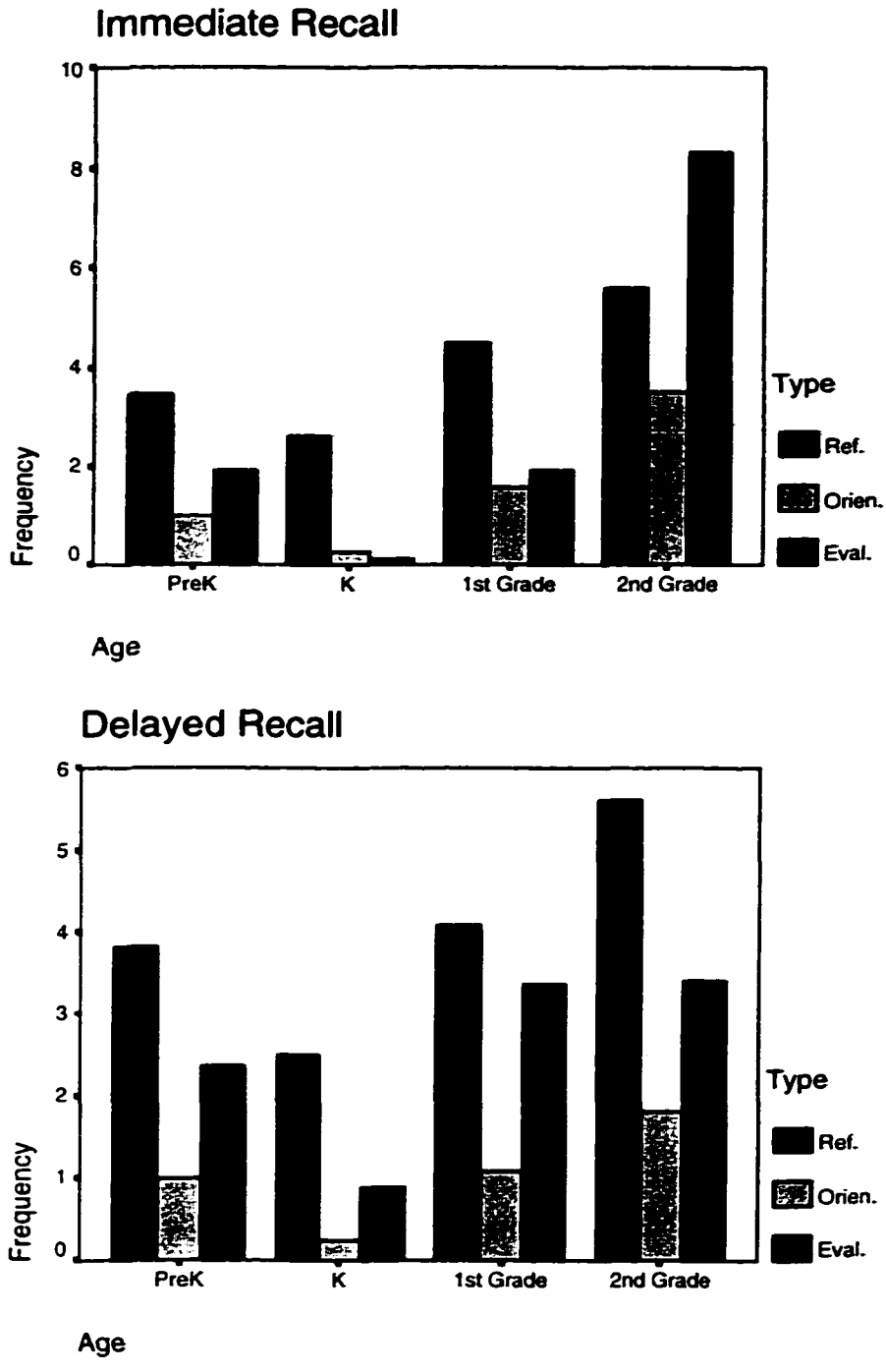

Fig. 5. Immediate and delayed recall: Mean frequencies of type of narrative clause by age.

To further examine the interaction, three separate 2(time) X 4(age-group) X 2(gender) analyses were conducted for each type of narrative clause. No significant

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findings were found for referentials, indicating that the amount of referential information was not significantly different for children of different ages. Regarding orientations, a main effect of age-group was found, $F(3,35)=5.06$, with 2^{nd} graders using overall more orientations than K children. Orienting information was the least frequent in children's narratives, and was provided mainly in the immediate accounts of the oldest children. Finally, concerning evaluations, a main effect of age-group was found, $F(3,35)=7.15$. An interaction between time point and age-group, $F(3,35)=4.07$, indicated that at time 1, 2^{nd} graders used significantly more evaluations than any other age-group. They decreased the number of evaluations over time (marginal significance, $p<.08$), so that at time 2 there were no significant differences among age-groups in the use of evaluations

In the discussion of the decrease over time in narrative length for 2^{nd} graders, I suggested that this decrease may reflect a more concise and general account for delayed memory, with less emphasis on the child's personal perspective. And indeed, the above findings showed age differences in evaluation use, with more evaluations in 2^{nd} graders' immediate memory accounts compared to other age-groups, but no such differences for delayed memory accounts. It is interesting to note that the delayed memory accounts of 2^{nd} graders showed a decrease in both length and evaluation, but not in number of referentials. This indicates that the decrease in length of the narrative was a result of the decrease in evaluation, while the 'skeleton' of the story remained unaffected.

Overall, these analyses indicate that expected age differences in narrative structure were found only in children's immediate recall accounts. Generally, the oldest children provided more orienting and evaluative information than did younger children

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immediately following the museum visit. With time, the structure of their narratives changed, and age was no longer the factor that accounted for the variance.

Narrative Cohesion

The following analyses examine the cohesion of children's utterances, and the temporal cohesion of their narratives, as expressed in the relations between utterances. It was expected that children would use more conjunctions than temporal markers, since conjunctions link smaller units and are a simpler device. An interaction between age and type of device was expected as well, so that the difference between the number of conjunctions and temporal markers would be smaller for older than for younger children. The effects of gender on the use of cohesive devices were examined as well, but no specific predictions were made. Table 5 lists the means of frequency of use of temporal markers and of conjunctions in both memory narratives.

A 2(cohesion device: conjunctions, temporal markers) X 2(time point) X 4(age-group) X 2(gender) univariate analysis of variance was conducted, with age-group and gender as between-subjects factors, and cohesion device and time point as within-subjects factors. The analysis revealed main effects of age group, $F(3,38)=6.53$, and of cohesion device, $F(1,38)=89.76$, and interactions between time point and age group, $F(3,38)=3.77$, among time point, age group and gender, $F(3,38)=4.12$, and between cohesion device and age group, $F(3,38)=4.47$. As expected, children used more conjunctions than temporal markers at the 2 time points and across age groups. This is not surprising since conjunctions link smaller units than temporal markers, and they are not as complex as temporal markers.

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TABLE 5a
Immediate Memory: Means (and Standard Deviations) of Use of Cohesion Devices by Age Group

Device:	Temporal markers		Conjunctions	
Age Group	Mean		Mean	
Pre-K.....	2.67	(5.61)	6.17	(8.64)
K.....	.40	(.97)	3.80	(4.13)
1st Grade.....	2.93	(3.69)	9.21	(6.84)
2nd Grade....	8.10	(6.71)	18.80	(11.30)
Total Mean..	3.43	(5.29)	9.33	(9.49)

TABLE 5b
Delayed Memory: Means (and Standard Deviations) of Use of Cohesion Devices by Age Group

Device:	Temporal markers		Conjunctions	
Age Group	Mean		Mean	
Pre-K.....	4.00	(4.09)	10.08	(10.54)
K.....	.50	(.85)	2.30	(1.95)
1st Grade.....	2.50	(3.65)	8.93	(8.53)
2nd Grade....	5.50	(2.99)	12.90	(5.32)
Total mean..	3.11	(3.60)	8.65	(8.25)

To explore the interactions, 2 separate 2(time point) X 4(age-group) X 2(gender) univariate analyses of variance, with age-group and gender as between-subjects factors, and time point as a repeated measure, were conducted for each cohesive device. For conjunctions, the analysis revealed a main effect of age group, $F(3,38)=6.31$, an interaction between time point and age group, $F(3,38)=3.36$, and an interaction among time point, age group, and gender, $F(3,38)=3.02$. In their immediate accounts, 2nd graders used more conjunctions than K children, with PK and 1st grade children between the 2 groups. The interaction with gender indicated that 2nd grade girls used more conjunctions than girls in any other age group in their immediate memory accounts, but over time there was no difference in the number of conjunctions used by girls across age groups.

Similarly, for temporal markers results indicated a main effect for age-group, $F(3,38)=6.14$, an interaction between time point and age group, $F(3,38)=3.07$, and an

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interaction among time point, age group and gender, F(3,38)=4.95. Overall, second grade children used more temporal markers than children in the younger age-groups (but not more than PK children). As in the analysis of conjunctions, the number of temporal markers boys used did not significantly change with time. As for girls, 2nd graders used more temporal markers than younger girls in their immediate accounts, and this number decreased (marginal significance) so that the number of temporal markers in their delayed memory accounts did not differ from that of younger girls.

To summarize, these analyses indicate that children used more conjunctions than temporal markers. Contrary to the expectation, this pattern did not change with age and the difference between the use of conjunctions and temporal markers did not decrease with age. The cohesion of younger children's narratives was consistent over time. But, whereas the oldest children's immediate narratives were the most cohesive, over time no age related differences in cohesion were found. One 3-way interaction with gender was found, suggesting a different pattern of development of narrative cohesion for girls than boys.

Relations between Themes and Narrative Structure and Cohesion

Themes and structure of the memory narratives were analyzed separately, in relation to age, gender, and changes over time. In order to gain a better understanding of the context in which children talked about different themes of the visit, the relation of mentions of themes with other attributes of the narratives was explored. Longer accounts which also included a higher number of conjunctions and temporal markers were considered to indicate a more detailed and cohesive narrative. Correlations among references to themes

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and these variables may clarify the narrative context of talking about content and activities.

TABLE 6a
Immediate Memory Account: Correlations between Themes, and Length, Structure and Cohesion

	Activities	Content	Procedural. Activities	Other Exhibits
Utterances (length)	.08 .	.40 **	.20 .	.08 .
Conjunctions.....	.10 .	.49***	.35 *	.02 .
Temporal Markers.	.06 .	.31 *	.39 **	-.00 .
Orientation.....	.19 .	.27 .	.13 .	.06 .
Reference.....	.27 .	.33 *	.58***	.13 .
Evaluation.....	-.03 .	.35 *	.01 .	-.09 .

TABLE 6b
Delayed Memory Account: Correlations between Themes, and Length, Structure and Cohesion

	Activities	Content	Procedural. Activities	Other Exhibits
Utterances (length)	.60***	.28 .	.49***	-.00 .
Conjunctions.....	.61***	.29 .	.56***	.05 .
Temporal Markers	.44 **	.16 .	.46 **	.21 .
Orientation.....	.00 .	.57***	.16 .	-.21 .
Reference.....	.40 **	.26 .	.30 *	-.02 .
Evaluation.....	.10 .	.01 .	.37 *	.23 .

*** $p < .001$
** $p < .01$
* $p < .05$

Tables 6a and 6b present the correlations between references to activities, content, procedural activities and other exhibits, and between narrative structural elements and the use of cohesive devices for the 2 memory accounts. The results indicate a clear difference between the first and the second memory accounts. Immediately following the visit, the number of references to content was positively correlated with narrative cohesion and length, and with the use of referentials and evaluatives. Number of references to activities was not correlated with any of these measures. In contrast, different relations emerged in the delayed memory accounts: References to activities

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were positively correlated with narrative cohesion and length, and with the use of referentials. References to content were only correlated with one measure, the use of orientations.

In both memory accounts, references to other exhibits were not correlated with any of the other measures. References to procedural activities were positively correlated with narrative cohesion and with the use of referentials at time 1, and with narrative cohesion and length, and with the use of referentials and evaluatives at time 2.

In summary, immediately following the visit, structural and cohesive elements of the children's narratives were related to mentions of content, and two months later, to mentions of activities. At both times, these elements were related to mentions of procedural activities but not to mentions of other exhibits.

Summary of Findings for Immediate and Delayed Memory

In this section I analyzed themes, length, structure and cohesion of children's repeated memory narratives. The analyses addressed questions of age-related differences in memory, and changes over time. Overall, results revealed different patterns for younger and older children, with consistency over time for some aspects of memory narratives and changes in others.

Overall, differences between memory narratives of 2 age groups were apparent: Kindergartners' accounts were impoverished compared to any other group: they were shorter, less cohesive, and included fewer references to workshop-related themes. They consisted mainly of referentials with very little evaluative and orienting information. Second graders' immediate memory accounts were the most elaborate and cohesive, and

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also included more orienting and evaluative information. With time, however, their accounts became shorter, more general, concise, and less personal.

The thematic orientation of children's narratives was related to age, with an overall increase with age in focusing on workshop-related themes, specifically on content. Reference to activity was not age-related. With time, children's memory accounts became increasingly oriented to workshop-related themes in two ways: (1) they all increased the amount of talk about these topics; and (2) they changed the degree of elaboration on topics that were related to the museum's size. Young children decreased reference to other exhibits in the museum, and older children elaborated more on their movement among the different halls.

The length of children's immediate memory accounts, the amount of evaluative information they included, and their cohesion were related to age. However, age did not affect the length, use of evaluation and cohesion in delayed memory accounts.

The thematic shifts over time as well as the relation between age and structural elements of immediate memory narratives, but not of delayed narratives, are intriguing. The analysis of the effects of anticipatory conversations on memory will address the question of whether thematic and structural characteristics of memory accounts, and changes over time, can be explained by processes in the conversations. Before turning to this analysis, a more detailed examination of the conversation variables is presented.

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ANTICIPATORY CONVERSATIONS

In a preliminary analysis of anticipatory conversations, I identified 3 factors (bridging, distinctiveness of description, and reciprocal responsiveness) that may have had an effect on the way that children recalled the event discussed in these conversations. In this section I describe the conversation data, and further explore the conversation factors. Relations with age and gender and relations among these 3 factors are examined as well. These analyses clarify certain aspects of the dynamics of the conversations, and may lead to understanding the function of the conversation variables in future-talk and in memory.

I approached the data in two ways. First, I analyzed the conversations as one unit, rather than considering parent and child utterances separately. This was based on my view that the conversations were constructed by both parent and child and should be analyzed as a whole. This implies, for instance, that speaking to the other or remaining quiet is not an outcome only of individual, personal processes. Rather, speech and silence are an outcome of an interpersonal process which is dynamically being constructed as parent and child converse. When a child does not speak, the parent may use different strategies to elicit the child's participation or to determine whether or not the child is attentive. The parent may increase (or decrease) the amount of speech. Both the child's silence and the parent's amount of speech should be understood in the context of the dyadic process. Initiations are another example: An initiation, by parent or child, may be an initiation only because the other chooses to respond. This dynamic derives from different levels of consciousness. Thus, the speakers themselves are not always aware of their motivation and it is constantly being negotiated.

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The second approach to the data that I employed was a separate examination of the individual contributions of parent and child to the conversation. The purpose of this analysis was to describe how the dyadic process was constructed, and to explore not only parent-child patterns, but mainly whether these patterns were similar, complementary, and stable throughout the conversation.

Anticipatory conversations were first analyzed for overall length. Next, I discuss the analyses of the three conversation factors: bridging, distinctiveness of visit-description, and reciprocal responsiveness. Other intriguing aspects of the conversations deserve to be addressed, but I limited myself only to those that seemed related to the way children talked about their memories of the event. [3]

Conversation Length

Anticipatory conversations were analyzed for total length. The unit of analysis was the utterance, so that conversation length was assessed in number of utterances. Length was calculated separately for parents and for children, and for total number of utterances.

An analysis revealed great variation in length—from very short to very long conversations with a mean of 140.95 (*SD*=95.78) utterances. Sixty percent of the conversations were between 72 to 180 utterances long and 20% between 31 to 71 utterances. The distribution was highly skewed, with 20% between 205 and 444 utterances (Fig. 6 presents the distribution of conversation length). The means (and standard deviations) of total number of utterances in conversations and of number parent and child utterances are shown in table 7.

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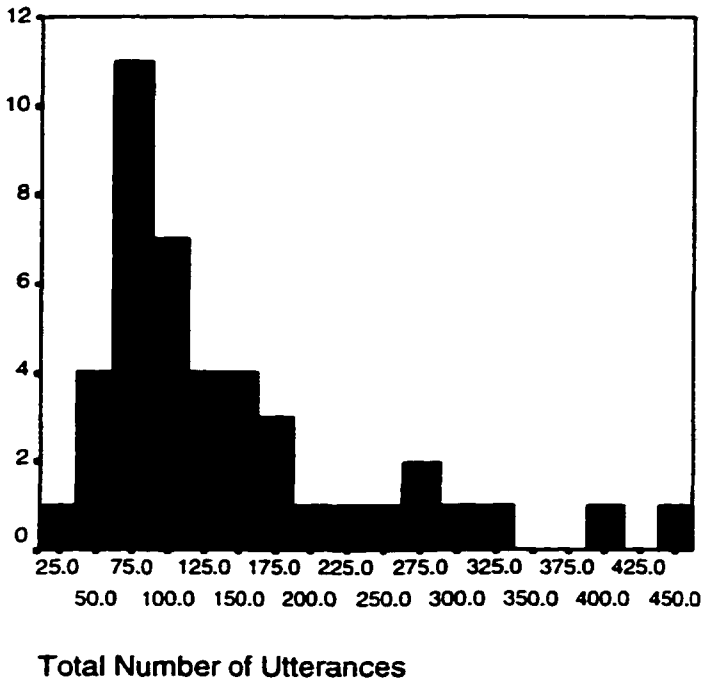

Fig. 6. Distribution of conversation length.

TABLE 7

Anticipatory Conversations: Means (and Standard Deviations) of Children's and Parents' and Total Number of Utterances in Conversations by Age group and Gender

		Child		Parent		Total Length	
Age Group	Gender	Mean		Mean		Mean	
Pre-K.....	Boys.....	27.50	(9.50)	63.00	(24.23)	90.50	(32.57)
	Girls.....	32.40	(28.39)	89.40	(69.31)	121.80	(97.37)
	Mean.....	29.73	(19.33)	75.00	(49.04)	104.73	(67.75)
K.....	Boys.....	74.00	(36.60)	145.25	(89.97)	218.00	(125.90)
	Girls.....	17.75	(4.19)	54.25	(7.41)	71.75	(5.68)
	Mean.....	45.88	(38.54)	99.75	(76.54)	144.88	(113.66)
1st Grade...	Boys.....	53.33	(49.69)	121.44	(93.94)	174.78	(135.48)
	Girls.....	44.00	(16.64)	117.00	(55.71)	161.00	(69.53)
	Mean.....	50.00	(40.32)	119.86	(79.94)	169.86	(113.27)
2nd Grade...	Boys.....	56.17	(32.52)	105.50	(43.97)	161.67	(75.42)
	Girls.....	37.25	(25.71)	63.25	(55.19)	100.50	(78.34)
	Mean.....	48.60	(30.06)	88.60	(50.65)	137.20	(78.76)
Total..	Boys.....	51.12	(38.27)	107.40	(72.70)	158.32	(106.55)
	Girls.....	33.44	(21.65)	83.44	(55.19)	116.83	(74.69)
	Total Mean	43.72	(33.23)	97.37	(66.30)	140.95	(95.78)

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In order to assess age and gender effects on conversation length, a 4(age group) X 2(gender) univariate analysis, with age group and gender as between-subjects factors, was conducted. It revealed no significant differences in total length of conversations for children's age or gender.

To examine parent and child contributions to conversation length, a 2(dyad: child, parent) X 4(age group) X 2(child gender) univariate analysis of variance with age group and child gender as between-subjects factors, and dyad as a within-subject factor, was conducted. Since the dyad was the basic unit of analysis, and in order to be able to compare children and their own parents, the analysis of variance considered *dyad* as a within-subjects factor.

Results revealed a significant main effect for dyad, $F(1,35)=56.97$, with parents producing on average 97 utterances and children 43 utterances.

Parent and child contributions to conversation length was analyzed in two separate 4(age group) X 2(child gender) analyses of variance, with age group and child gender as between-subject factors. For parents, no significant effects were found for age group or for gender.

For children there was no main effect or interaction for age group. A marginally significant main effect for gender was found, $F(1,35/43)=3.88$, $p=.06$, with a higher mean number of utterances for boys than for girls (51.12 utterances for boys, and 33.44 utterances for girls) .

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Summary. As expected, parents talked more than children. Surprisingly, no age effects were found for total conversation length and for contributions made by either parents or children. This suggests that the lack of difference was not a result of parents and children compensating for each other. Rather, the length of conversations reflected a similar pattern of parent and child contribution to the conversation in terms of length (and indeed, parents' and children's number of utterances in conversations were highly correlated, r=.83).

Gender was marginally significant in that overall, boys spoke more than girls. A question that will be addressed later refers to possible factors, other than gender, that can explain the variation in length of parent-child conversations about the future visit.

Bridging

A striking feature in the conversations was that, although parents were asked to speak with their children about the upcoming museum visit, they devoted parts of the conversation to talk about the past and the present. The future visit was discussed in the context of memories or knowledge, linking it to different aspects in the child's life. That was in fact a common way of introducing the future museum visit to the child. At times it even became the main focus of the conversation.

The type of bridging in which parents engaged was clear. Parents presented bridging in the conversation in the form of a question or a statement—general and short, or elaborate. Some children briefly responded to it, and for other dyads, it served as an introduction to a vivid dialogue (see Appendix D for examples of both types of bridging).

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Parents linked the museum visit mainly to past museum experiences, which was coded as bridging to museum memory, or to knowledge about Indians, coded as bridging to knowledge. Few parents linked the museum visit to autobiographical memory other than museum memory, such as family trips. This type of bridging was not included in the analysis because it was not common. [4]

Bridging-type. Two types of bridging were identified. However, parents did not always limit themselves to one type of bridging: some linked the visit both to museum-memories and to knowledge, and few did neither. Of the total number of parents, 18.6% did not engage in bridging at all and 16.27% linked the museum visit both to museum memory and to knowledge. All other parents related the museum visit, as mentioned previously, either to other museum-memories or to knowledge about Indians.

Table 8a lists the number of parents with different bridging-types within age groups (see also Fig. 7).

To evaluate whether parental type of bridging was related to children's age, chi-square tests were computed within each age group. Results revealed no significant differences in bridging-type for Kindergartners' parents.

For all other age groups a significant chi-square, with marginal significance for 2nd Grade, indicated differences in bridging-type. Of the parents of PK children, 63% engaged in bridging to museum-memory. Of the parents of 1st and 2nd graders, 64% and 60% engaged in bridging to knowledge.

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TABLE 8a
Frequencies and Proportions of Bridging-Type in Conversations by Age Group

Age Group	PK		K		1st Grade		2nd Grade		Total	
Bridging										
Memory	7	63.63%	1	12.5%	1	7.14%	1	10.0%	10	23.25%
Knowledge	1	9.09%	2	25.0%	9	64.28%	6	60.0%	18	41.86%
Both	2	18.18%	3	37.5%	1	7.14%	1	10.0%	7	16.28%
None	1	9.09%	2	25.0%	3	21.43%	2	20.0%	8	18.6%

Memory- Bridging to museum memory
Knowledge- Bridging to knowledge
Both- Bridging to both
None- No bridging

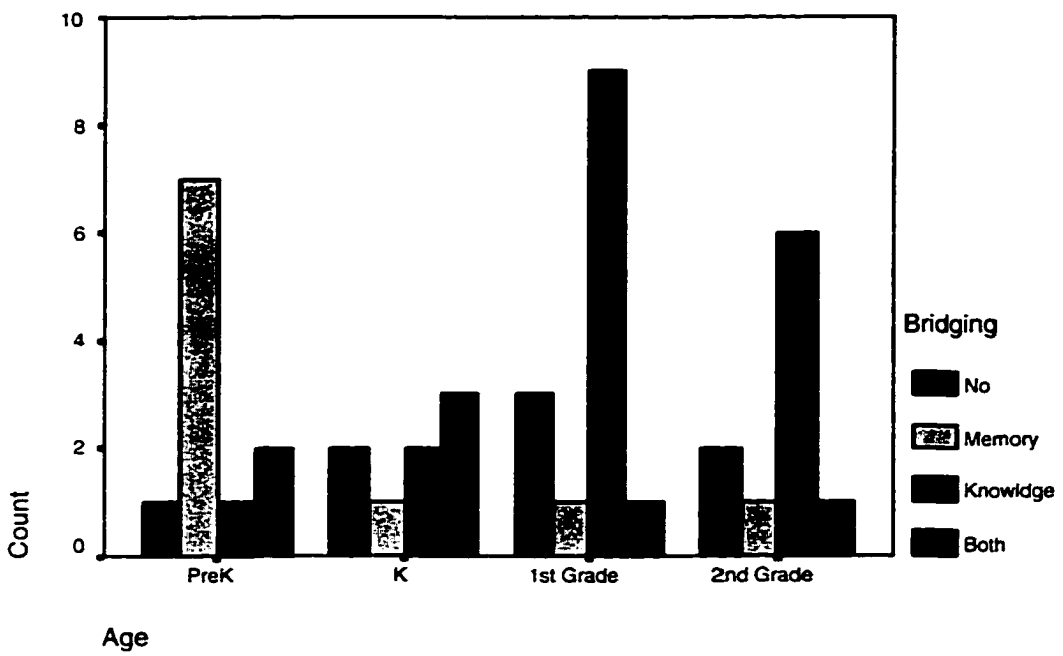

Fig. 7. Frequencies of parental bridging type by age.

Chi-square tests were used to examine differences in parental type of bridging related to child gender. Results revealed no significant differences in bridging-type for girls. For boys, a marginally significant chi-square indicated differences in bridging type, *chi-square*(3)=7.16, p=.07. In conversations with boys, parents tended to engage in bridging to knowledge more than to bridging to memory. No such differences in bridging-type were found for girls (see table 8b, and Fig. 8).

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TABLE 8b

Frequencies and Proportions of Bridging-Type in Conversations by Gender

Gender	Boys		Girls	
Bridging				
Memory	5	20.0%	5	27.7%
Knowledge	12	48.0%	6	33.3%
Both	4	16.0%	3	16.6%
None	4	16.0%	4	22.2%

Memory- Bridging to museum memory
Knowledge- Bridging to knowledge
Both- Bridging to both
None- No bridging

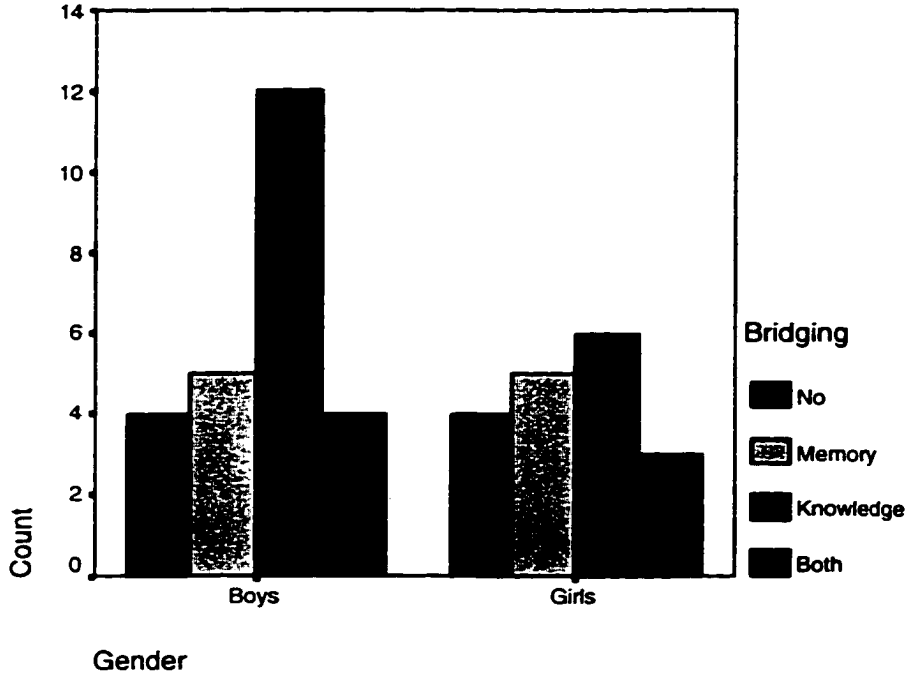

Fig. 8. Frequencies of parental bridging type by gender.

Summary. The above analyses indicate age-related differences in bridging-type. Parents of the youngest children linked the future visit more to museum-memory rather than to knowledge. Parents of older children, 1st and 2nd graders, linked the visit to knowledge about Indians. Kindergartners' parents were the only group who did not

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engage in a clear pattern of bridging, and did a little of everything. There was a tendency for boys' parents to talk about knowledge more than museum-memories.

Distinctiveness of Description of Museum Visit

The second factor identified in parent-child conversations was distinctiveness of visit-description. The anticipatory conversations were globally coded for distinctiveness of visit description as distinct or not-distinct (see Data Analysis and Coding for a detailed description). More parents tended to describe the visit in a distinct rather than non-distinct way, *chi-square*(1)=2.81, p<.10 (63% of the parents provided a distinct description).

In order to examine whether distinctiveness of visit description was age- or gender-related, chi-square tests were conducted. Results revealed no significant age or gender differences in distinctiveness of description of museum visit. That is, whether parents described the upcoming visit in a distinct or non-distinct manner was not related to the child's age or gender.

To further characterize distinctiveness of visit description, the relation between distinctiveness and length of conversation was examined. Means of total number of utterances and of parent and child number of utterances in conversations with distinct and non-distinct visit descriptions and are presented in Table 9.

In order to examine the effects on total length of conversations, a 4(age group) X 2(distinctiveness) univariate analysis of variance with age group and distinctiveness as

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between-subjects factors was conducted. Results revealed a main effect for distinctiveness, $F(1,35,43)=11.33$, indicating that conversations with a distinct visit description were shorter than conversations with a non distinct visit description ($M=105.15$ and $M=201.38$ respectively).

TABLE 9
Anticipatory conversations: Means (and Standard Deviations) of Number of Utterances by Distinctiveness of Visit-Description and Age-Group

		Child		Parent		Total	
	Age Group	Mean		Mean		Mean	
Non-Distinct	Pre-K	41.50	(27.31)	104.75	(70.48)	146.25	(96.95)
	K.	65.00	(46.30)	117.75	(103.27)	182.75	(148.47)
	1st Grade	82.60	(55.41)	206.40	(64.92)	289.00	(107.68)
	2nd Grade	57.33	(44.52)	96.33	(81.08)	153.67	(122.50)
	Total Mean	63.19	(43.82)	138.19	(86.24)	201.38	(123.69)
Distinct	Pre-K	23.00	(10.25)	58.00	(24.45)	81.00	(33.82)
	K.	26.75	(18.64)	80.25	(47.46)	107.00	(65.38)
	1st Grade	31.89	(8.58)	71.78	(31.55)	103.67	(35.35)
	2nd Grade	44.86	(25.29)	85.29	(40.17)	130.14	(64.10)
	Total Mean	32.19	(17.47)	72.96	(34.44)	105.15	(49.16)

To examine individual contributions of parents and children with distinct and non-distinct preparations to conversation length, 2 separate 4(age group) X 2(distinctiveness) univariate analyses of variance with age group and distinctiveness as between-subjects factors were conducted. Results indicated a main effect of distinctiveness for both parents, $F(1,35,43)=10.50$, and children, $F(1,35,43)=9.66$, indicating that overall, the number of utterances was higher in non-distinct conversations than in distinct conversations for both parents and children (see Table 9).

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Summary. The degree of distinctiveness in which the visit was described in the conversations was not related to children's age. Conversations with a distinct visit description were significantly shorter than conversations with a non-distinct visit description. Similar to the analyses of parent-child individual contributions to conversation length, parents and children with distinct and non-distinct conversations acted in a similar manner, not compensating for each other's amount of talk in the conversation but echoing it.

Reciprocal Responsiveness

Reciprocal Responsiveness is a dyadic measure of the degree to which parents and children responded to each other in the conversation. Responsive segments were identified and MLT measures [a CLAN program (MacWhinney, 1995) that computes, among other measures, mean length of turn and number of utterances] were obtained for the dyad as the unit of analysis, and, in addition, separately for parent and child.

For purposes of statistical analyses, and to control for differences in the amount of talk of dyads, a reciprocal responsiveness score was computed for each dyad in the following manner:

$$\text{RR score} = \frac{\text{Number of RR utterances}}{\text{Total number of utterances}}$$

This score is the ratio of responsive utterances to the total number of utterances in the conversation. In other words, it indicates what proportion of the utterances in the conversation was responsive. Note that all RR utterances were considered, regardless of whether they were produced by the parent or the child.

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Separate responsiveness scores were calculated for parents and for children as well. Parent and child responsiveness ratio scores represent the ratio of the number of responsive utterances they each produced to the total number of utterances they contributed to the conversations.

Responsiveness scores revealed that, on average, about one third of each conversation was responsive (M=35.74%) and that the range of responsiveness was from 0% to 76%. In 25% of the conversations, the responsiveness score was higher than .50, indicating that more than half of the conversation was responsive.

Classification of Low- and High-Responsive Conversations. For purposes of statistical analyses, anticipatory conversations were classified by their degree of responsiveness. The classification was based on the median of responsiveness ratio of each age-group. Dyads with a score below the age-group median were classified as *low-responsive*, and dyads with a score above the age-group median were classified as *high-responsive*. The median scores ranged between .35 to .40, with the exception of a lower median of .23 for the Kindergartners' group.

Responsiveness ratios in conversations of low- and high-responsive dyads were not clustered around the age-group median, and parents and children contributed in similar ways to the total ratio of responsiveness in conversations. A one-way analysis of variance, with responsiveness as a between-subjects factor, was conducted, indicating that the mean ratio of RR utterances for high-responsive dyads was significantly higher than for low-responsive dyads, $F(1,43) = 69.60$. Separate analyses of parent and child responsiveness ratios revealed similar results.

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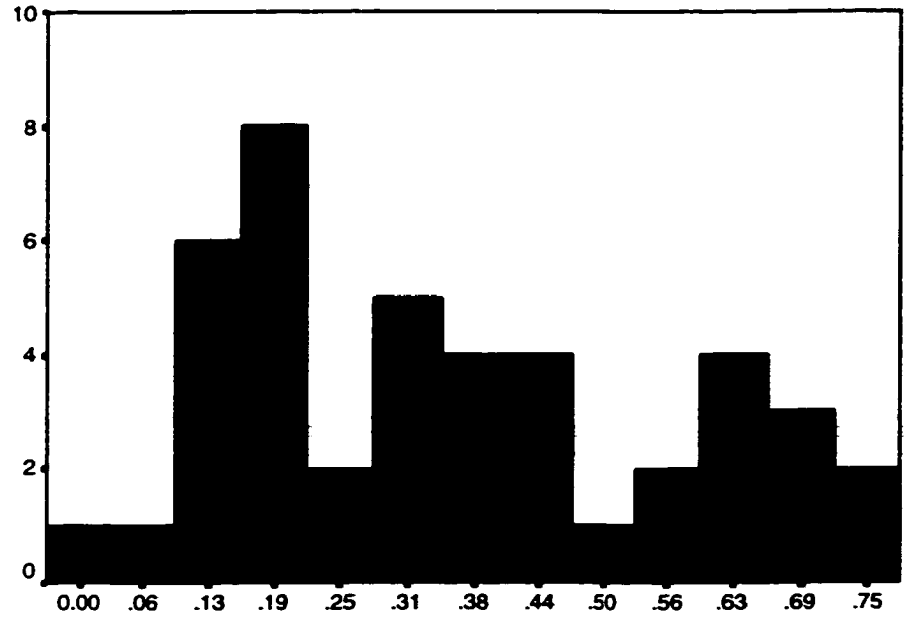

Fig. 9. Distribution of total responsiveness ratio in conversations.

Examining the distribution of the ratio of responsive utterances (as shown in Fig. 9) suggests that responsiveness scores may be divided into 3: low-, medium-, and high-responsive. However, because the number of children in each age group was not high, I decided on a classification based on 2 levels of responsiveness. This decision was also supported by the significant differences in proportion of RR utterances found for low- and high-responsive dyads.

The following sets of analyses examine possible factors that were expected to be related to responsiveness in conversations: children's age and gender, and the amount of speech in the conversations. The relation between responsiveness and distinctiveness of visit description is analyzed as well.

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Age and Gender. Table 10 displays the means of total ratio of responsive utterances for the four age-groups, and means of children's and parents' responsiveness ratios. To examine age and gender differences in total responsiveness ratios, a 4(age group) X 2(gender) univariate analysis of variance, with age and gender as between-subjects factors, was conducted. Results indicated no age effects on the total amount of responsiveness in conversations. A higher ratio of responsiveness in conversations with boys (.37 for boys, and .29 for girls) did not reach significance, thus indicating no gender effects.

To compare patterns of parents' and children's ratios of responsive utterances, a 2(dyad) X 4(age group) X 2(child gender) univariate analysis of variance, with dyad as a within-subjects factor, and age and child gender as between-subjects factors was conducted. Results revealed a main effect of dyad, $F(1,35)=11.00$. Significant interactions were found between dyad and age group, $F(3,35)=3.21$, and among dyad, age group and child gender, $F(3,27)=4.69$.

TABLE 10
Anticipatory Conversations: Means (and Standard Deviations) of Total and Child and Parent Ratio of RR Utterances by Age Group

	Child	Parent	Total
Age	Mean	Mean	Mean
Pre-K	.35 (.23)	.36 (.19)	.33 (.21)
K	.30 (.13)	.27 (.19)	.27 (.16)
1st Grade	.43 (.25)	.34 (.24)	.37 (.24)
2nd Grade	.45 (.27)	.36 (.22)	.39 (.24)
Total Mean	.39 (.23)	.34 (.21)	.35 (.21)

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Although the difference in responsiveness ratio for parents and for children was small (.34 and .39 respectively), it was significant. This suggests that overall, a larger proportion of children's total amount of speech was responsive compared to parents' proportion of responsive speech.

Two 4(age group) X 2(child gender) univariate analyses of variance, with age and child gender as between-subjects factors were conducted separately for parents and children, and revealed no significant effects or interactions (a marginal main effect of age, $F(1,35)=2.45$, $p<.08$, was found for children).

The interaction between dyad and age in the first analysis refers to the comparison between children's and parent's responsiveness ratios. As Table 10 indicates, responsiveness ratios of younger children and their parents were not different (boys in the youngest age group had higher responsiveness ratios than their parents). However, both 1st and 2nd graders had higher responsiveness ratios than their parents (means of responsiveness for collapsed age group of younger and older children are displayed in Fig. 10). This suggests that, with age, there is a change in the pattern of parent and child relative contributions to the total amount of responsiveness in the conversation. Whereas in the younger age-group, parents and children have similar responsiveness ratios, the proportions of parents' and older children's responsive speech are different, children's ratios being higher.

It should be emphasized that responsiveness as a dyadic measure was not age-related. Parents and children, even in the youngest age group, were able to conduct a responsive conversation, yet with age, the balance between children's and parents' responsiveness changed.

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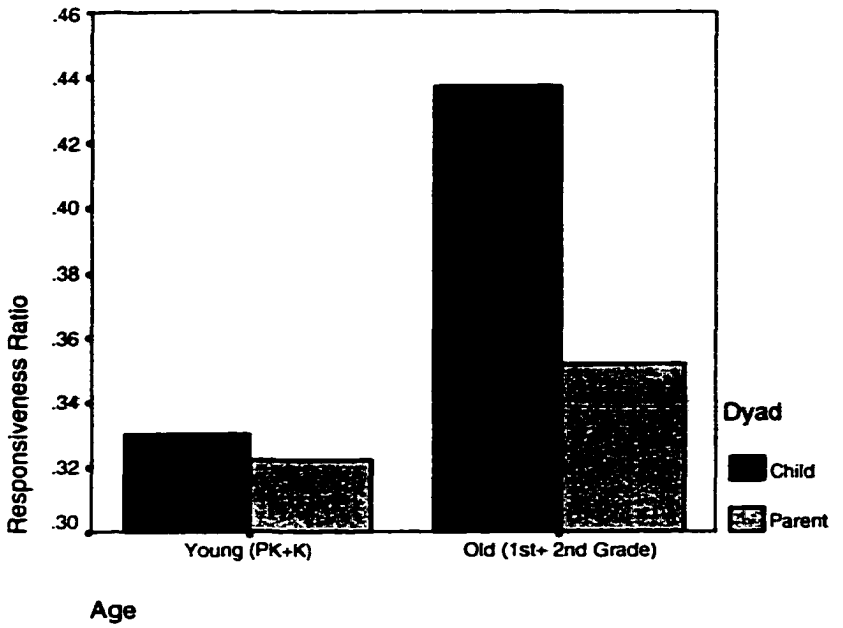

Fig. 10.1. Mean responsiveness ratios of parents and children for younger and older children.

To summarize, total responsiveness ratio (on the level of the dyad) in conversations was not related to children's age or gender. Overall, children's responsiveness ratio was higher than that of parents. Parents' responsiveness ratio was not related to the child's age. However, when considered separately, children's responsiveness ratio was related to age, with an increase in the ratio of older children, so that it was higher than that of their parents'. Only in the youngest group was boys' responsiveness ratio higher than that of parents.

Responsiveness and Conversation Length. Since responsiveness is a measure of the degree of involvement in the conversation, it was expected that it would be related to the length of conversations. The means of number of parent and child utterances in

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conversation, and of total number of utterances in conversation are displayed in Tables 11a and 11b.

TABLE 11a
Anticipatory Conversations: Means (and Standard Deviations) of Total Number of Utterances by Responsiveness and Age Group

Age Group			
Pre-K	Low-Responsive	128.80	(94.75)
	High-Responsive	84.67	(30.60)
K	Low-Responsive	103.25	(50.38)
	High-Responsive	186.50	(151.65)
1st Grade	Low-Responsive	166.43	(101.83)
	High-Responsive	173.29	(131.91)
2nd Grade	Low-Responsive	76.40	(27.52)
	High-Responsive	198.00	(62.92)
Total	Low-Responsive	124.00	(82.02)
	High-Responsive	157.14	(106.68)
	Total Mean	140.95	(95.78)

TABLE 11b
Anticipatory Conversations: Means (and Standard Deviations) of Number of Utterances for Children and Parents, by Responsiveness and Age Group

		Child		Parent	
Age Group		Mean		Mean	
Pre-K	Low-Responsive	35.00	(27.21)	93.80	(67.76)
	High-Responsive	25.33	(10.21)	59.33	(22.11)
K	Low-Responsive	38.75	(23.66)	64.50	(28.52)
	High-Responsive	53.00	(52.64)	133.50	(99.33)
1st Grade	Low-Responsive	38.29	(19.75)	128.14	(84.20)
	High-Responsive	61.71	(53.04)	111.57	(81.22)
2nd Grade	Low-Responsive	26.60	(12.50)	49.80	(22.16)
	High-Responsive	70.60	(25.81)	127.40	(38.95)
Total	Low-Responsive	34.81	(20.11)	89.19	(65.66)
	High-Responsive	52.23	(40.85)	104.91	(67.71)
	Total Mean	43.72	(33.23)	97.23	(66.40)

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In order to analyze the relation to conversation length, a 4(age group) X 2(child gender) X 2(responsiveness) univariate analysis of variance was conducted, and revealed no main effects of age group, child gender or responsiveness.

To analyze the effects of responsiveness on number of utterances that parents and children produced in the conversations, a 2(responsiveness) X 4(age-group) X 2(dyad) X 2(gender) univariate analysis of variance was conducted, with age group, responsiveness and child gender as between-subjects factors, and dyad as a within-subject factor. Results indicated an interaction among dyad, age group and responsiveness, $F(1,35)=3.41$.

To examine the interaction, separate analyses were conducted for parents and children, revealing no effects or interactions for parents. High-responsive parents did not produce significantly more utterances than low-responsive parents. However, a marginally significant main effect of responsiveness for children was found, $F(1,35,42)=3.249$, $p=.08$. High-responsive children produced, on average, 52.23 utterances, and low-responsive children produced 34.82 utterances.

In summary, no relation was found between parents' amount of speech and responsiveness. For children, high-responsiveness was related to more speech.

Responsiveness and Distinctiveness. Table 12 lists the means of total responsiveness ratios for high- and low-responsive conversations, with distinct and non-distinct visit descriptions, and means of parent and child responsiveness ratios as well. To analyze total responsiveness ratio in conversations, a 2(distinctiveness) X 2(responsiveness) X 4(age group) analysis of variance was conducted, with distinctiveness, responsiveness and age group as between-subjects factors. The results

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indicated a significant main effect for responsiveness, $F(1,27)=86.09$, and an interaction between responsiveness and distinctiveness, $F(1,27)=4.66$.

Responsiveness ratio was by definition higher in high-responsive than in low-responsive conversations. As Fig.11 shows, within the low-responsive group, responsiveness ratio was not different for conversations with or without a distinct description of the visit. However, in the high-responsive group, responsiveness ratio was higher in conversations with a non-distinct rather than distinct description (M=.61 and M=.48 respectively).

TABLE 12

Anticipatory Conversations: Means (and Standard Deviations) of Ratio of RR Utterances for Low- and High-Responsive Dyads with Distinct and Non-Distinct Visit Description

		Low-Responsive	High-Responsive	Total
	Distinct	Mean	Mean	Mean
Child	No	.18 (.06)	.58 (.14)	.33 (.22)
	Yes	.25 (.16)	.55 (.19)	.43 (.23)
	Total Mean	.21 (.13)	.56 (.17)	.39 (.23)
Parent	No	.16 (.07)	.63 (.11)	.34 (.25)
	Yes	.18 (.09)	.45 (.15)	.34 (.19)
	Total Mean	.39 (.23)	.50 (.16)	.34 (.21)
Total RR	No	.17 (.06)	.61 (.11)	.33 (.24)
	Yes	.20 (.11)	.48 (.15)	.37 (.20)
	Total Mean	.18 (.09)	.52 (.15)	.35 (.21)

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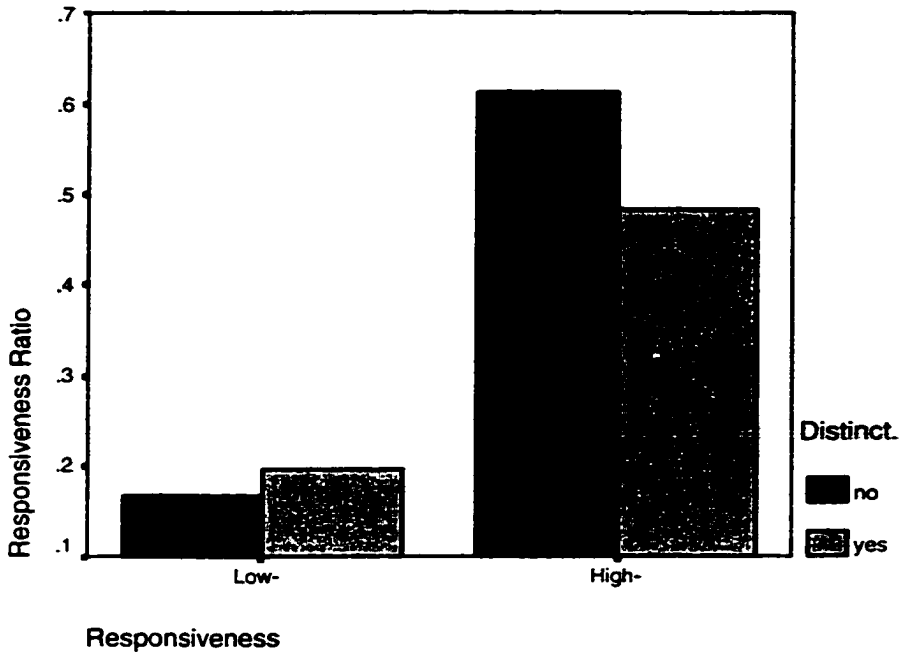

Fig. 11. Mean total responsiveness ratios in conversations with distinct and non-distinct visit descriptions by low- and high-responsiveness.

In order to examine whether this pattern was similar for parents and children, a 2(dyad) X 2(responsiveness) X 2(distinctiveness) X 4(age group) analysis of variance was conducted, with responsiveness, distinctiveness and age-group as between-subjects factors, and dyad as a within subject factor. It revealed a marginal main effect for dyad, $F(1,27)=3.02$, $p<.10$, an interaction between dyad and distinctiveness, $F(1,27)=7.41$, and a marginal interaction between distinctiveness and responsiveness, $F(1,27)=3.10$, $p<.10$. This difference in responsiveness ratios of parents and children was shown previously.

To further explore the interactions, two 2(responsiveness) X 2(distinctiveness) X 4(age group) analyses of variance were conducted separately for children's and parents' responsiveness ratios. For children, the analysis revealed no differences in responsiveness ratio between conversations with distinct and non-distinct descriptions. With regard to parents, the results indicated a main effect of distinctiveness, $F(1,27)=6.05$, and an

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interaction between responsiveness and distinctiveness, $F(1,27)=6.82$. As Fig. 12 shows, whereas in the low-responsive group there were no differences in responsiveness ratio, in the high-responsive group, responsiveness ratio was lower for parents who described the visit in a distinct way ($M=.63$ for a non-distinct, and $M=.45$ for a distinct description).

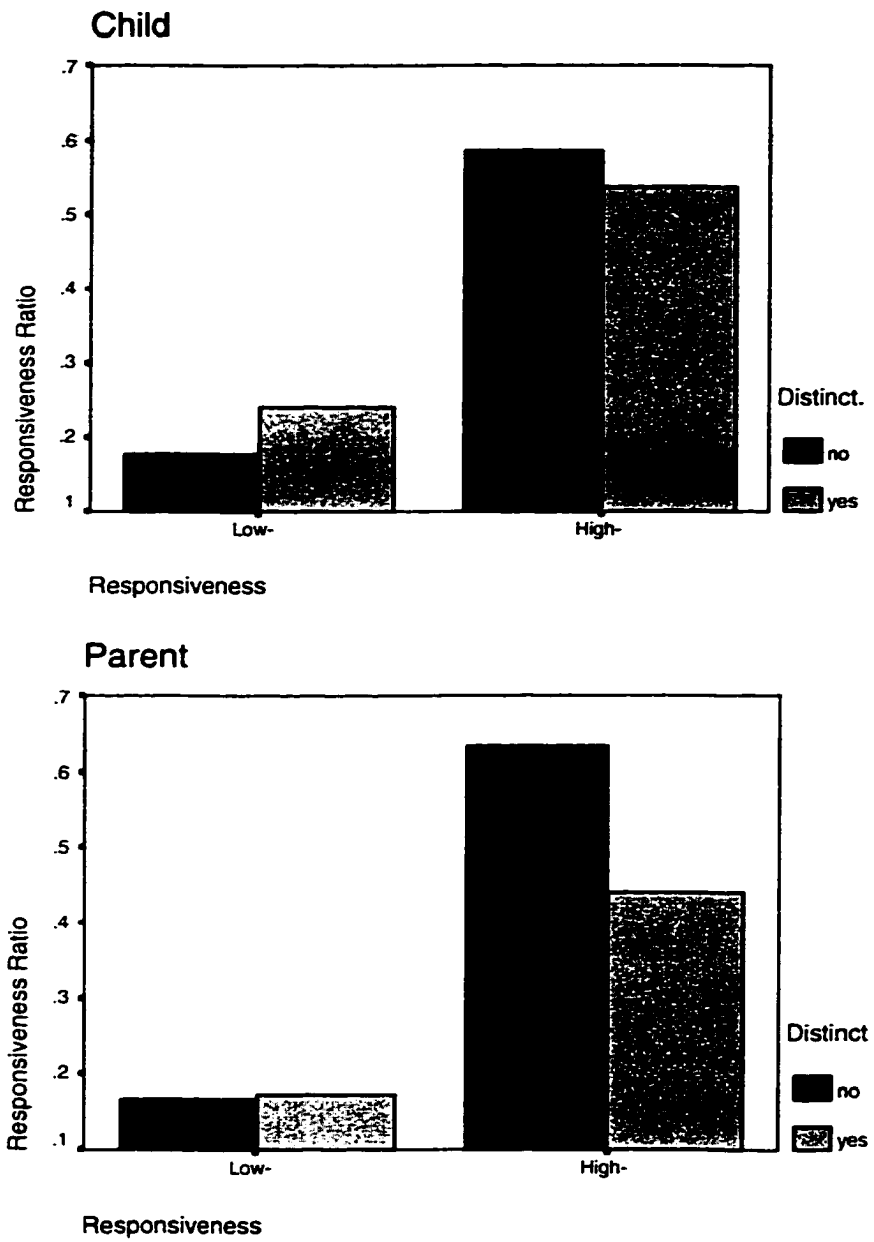

Fig. 12. Means of parent and child RR ratios in conversations with distinct and non-distinct visit descriptions by low- and high-responsiveness.

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The analyses indicate that responsiveness ratio decreased when conversations included a distinct description of the visit only when they were in the high-responsive range. Only parents contributed to this decrease in responsiveness ratio: when analyzed separately, a difference between responsiveness ratios was found only for parents who provided a distinct versus non-distinct description, but not for children.

Summary. Over one third of the conversations and of children's and parents' utterances was responsive. Expected age and gender differences in total responsiveness ratio in conversations were not found. Compared to parents, a higher proportion of older children's speech was responsive, whereas responsiveness ratios of younger children and their parents were not different.

This suggests that although the overall ratio of responsiveness does not change with age, there is a shift in the interaction as children grow older. A higher proportion of children's speech, compared to their parents, becomes responsive.

Responsiveness ratio was related to production of more speech in the conversation for children but not for parents.

Distinctiveness of visit description was related to lower responsiveness ratios in the high-responsive group of parents, but children's responsiveness ratio was not related to distinctiveness.

Summary of Findings for Anticipatory Conversations

This section explored attributes of the way parents talked about the future event, and of the parent-child interaction. Not surprisingly, parents spoke more than children in the

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conversations. The total length of the conversations was not related to children's age, but there were gender differences, revealing that boys spoke more than girls.

Bridging is a measure of parental framing of the anticipated event. The type of bridging in which parents engaged was related to their children's age and gender: with PK children, parents linked the visit to memory of other visits, and with older children they linked the visit to knowledge. Only with kindergartners did parents show no preference for a specific bridging type. In conversations with boys, parents tended to link the visit to knowledge.

Analyses of distinctiveness reveal similar patterns for parents and for children. Whether parents presented the visit in a distinct or non-distinct way was not related to their children's age or gender. Conversations with a distinct visit description were shorter, and both parents and children produced fewer utterances.

Responsiveness represents a qualitative change in the parent-child interaction, and examining its characteristics revealed differences between parents and children, as well as developmental changes. Total responsiveness ratio in conversations was not directly related to children's age, but older children had higher responsiveness ratios than their parents. Whereas for children high-responsive conversation were related to more speech, parents' amount of speech was not different in low- and high-responsive conversations.

In the high-responsive group, distinctiveness was related to a lower responsiveness ratio, but only for parents and not for children.

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ANTICIPATION AND MEMORY

The central question of this study was whether and how memory for a personally experienced event is related to anticipatory conversations. In this section I present the results of analyses that examine the relations between the conversation variables discussed earlier and factors in children's recall accounts.

Shared Themes

The following analyses examine relations between the shared themes children mentioned in their memory accounts and types of bridging and distinctiveness in anticipatory conversations. I expected that: 1) Children whose parents linked the visit to other museum visits would refer to what they did rather than what was learned, 2) children whose parents linked the visit to the child's knowledge would talk more about the content of the visit rather than activities involved in it, and finally 3) a distinct visit description would be related to an increase in elaboration on both content and activities in the child's memory accounts, even immediately after the visit.

Age is included in all the analyses. Only results related to the preparation are discussed, since findings of age and gender differences in memory, and of changes over time are presented previously.

Activities and Content of Visit. The analyses of mentions of these themes in repeated memory accounts revealed: (a) An increase over time in mentions of both activities and content. (b) Younger children equally mentioned content and activities, and

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older children mentioned content more than activities. (c) An increase with age in mentions of content but not of activities. These findings raised the question of what reference to activities was related to.

TABLE 13
Means (and Standard Deviations) of Number of Mentions of Activities and Content, by Bridging to Museum-Memory and Age-Group

Theme:		Activities		Content	
		Time 1	Time 2	Time1	Time 2
Age Group	Bridging to Memory	Mean	Mean	Mean	Mean
Pre-K.....	No	.00 (.00)	1.00(1.41)	1.00 (1.41)	2.50 (3.54)
	Yes	.78 (1.09)	1.67(1.50)	.78 (.97)	1.67 (.71)
	Total Mean	.64 (1.03)	1.54(1.44)	.82 (.98)	1.82 (1.33)
K.....	No	.50 (.58)	.75 (.50)	1.25 (1.50)	1.25 (.50)
	Yes	.75 (.96)	1.25 (.96)	.75 (.50)	2.00 (1.83)
	Total Mean	.63 (.74)	1.00 (.76)	1.00 (1.07)	1.63 (1.30)
1st Grade..	No	.64 (.81)	1.00(1.18)	2.55 (2.34)	2.73 (2.45)
	Yes	1.67 (.58)	.33 (.58)	2.33 (1.15)	2.67 (2.89)
	Total Mean	.86 (.86)	.86(1.10)	2.50 (2.10)	2.71 (2.43)
2nd Grade.	No	.50 (.53)	1.88(1.25)	3.25 (1.28)	5.25 (2.71)
	Yes	2.00 (.00)	1.00 (.00)	2.00 (1.41)	2.00 (.00)
	Total Mean	.80 (.79)	1.70(1.16)	3.00 (1.33)	4.60 (2.76)
Total.....	No	.52 (.65)	1.24(1.16)	2.44 (1.94)	3.28 (2.72)
	Yes	1.06 (1.00)	1.28(1.23)	1.17 (1.10)	1.94 (1.39)
	Total Mean	.74 (.85)	1.26(1.18)	1.91 (1.74)	2.72 (2.33)

Bridging to Museum Memory: The mean number of references to these themes for both memory accounts of children whose preparation included or did not include linking the visit to other museum visits are presented in Table 13.

A 2(bridging: no, yes) X 2(theme: activities, content) X 2(time point) X 4(age group) analysis of variance was conducted, with age group and bridging as between-subjects factors, and theme and memory account time as within-subjects factors. Results indicated main effects of age group, $F(3,35)=2.86$, and type of theme, $F(1,35)=14.32$,

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and two marginally significant effects, a main effect of time point, $F(1,35)=3.58$, $p=.07$, and an interaction between type of theme and bridging to memory, $F(1,35)=3.30$, $p=.08$.

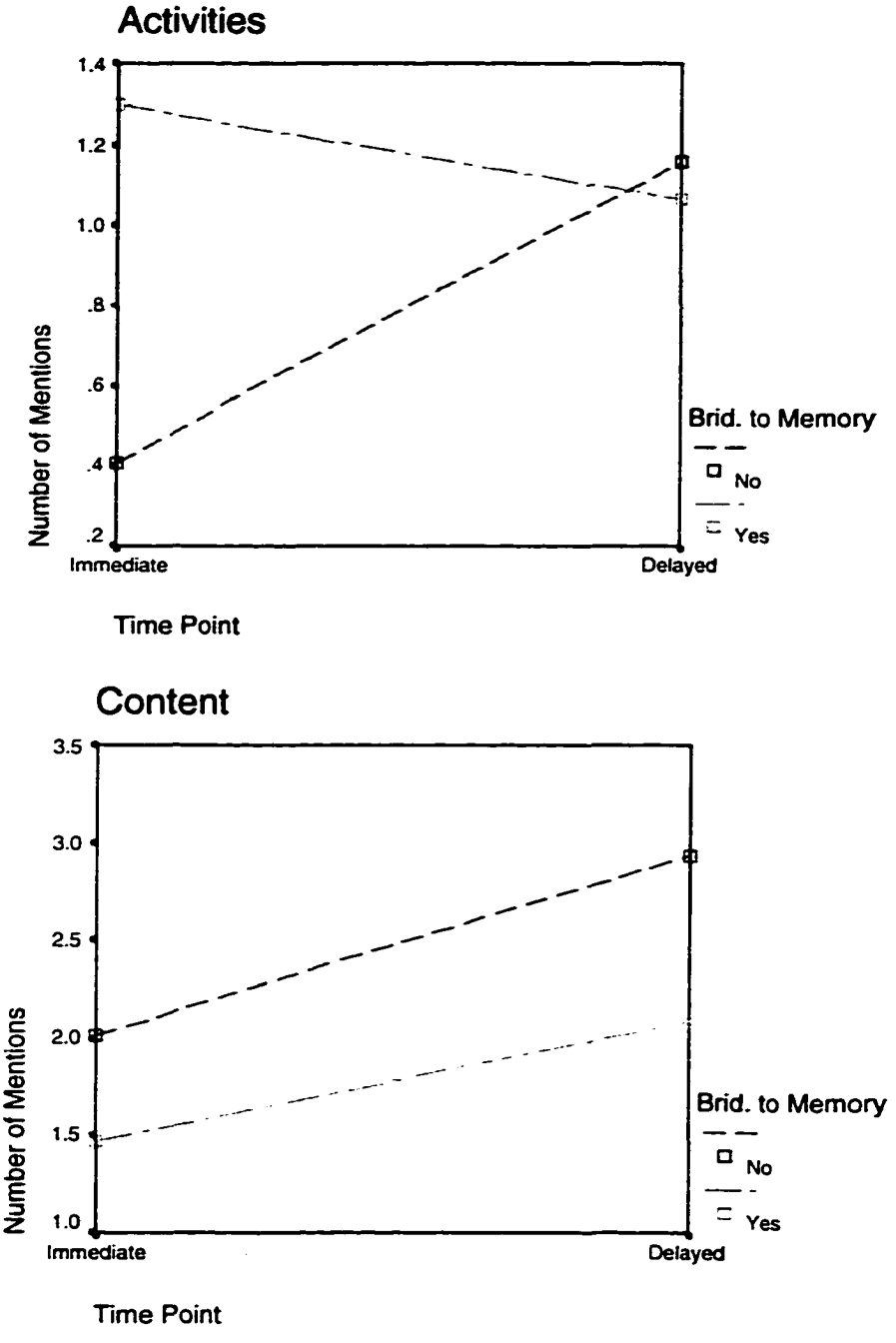

Fig. 13. Mean number of mentions of activities and content over time by bridging to memory.

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To examine the marginal interaction between type of theme and bridging to memory, two 2(bridging) X 4(age group) X 2(time point) analyses of variance, with age group and bridging as between-subjects factors and time point as a repeated measure, were conducted separately for number of mentions of activities and of content. With regard to mentions of content, bridging to memory did not have a significant main effect, and no interactions were found. For activities, the results indicated an interaction between bridging to memory and time point, $F(1,35)=5.48$.

At time point 1, children with bridging to memory mentioned more activities than children without bridging. At time 2, the number of references to activities did not change for children with bridging, while children without bridging increased the number of mentions of activities (see Fig. 13). This suggests that bridging to memory facilitated children's reference to activities in the immediate memory account.

To conclude, these analyses suggest that bridging to museum-memory did not affect children's reference to the content of the visit, but affected their reference to activities in which they were involved. It had an initial facilitating effect on the number of mentions of activities, and children whose parents linked the visit to memory of similar visits mentioned more activities than children whose parents did not link the visit to memory.

Bridging to knowledge: To examine the relation between bridging to knowledge and mentions of activities and content, a 2(bridging) X 2(time point) X 4(age group) analysis of variance, with age group and bridging as between-subjects factors, and time point as a within-subjects factor, was conducted. The results revealed no main effect or interactions

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with bridging to knowledge (see Appendix G, Table G1a, b). Contrary to expectations, bridging to knowledge did not affect references to content.

Distinctiveness of visit-description: To investigate the effects of distinctiveness of visit description on references to content and to activities, the means for both memory accounts were calculated for children with a distinct and non-distinct visit description in the different age groups (see Appendix G, table G2a, b).

A 2(theme) X 2(distinctiveness) X 2(time point) X 4(age group) analysis of variance, with age group and distinctiveness as between-subjects factors, and time point and theme type as within-subjects factors, was conducted for number of references children made. The results revealed main effects of time point, type of theme and age group, and an interaction between type of theme and age group. These findings were already discussed previously. A marginal interaction among time point, type of theme and distinctiveness, $F(1,35)=3.91$, $p=.06$, was found as well.

Two separate 2(distinctiveness) X 2(time point) X 4(age group) analyses of variance, with distinctiveness and age group as between-subjects factors, and time point as a repeated measure, were conducted separately for mentions of each type of theme. For activities, a main effect of time was found, indicating an increase in mentions of activities with time. For content, the results indicated main effects of time point and age group, as already discussed. There was a significant interaction between time point and distinctiveness of visit description, $F(1,35)=4.205$. Children with a distinct preparation increased the number of mentions of content over time, from a mean of 1.93 to 3.26,

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whereas the number of mentions of content for children with a non distinct preparation did not change, 1.88 at time 1 and 1.81 at time 2 (see Fig. 14).

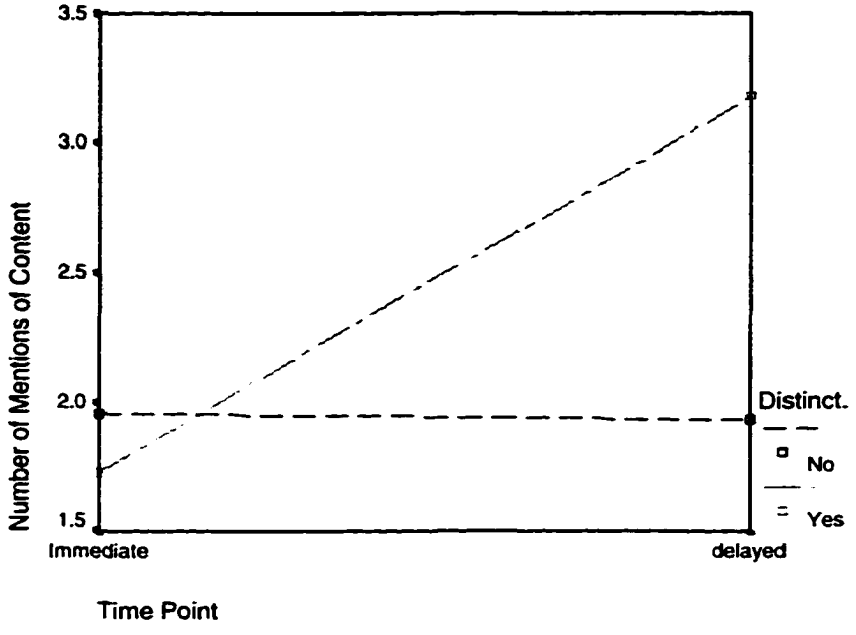

Fig. 14. Mean number of mentions of content by distinctiveness of visit description over time.

To summarize, the above analyses indicate that both bridging and distinctiveness of visit description in anticipatory conversations affected references to themes that were related to the stated goal of the visit, but the findings were not consistent with the initial predictions. Bridging to memory was related to more elaboration on activities only in children's immediate memory narratives compared to narratives of children whose preparation did not include this bridging type, suggesting an initial facilitating effect. Over time, children without bridging to memory increased the number of references to activities and there was no significant difference between children with and without bridging to memory in the reference to activities in delayed memory accounts.

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Conversations with a distinct visit description were related to an increase over time in mentions of content, and not to mentions of activities, as expected. Bridging to knowledge had no effect on mentions of content or activities, though it was expected to be related to an increase in references to content.

Other Exhibits and Procedural Activities. The following set of analyses examines the relation between the anticipatory conversations and the way in which children represented in their accounts aspects of the visit that were not part of its stated goal. As in the previous analyses, the findings that are of interest here are main effects and interactions in relation to the conversation variables (bridging, distinctiveness, and responsiveness). Other findings concerning age and time point of memory accounts were discussed in previous sections.

The analyses of reference to other exhibits and procedural activities in immediate and delayed memory narratives revealed: (a) Children in the oldest group mentioned more procedural activities than other exhibits, and over time they increased the number of references to procedural activities, (b) younger children mentioned both types of themes equally, and (c) over time, all children decreased the number of references to other exhibits. Though no specific predictions were made about possible effects of the preparation, it seems reasonable to assume that bridging to content and distinctiveness of visit description would be related to fewer mentions of other exhibits.

To test for possible effects of the preparation variables, 3 separate analyses of variance were conducted for the two type of bridging and for distinctiveness of visit description.

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Bridging to memory: A 4(age group) X 2(time point) X 2(type of theme) X 2(bridging to memory) analysis of variance was conducted, with time-point and type of theme as within-subjects factors, and age group and bridging as between-subjects factors. The results revealed a main effect of age group, $F(3,35)=4.91$, an interaction between type of theme and age group, $F(3,35)=2.76$, an interaction between time point and type of theme, $F(1,35)=9.37$, and an interaction among type of theme, age group and bridging to memory, $F(3,35)=3.33$.

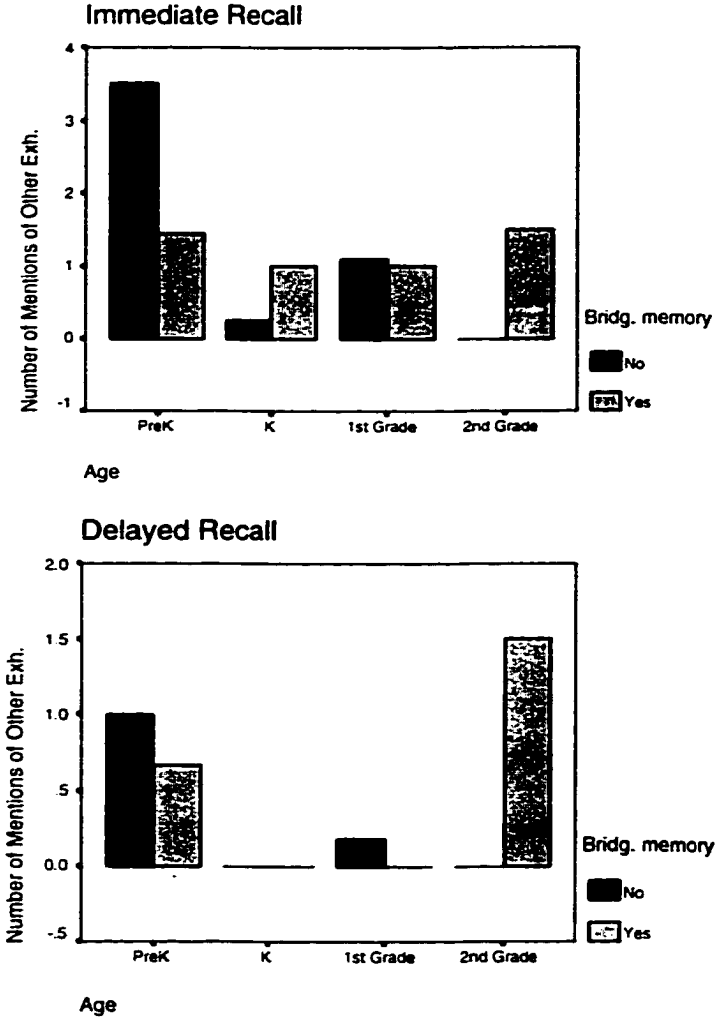

Fig. 15. Immediate and delayed recall: Mean number of mentions of other exhibits by bridging to memory and age.

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To further explore the interaction with bridging, two separate analyses were conducted for mentions of each type of theme. For mentions of other exhibits, the results indicated a main effect of age group, $F(3,35)=5.04$, and an interaction between age group and bridging to memory, $F(3,35)=4.33$. As Fig. 15 shows, this interaction indicated a reverse picture for children in two age groups: Children in the youngest age group whose preparation included bridging to memory had fewer mentions of other exhibits than children without this type of bridging. Children in the oldest age group whose preparation included bridging to memory mentioned other exhibits, but not children whose preparation did not include bridging to memory.

For procedural activities, the results revealed a main effect of age group, $F(3,35)=2.88$, and an interaction between age group and bridging to memory, $F(3,35)=2.88$, indicating that 1st graders whose preparation included bridging to memory mentioned more procedural activities than 1st graders without bridging. For children in all other age groups there were no significant differences in mentions of procedural activities between those with and without bridging to memory (see Fig. 16).

Bridging to knowledge: A 4(age group) X 2(time point) X 2(type of theme) X 2(bridging) analysis, with time-point and type of theme as within-subjects factors, and age group and bridging to knowledge as between-subjects factors was conducted. Contrary to expectations, the results revealed no significant main effects of bridging to knowledge on number of references to other exhibits and to procedural activities. This indicates that bridging to knowledge in the preparation was not related to the way that

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children focused on the stated goal of the visit, and to the way they represented in their narratives themes that were related to other aspects of the visit.

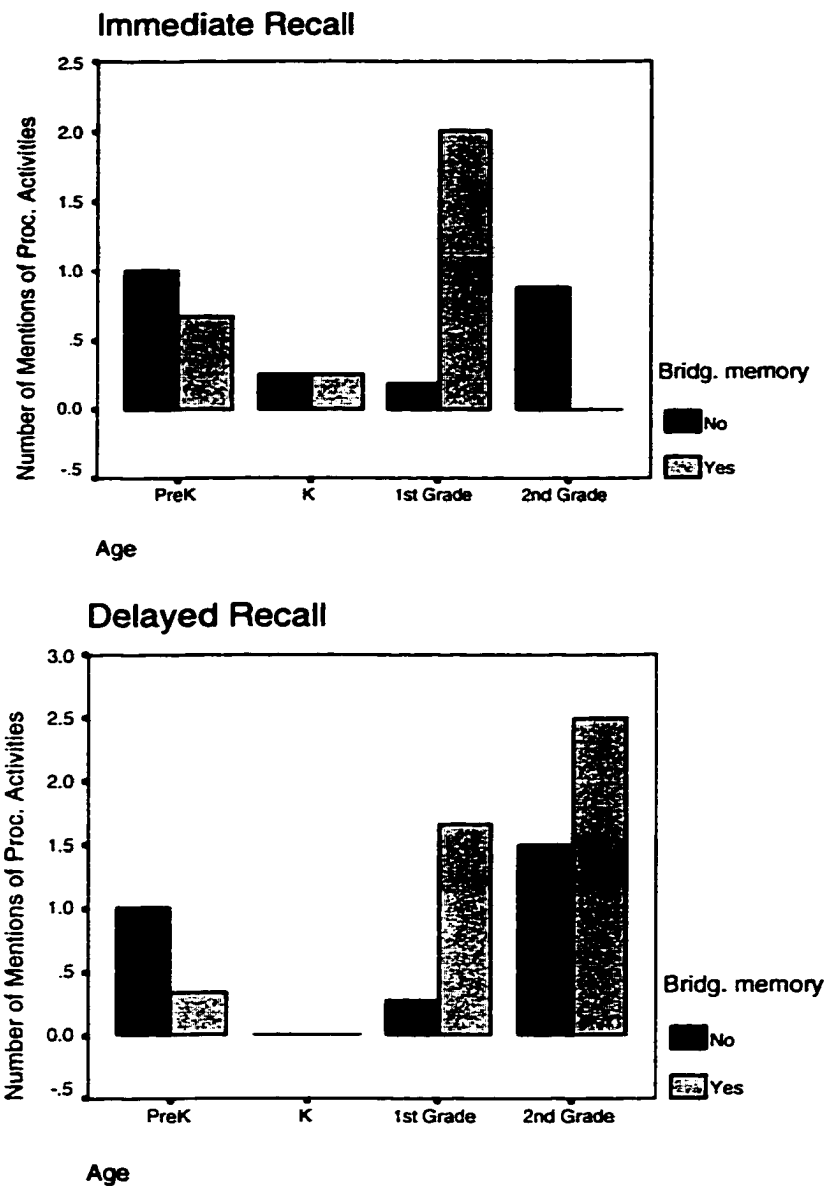

Fig. 16. Immediate and delayed recall: Mean number of mentions of procedural activities by bridging to memory and age.

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Distinctiveness of visit description: A 4(age group) X 2(time point) X 2(type of theme) X 2(distinctiveness) analysis of variance, with time-point and type of theme as within-subjects factors, and age group and distinctiveness as between-subjects factors, revealed an interaction between type of theme and age group, $F(3,35)=6.17$, and an interaction between time point and type of theme, $F(1,35)=5.99$. These findings are discussed previously. An interaction among type of theme, age group, and distinctiveness of visit description, $F(3,35)=3.81$, indicated that, among the 2nd graders, children with a non distinct description made more references to procedural activities than children with a distinct description. Children in all other age-groups made fewer references to procedural activities than 2nd graders, and no differences were found between children with distinct and non distinct descriptions. As for references to other exhibits, contrary to expectations, no significant effects of distinctiveness were found.

In summary, the above analyses indicate that distinctiveness of visit description and bridging to memory were related to reference to the museum size and large number of exhibits. Distinctiveness affected reference to procedural activities only for the oldest age group, with fewer mentions for children whose preparation included a distinct description of the visit. This suggests that older children organized the experience using more reference to procedural activities when the visit was not presented in the anticipatory conversation in a distinct way. Bridging to memory was related to fewer mentions of other exhibits for younger children, and to more mentions of other exhibits for older children, suggesting that bridging to memory was appropriate for younger children,

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leading to fewer mentions of other exhibits. For older children, bridging to memory may have had a confusing effect, leading to more mentions of other exhibits.

Length, Structure and Cohesion of Memory Narratives

Children's age was expected to affect the length, structure and cohesion of their memory narratives. However, analyses of the repeated memory accounts showed that many of the age effects were limited to the immediate memory narratives. Immediately following the visit, older children produced longer and more cohesive narratives, with more orienting and evaluative information. Children's delayed memory accounts did not show age differences. These findings raised the question of what other factors may account for the variance in children's memory accounts, especially the delayed accounts. More specifically, responsiveness ratio and distinctiveness of visit description in the anticipatory conversations were expected to affect the cohesion and narrative structure of children's accounts. I hypothesized that distinctiveness would be related to more orienting and evaluative information in the narratives, and that responsiveness would affect the cohesion and structure of the delayed memory accounts.

In order to evaluate whether responsiveness and distinctiveness in anticipatory conversations accounted for the variance in measures of structure and cohesion of children's memory accounts, a series of multiple regression analyses was conducted. Age as a third possible explanatory variable was entered into the analyses as well. Since there was no specific model that guided the analysis, all three variables were entered in a stepwise analysis, even though the independent variables—age (in months), responsiveness ratio, and distinctiveness, were not intercorrelated.

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Separate regression analyses were carried out for immediate and delayed accounts for each of the outcome variables. The results of the analyses are presented in Table 14. Beta values are listed for variables that were entered into the final model.

TABLE 14

Results of Multiple Regression Analyses Testing the Relation between Children's Age, Responsiveness and Distinctiveness in Anticipatory Conversations, and Structure and Cohesion of Children's Immediate and Delayed Memory Accounts

	Age	Conversation Variables		R square	Adj. R sq	F (df)
		Responsiveness Ratio	Distinctiveness of Description			
	Beta	Beta	Beta			
Time 1						
Utterances	.44 **	-	-	.20	.18	10.05 ** (1,41)
Conjunctions	.52***	-	-	.27	.25	14.84*** (1,41)
Temporal Markers	.37 *	-	-	.14	.12	6.64 * (1,41)
References	.30 *	.30*	-	.19	.15	4.72 * (2,40)
Orientations	.45 **	-	-	.20	.18	10.11 ** (1,41)
Evaluations	.46 **	-	-	.21	.20	11.17 ** (1,41)
Time 2						
Utterances	-	.46 **	-	.21	.19	10.75 ** (1,41)
Conjunctions	.28 *	.47 ***	-	.32	.29	9.49 ***(2,40)
Temporal Markers	-	.48 **	-	.23	.21	11.95 ***(1,41)
References	.28 *	.43 **	-	.28	.25	7.86 ** (2,40)
Orientations	-	.51***	-	.26	.25	14.68 ***(1,41)
Evaluations	-	.37 *	-	.13	.11	6.33 * (1,41)

* $p < .05$.
** $p < .01$.
*** $p < .001$.

The analysis of number of utterances in the memory accounts indicated that at time point 1 children's age accounted for 20 percent of the variance. Older children provided longer memory accounts than younger children immediately following the museum visit. At time point 2 responsiveness accounted for 20.8 percent of the variance. Children with a higher ratio of responsiveness in the anticipatory conversation were more

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likely to provide longer delayed memory accounts than children with a lower responsiveness ratio.

Regarding children's use of cohesive devices, results revealed a similar pattern. Age accounted for 26.6 percent of the variance in the number of conjunctions in the immediate memory accounts, with older children using more conjunctions than younger children. In the delayed memory accounts, responsiveness accounted for 24.2 percent, and age for 8 percent of the variance. Older children with higher responsiveness ratios in the preparation included more conjunctions in their delayed memory accounts than younger children with a lower responsiveness ratio.

The analysis of use of temporal markers showed that age accounted for 13.9 percent of the variance in the immediate accounts, and responsiveness accounted for 22.6 percent of the variance in the delayed accounts.

The use of references was different than the other components, since in both memory narratives it was related to age and to responsiveness. Age accounted for 10.5 percent and responsiveness for 8.6 percent of the variance in the use of references in the immediate memory accounts. In the delayed accounts, responsiveness accounted for 20.7 percent of the variance and age for 7.7 percent. Older children and children with more responsiveness in the preparation produced more referentials than younger children and children with less responsiveness in the preparation. Immediately following the visit, age and responsiveness contributed in a similar way to the use of referentials, but two months later, responsiveness ratio emerged as explaining more of the variance in the use of referentials.

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Similar patterns were found in the analyses of production of orienting and evaluative information. For orientations, age accounted for 19.8 percent of the variance at time point 1, and responsiveness ratio for 26.4 percent at time point 2. For evaluations, age accounted for 21.4 percent of the variance in the immediate accounts, and responsiveness accounted for 13.4 percent in the delayed accounts. Older children provided more orienting and evaluative information in their immediate memory accounts than younger children. Children with a higher responsiveness ratio in the preparation were more likely to provide this information in their delayed memory accounts.

Overall, the results of the regression analyses indicate that children's age explains variation in length, cohesion and structure of their immediate memory accounts. At the delayed memory accounts, responsiveness emerges as an explanatory variable for the variance, and age either ceases to be a significant explanatory variable, or its contribution decreases. Contrary to my expectation, distinctiveness of visit description did not explain the variance in the memory accounts variables at either time point.

These findings are consistent with the analyses of the repeated memory accounts, namely, that there is a relation between children's age and attributes of their immediate memory accounts. In the delayed memory account, the degree of responsiveness in the anticipatory parent-child conversations was found to be related to the length of children's accounts, and to the degree that they are cohesive, and include contextualizing and evaluative components.

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Summary of Findings for Anticipation and Memory

This section examined the effects of the anticipatory conversations on attributes of children's memory accounts. The analyses addressed two main questions: (a) What was the relation between variables that were identified in the conversations as expanding the *here and now* and the way children remembered the event? (b) Since age affected aspects of the immediate but not delayed memory accounts, did the conversation variables account for the variance in the delayed accounts?

The analyses of shared themes in the memory accounts revealed that distinctiveness of visit description and bridging to museum memory were both related to children's thematic references. Distinctiveness was related to an overall increase with time in reference to content, and to fewer mentions of procedural activities for older children.

Bridging to memory facilitated children's elaboration on activities in their immediate memory accounts. In older children's narratives, bridging to museum memory was related to more mentions of other exhibits (in both accounts). Contrary to expectations, bridging to knowledge had no effect on references to any of the themes.

As for the structure and cohesion of children's narratives, the findings indicated that, whereas age explained the variance in the immediate accounts, the degree of responsiveness in the anticipatory conversations explained the variance in structure and cohesion of children's delayed memory accounts. Distinctiveness of description was not related to the any of the structural elements.

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CHAPTER IV

DISCUSSION

This study began with two ideas: (1) Events and memories should not be viewed as two polarities—reality versus social reconstruction. Rather, like memory, the nature of events is psychological and social, and, as such, events are framed and constructed in the socialization process; and (2) the representation of personally experienced events in memory is constructed in a nonlinear way rather than in a unidirectional movement from events to memory. Based on these ideas, the study explored the relations between parent-child anticipatory talk and memory.

The reasons for studying anticipatory talk in the context of these two issues were: (1) Conversations about the future are very frequent in families and because of their significant role in the socialization process (Haith, 1997; Rogoff, 1990) they may affect the construction of events and memory. (2) As a representational medium, anticipatory talk enables the child to expand beyond the *here and now* of the conversation and to form a representation of the future event even before experiencing it; it is a break in the linearity of time. Another reason was the lack of data about the effects of anticipatory conversations on memory, although a great deal is known of the effects of parent-child talk about the past and about ongoing events on subsequent memory.

A review of the literature on future orientation suggested that there are reasons to expect that anticipatory conversations influences experience and memory. Various forms of future orientation (e.g., framing, expectations, scripts, and planning) may have a role in organizing future experience (Friedman & Scholnick, 1997; Tannen, 1993) and support

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and facilitate memory (Nelson & Hudson, 1988; Ornstein et al., 1997); this was the assumption of this study.

The research examined the influence of anticipatory talk on memory for personal experiences in children ranging from preschool- to early school-age, when transitions in the child's sense of self occur, as well as other social and cognitive shifts. There is some initial evidence for age-related changes in future talk in families (Benson et al., 1999; Gauvain & Huard, 1998), and this study further explored the development of anticipatory conversations as well as its functions. More is known about autobiographical memory: It emerges in the late preschool years, and is viewed as dialectically related to the emergence of a stable sense of self (Fivush et al., 1995). The first age point in this study was selected because it is claimed that around this age children's self becomes more cohesive (Kohut, 1971) and they are able to use language as a representational medium (Nelson, 1996). Older children's memory was also assessed to provide insight into the relation between the development of memory for personally experienced events and other transitions in children's lives.

Anticipatory conversations in this study involved children and their parents, whose engagement seemed to be a key factor for meaningful conversations. To increase parental involvement, the choice of the event was guided by findings in a pilot study, showing that parents plan the timing and nature of the anticipatory conversation based on the way they judge the significance of the experience (Presler, in preparation, a). These findings suggested that future-talk may be influenced by parents' intentions and goals. This aspect of talking about the future has not been addressed so far. Therefore, the *event* in the study—participation in a museum workshop—was selected because it seemed to be

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relevant to parents' ideas of an appropriate leisure activity they would like to share with their children. Talking about such an event was expected to reflect, among other factors, ways parents employ to shape the child's interests.

To explore the proposition that anticipatory talk frames the event and affects subsequent memory, children's memory was assessed at two time points: two days and seven weeks following the event. I approached both memory assessments—*immediate* and *delayed*—primarily as manifestations of recall, and analyzed change, or development, over the intervening time. Children's memory narratives were considered, similar to the claim of classic constructive accounts of memory (Bartlett, 1932), as potentially reflecting transformations in memory, as a result of factors such as prior knowledge, culture, anticipation or framing. This view was supported in a preliminary study (Presler, 1996) that found evidence for changes in memory over time that were related to different styles of preparation for the event. Children's immediate recall was also expected to give an approximate idea of the way the experience was initially represented (based on Baker-Ward & Ornstein, 1997).

Thus, the first goal of this study was to investigate the development of children's memory narratives. Changes with time in memory narratives were analyzed as well as the influence of age, which was expected to be a major factor. Rather than focusing on how much children remembered, I aimed at characterizing shifts in content, structure and cohesion of their narratives that occurred over a delay of time. If found, such changes would be considered as evidence for consolidation of memory.

The central goal of the study was to explore possible relations between these memory processes and factors in the anticipatory conversations. Research questions

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related to the effects of anticipation on memory were formulated in two steps: Because of the exploratory nature of the study, the first question was whether or not there are any common characteristics in parent-child conversations about a future event that may be related to children's subsequent memory. The focus of this analysis was on parental framing of the event and other characteristics of the interaction. More specific hypotheses, regarding possible relations between factors identified in the conversations and memory, were then formulated and are discussed below.

Any discussion of children's personal event memory should address the question of whether children's representations are of the same event that is the focal point of inquiry—in this study, the workshop about the Plains Indians. And indeed, the museum visit was represented in various ways and versions. In addition to children's thematic representation of the visit, there were other versions of the experience. The museum's point of view was represented in the flyer that was sent to parents. Another museum version was expressed by the museum educator, an artist with special awareness of the culture and oppression of the Plains Indians. An additional representation was a chronological account of the event, which was my own description of the visit. Parents too had various versions, which they expressed in follow-up conversations with me following the visit. Despite this, I viewed the workshop as the event-to-be-remembered because of two reasons: First, the topics identified in the narratives were *shared themes*, that is, themes that were repeatedly mentioned by most children. The second reason was that the workshop was presented to parents and children as the target event, and this was the basis for their participation in the study. It is beyond the scope of this work to discuss

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in depth children's representations of the event and to analyze tensions with and transformations of other versions. This study concentrated only on the relations between children's museum visit narratives and the experience as it was represented, or rather pre-presented, in anticipatory conversations they had with their parents.

In the following discussion I first consider the development of children's memory narratives and aspects of anticipatory conversations in light of the findings. I then discuss the main question of the study—whether talk about a future experience is effective in enhancing subsequent memory, and what aspects of memory it may affect. As the discussion proceeds, I consider a central proposition of this study, that age is not sufficient to account for personal memory and that more specific aspects of the child's experience and social environment should be considered. Finally, I propose a possible model for the relation between anticipatory conversations and consolidation of memory.

THE DEVELOPMENT OF CHILDREN'S MEMORY NARRATIVES: THEMATIC AND STRUCTURAL SHIFTS

The first objective of this research was to examine themes and structure in children's personal narratives across the preschool and early school years. I was particularly interested in investigating whether or not there were systematic changes over time, from immediate to delayed memory. The results indicate that both age and memory processes contributed to an increased focus on memory for the specific event. Surprisingly, although the data reveal expected age differences in the narrative organization of memory, they are limited to immediate memory only.

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The content and organization of children's narratives of the museum visit were diverse. Analysis of shared themes aimed at identifying similarities within the diversity in order to gain insight about the way the event was represented by children. This analysis did not reveal unique perspectives of talking about the visit. Rather, it identified common topics in children's narratives, addressing the following questions: (a) What was the range of topics that made their way into children's memory narratives? And (b) which topics were shared across age groups and over time?

The two types of themes that were identified—workshop-related themes and themes related to 'peripheral' information (the museum size and large number of exhibits)—were mentioned by most children in different combinations and degrees of elaboration. I assumed that reference to these themes indicated how children represented and organized the experience in the narrative. In other words, the combination of children's references to workshop-related themes and peripheral information reflected ways in which the child's thematic focus on the stated goal positioned the workshop within the broader context of the museum visit. The analysis of shared themes revealed that focusing on the workshop as the central event and viewing other aspects of the visit as peripheral information was a complicated task; older children were able to do it more easily than younger children.

The same course of events was described by younger and older children by different combinations of references to content, activity, procedural activities and other exhibits, as in the following examples (transcription conventions are specified in Appendix C):

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SHI (5;3): ... ### dinosaurs bones -,.
enormous turtles -,.
alligators -,.
Indians -,.
And the man told me a story -,.

CHA (5;5): ... I saw some Indians -,.
... And I just saw some stuff.
Crocodiles and a turtle laying eggs.
Um -: ### I just saw two elephants -,.

YIS (8;0): ... And he [//] # the person -, he told us story [//] two stories -,.
Then we went back -,.
And he cut [!] out this buffalo thing -,.

SAR (8;1): ... Um # the man told us two or three stories...
... And then when we came back -? .
We made a project -,.

The finding that talk about the content and activities was a shared theme appears to reflect interest in these particular aspects of the experience. Similarly, an earlier study (Presler, 1996) revealed content and procedure (activities) were shared themes in kindergartners accounts of an event they had attended. The second shared theme—procedural activities and other exhibits— reflected two ways that children responded to the museum's size and large number of exhibits. One is direct, by talk about exhibits that children saw while walking through the halls, and the other is by talk about spatial and temporal aspects of the visit.

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The range of topics that found their way into the memory narratives across age groups and the shifts in these topics over time suggest that children increasingly organized their narratives around the experience of participating in the workshop. However, the narratives also express, in different ways, an experience that was not isolated from the museum environment.

The Development of Children's Narratives—Age Effects

The elaboration on particular themes in children's narratives changed with age and with time. Overall, older children talked about the content of the workshop more than younger children, and the content of the workshop was the thematic focus of their narratives. It was still interesting to find that, especially at the immediate recall session, some young children did not mention Indians—the content of the workshop—at all, even though that theme could be characterized as very salient.

Reference to procedural activities was also more prevalent in older children's narratives. Younger children, especially at the immediate memory assessment, were more likely to mention exhibits that were not part of the stated goal of the visit (some concentrated on dinosaurs, or "huge enormous claws," or diamonds). Only with time did they reduce emphasis on these subjects, and increase the amount of talk about the workshop itself. Compared to younger children, then, older children were better able to talk about workshop-related rather than peripheral themes, they made fewer references to other exhibits at the museum and more references to procedural activities.

While reference to all other themes differed according to children's age, the amount of talk about activities was found not to be related to age (activities that were

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included in this category refer to individual and collective first person, but not reported activities of others). Elaboration on activities may reflect agency in the experience, in which the self is differentiated from activity. Alternatively, it may be related to the child's egocentricity, reflecting the self embedded in activity. Thus, although the direction could not be predicted, age was expected to be a factor in children's references to activities, but this was not the case.

These findings raise 2 questions:

1) What factors can explain children's differential references to activities?
2) Were older children better able to elaborate on the goal of the visit because of their better competence as learners?

These questions should be kept in mind as the discussion proceeds.

The Development of Children's Narratives—Initial Evidence for Consolidation of Memory

Surprisingly, following the long delay, children at all ages included in their narratives *more* elaboration on workshop-related themes (e.g., both the content and activities that were related to the stories, project, music, etc.), although a decrease in memory for details of the event could have been expected, especially for younger children. Moreover, younger children also eliminated peripheral information (about other exhibits) which they included in their immediate memory narratives. These thematic shifts appeared to consolidate into a representation of the event that was organized around the workshop. This was taken as evidence for consolidation of focused memory for the specific event.

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Another aspect of the narratives that changed with time was the context of talk about workshop-related themes: Mentions of content after the short delay were within a longer, more cohesive narrative, with more evaluation. Following the long delay, they were no long related to the length and complexity of the narrative, and to expressions of the child's personal perspective (the use of evaluation, as tables 6a and 6b show). Instead, these factors were now related to mentions of activities. This does not mean that children did not refer to the content of the workshop any more; they even increased their elaboration on content. It is possible that reference to content, with time, consolidated into semantic memory (i.e. knowledge) of the topic of the workshop, independent of the sequence of events that were part of the story. Reference to activities became related to this course of events, possibly suggesting that it reflected the experiential aspect in a more detailed and complex story.

A surprising finding was the form that children's narratives took at the delayed memory assessment. The general sense that one gets of the changes in memory narratives is that at the delayed memory assessment the narratives become either more vivid, with expressions of the child's personal perspective, or flat and general, with less involvement of the child (for examples of repeated memory narratives see Appendix H).

The analysis of the structure and cohesion of children's narratives revealed a more complex picture than the thematic analysis: although age had a clear effect on the length, structure and cohesion of the immediate memory narratives, expected age effects on these narrative dimensions were not found at the delayed memory assessment.

At the immediate recall session, older children's narratives were longer than those of younger children, suggesting that with age children were increasingly able to recount

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more about their personal experience. The older children also included more conjunctions and temporal markers, indicating that their narratives were becoming more temporally complex with age. Further, they provided in their narratives more orienting information, which contextualizes the narrative and takes into account the different point of view of the listener. In addition, older children used an increasing number of evaluations, which serve to give the experience personal meaning. Together, this pattern of age differences indicates that children's personal narratives become more elaborate, more coherent, more informing, and more complex between the preschool and early school years.

However, at the delayed recall session, this pattern changed and the structure and cohesion of the narratives were no longer related to the child's age. This was especially true for the oldest children who decreased the length of their narratives, as well as the use of cohesive devices and evaluation. (They did, however, focus their story on the content of the workshop rather than on peripheral information.) This means that older children's narratives became with time more concise and general, with less involvement of the personal perspective.

These findings contradict other findings that, as their narration skills develop, children are better able to organize their personal memories in a coherent way (Fivush et al., 1995). I now suggest a possibility that the reason for this is not because narrative skills do not generally improve with age, but that other, external, factors may influence the child's story, and, in our case, result in a narrative that is less personal and hence, possibly less memorable. Moreover, it is possible to hypothesize that, beyond the relation between age and memory, delayed memory may reflect transformations in memory of the event as a result of complex, dynamically interrelated factors in the child's life.

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The findings raise the question of what factors, other than age, account for the changes in children's narratives over time. Possible factors that are considered here derive from the study's main goal—examining the relation between anticipatory conversations and memory. The conversations variables (bridging, distinctiveness, and responsiveness) are discussed next, and I then consider their effects on children's memory narratives.

CONDUCTING CONVERSATIONS ABOUT THE FUTURE

Even before analyzing the conversation data, it is possible to state that future-talk is different from memory-talk in its uneven distribution of knowledge, and that only the parent has knowledge about the event that is being discussed. Moreover, the primary motivation for parents to conduct a conversation about the future is to use this knowledge to familiarize the child with the anticipated event. In addition, affect is implicit, yet always present, in such conversations. The parent wants to familiarize the child with the anticipated event in order to create excitement or to reduce anxiety. From the child's perspective, factors such as cooperation and resistance are also always present in two ways: (a) They are manifest in the way the child participates in the conversation, and (b) the parent anticipates the child's degree of cooperation, and this anticipation may guide certain aspects of the way the parent conducts the conversation (see, for instance, Eisenmann's *space of interaction* and *space of execution*, 1996).

Thus, this is the proposed context for the discussion of parent-child conversations in the study: The parent guides the conversation using knowledge of the anticipated event,

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with the goal of creating interest or any other positive response. The child's involvement in the conversation guides the interaction directly, through the nature of her involvement, and indirectly, by being anticipated by the parent. The parent-child interaction is a dyadic construct, reflecting the processes described. It is important to mention here that parents were very motivated to participate in the workshop with their children. At the same time they were also concerned about their child's response, expressing certainty, doubt, excitement, or hope, about the child's interest in the museum visit.

Several questions guide the following discussion: In the introduction I suggested that the functions of future-talk may be facilitation and control. I also suggested that because of these functions, parents would not necessarily adjust their talk to the child's developing understanding and skills.

- Is there evidence in the data for these proposed functions of future-talk?
- Do parents adjust their involvement in the conversation to the child's age or to other factors?

Further, an examination of the dyadic interaction as well as the input of parent and child were viewed as most important to understanding ways in which the event is pre-constructed through social interaction. The child's active role in the interaction was of particular interest.

- Are the contributions of the parent and child similar or different?
- How is the child involved in the conversation?

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The first factor that is considered here, conversation length, was expected to be related to the child's age. Surprisingly, although the anticipatory conversations revealed considerable variation in length, their length was not related to the child's age. Neither did age affect how much parents and children said when considered separately.

Other studies report lack of parental adjustment to the child's age for other parameters of future-talk. Benson (1994) found that frequencies of parental talk about a future event with young children did not change much with the child's age. She concludes that parents did not adjust to the understanding of time they attributed to the child. Eisenmann (1996) reports that, independent of age but related to gender, mothers of 1- to 3-year-olds displayed different modes of structuring their talk about an upcoming event. A similar lack of parental adjustment to the child's age is found in this study with older children and different measures. The question that these findings raise is whether they are unique to anticipatory conversations. This question is addressed in the discussion of the lack of age-related differences in parental responsiveness.

While age did not affect the amount of speech, gender was a significant factor, and overall, boys spoke more than girls. A possible explanation is that gender differences were related to involvement in the conversation, which indicates interest in its topic [as Peterson & McCabe (1983) suggest]. The topic of the conversation was the visit to the American Museum of Natural History; this museum is often associated with science and with dinosaurs (so much so that some parents even referred to it as the "dinosaur museum."). The workshop itself was also described to the parents as a science workshop. In this context, it is possible that the anticipated visit captured the attention of boys, who may have been interested in the visit more than girls. Did parents too assume that boys

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would be interested more than girls in the museum visit? This question is addressed later, in relation to modes of *bridging* in the conversations.

To summarize, the degree of parental elaboration on the anticipated event was not related to the child's age. The question that arises is whether parents consider the child's age in any other aspects of their contribution to the conversation. It is possible that, compared to parental scaffolding in memory talk, future talk involves more direct and intentional guiding. This possibility is considered in the discussion of the conversation variables.

An analysis of the conversation data revealed that, in spite of great variation, there were similarities in the way that children and parents talked about the anticipated event. Three factors were identified as having possible effects on subsequent memory of the event. The first factor—*bridging*—is viewed as a form of framing. Whereas bridging refers to framing the visit as a familiar experience, a second factor—*distinctiveness*—refers to the way that parents particularized the future visit and distinguished it from the familiar. The third factor, *reciprocal responsiveness*, is viewed as a form of empathy, and refers to shared attunement in the dyadic interaction.

Framing—Bridging the Future to Past and Present

It was interesting to discover that most parents spoke about the anticipated experience in a much broader context than expected. As a means of presenting the museum visit to the child they introduced other topics. I defined this factor as *bridging*, and view it as a form

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of parental framing of the anticipated event. Because of its prevalence, bridging seems to play a significant role in future talk.

In some cases parents referred to the child's past experience (*bridging to memory*); in other cases they evoked knowledge (*bridging to knowledge*). Strikingly, the specific type of bridging varied according to children's age: parents of young children linked the museum visit mainly to memories of other similar visits, either to remind the child of a familiar script, or to emphasize the pleasure the child may expect. Parents of older children linked it to knowledge about Indians, communicating to the child excitement about learning, or the importance of the visit. Only parents of kindergartners showed no preference for specific bridging, and linked the upcoming visit to memory, to knowledge, to both, or to neither (later, I will suggest that this difference is related both to parents' view of the child's perspective on the world, and to their wish to shape the child's interests).

This is the first report of bridging as an important component in anticipatory conversations. Further evidence for bridging in future-talk was obtained in another study in which parents, who were asked to speak with preschool children about a future event, talked about the past and the present (Hudson, personal communication).

What is bridging and what is its function in anticipatory conversations? Since the anticipated event has not been experienced yet, parents describe it using themes that are familiar to the child. By doing so, they frame the future (and unknown) activity as familiar, being on the continuum of the child's life. By doing so, they also guide the child as to what is important and relevant about the future event. Thus, I suggest that

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bridging is a way of creating continuity between the anticipated experience and what the child remembers or knows. It allows the child to transform the event, even before experiencing it, into a meaningful event, so that the child will recognize it and will be able to relate to it.

The question of the functions of future talk is relevant here. In the introduction I suggested that anticipatory talk guides the child into the world, and introduces the world to the child. This is achieved by the two types of bridging identified in the conversations: The parent communicates to the child the significant aspects of the experience, and, at the same time, helps the child to see the event as familiar. Frames have been described as a set of culturally-determined expectations *providing the context for texts* (Nelson, 1986; Tannen, 1993). Bridging in future-talk, as a form of framing, provides the context for the anticipated experience, and here the context is experience or knowledge. This is a way by which parents transmit to the child culturally determined expectations.

When parents engage in bridging to memory, they talk about memories, not to predict the future or to support planning, but to create a context for the future experience. Reed (1994) describes memory as a process that bridges the separation of past from present. I suggest that memory can be used to bridge the separation of the known present and past from the unknown future, based on an awareness of the separation. The past is brought into the conversation to create a sense of continuity, and transform the anticipated experience into a story that takes place in the child's life. This way, parents help the child to see how the novel event may become part of the child's experiences.

In other words, the function of memory talk in the context of conversation about a future event may be different from its function in other contexts. Likewise, Pillemer

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(1998) proposes that conversations about memories may have different functions. Though he does not refer to reminiscing as a way of talking about the future, Pillemer comments:

> These memories carry guidelines for present and future behavior, and as such they are early precursors of mature forms of memory directives—including memorable messages, symbolic messages, and analogous events... In each of these instances, the communicative goal focuses on specific learning or prescriptions for behavior rather than social bonding per se. In other cases, the primary function of memory sharing may be to alter an emotional state... there exist other targeted purposes or functions of memory talk, including but not limited to social bonding... particular uses grow out of particular kinds of memory talk between parent and children.
>
> (pp. 128-129)

Why do parents engage in different types of bridging with children of different ages? Since by bridging parents aim to familiarize the child with the anticipated event, to created interest, and to communicate what the important aspects of the event are, it is possible that parents respond to both their view of the child's perspective on the world, and to their wish to shape the child's interests. However, parental view of the child's perspective and desired interests changes as the child grows older.

A major change in children's lives in the age range studied is the transition to first grade. This is experienced by children around the age of 6 and by their parents as well. It is possible that the type of parental bridging talk was related to this change: Parents of younger children assumed that their child would be more excited and would be able to relate to the event more easily if they talked about similar memories. Parents of older

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children may have assumed that their child would be interested in the topic of the workshop, but also wanted to evoke the child's interest in this aspect of the visit. From this perspective, for parents of kindergartners, conceiving the museum visit as a learning activity was to possibly foreshadow the child's school experiences of the coming year. Their talk about the anticipated museum visit may have been embedded within the broader context of preparation for literacy and knowledge. These parents were the only group that did not show preference for any particular kind of bridging, possibly as a reflection of the transition between stages.

The suggestion that bridging in future-talk is a means by which parents transmit to children what should be considered important in the anticipated experience as well as a way of creating continuity is also supported by the finding that in conversations with boys, parents tended to link the visit to knowledge and not to memories. Was it because of their expectation (or wish) that boys would (or should) be interested in this aspect of the visit? Was it related to boys' actual interest in the content of the visit, while girls did not express interest in the content? Boys' increased involvement in the conversation, compared to that of girls, was discussed previously. In anticipation of a science workshop at the museum, parents of boys framed the event as an activity related to knowledge, and boys indeed responded to it by showing interest and motivation. [5]

There is some evidence in other research that children's expected response to the parental plan guides the way the parent conducts the anticipatory conversation. Eisenmann (1996) reports that mothers of 1½- to 3-year-old children constructed the communication about a future event according to their expectations of the child's reaction to the maternal plan. Mothers of boys expected resistance, and mothers of girls expected

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understanding. In addition, parents in a pilot study (Presler, in preparation, a) revealed that the child's expected response to the plan presented in the conversation had a role in determining the timing, frequency and way they presented anticipated events to the child.

Reciprocal Responsiveness in Parent-Child Interactions

Reciprocal responsiveness is a dyadic measure of the degree to which parents and children respond to each other. Being defined to specific segments in the conversation, it indicates that the quality of the interaction in the conversations is not uniform: At times, the conversation moves forward, but then there are moments in which the interaction becomes more dense and the parent and child seem to be more involved. All conversations included segments in which parents and children were directing attention at the same object (the psychological object) or were attuned to the other's affective state. More specifically, segments were considered responsive when both parent and child responded to each other in a way that indicated their willingness to sustain interest in the other's ideas and state of mind. The way responsiveness is achieved is similar to Rommetveit's (1985) claim that intersubjectivity "is attained at a given stage of dyadic interaction if and only if some aspect... is brought into focus by one participant and jointly attended by both of them (p. 187)."

The concept of reciprocal responsiveness is based on claims that various schools of psychoanalytic theory make regarding the meaning of the child's experience as determined by other people (for example parents). This determination of meaning is achieved on the basis of affective attunement. For instance, Winnicott (1960) interprets the joint direction of a mother-child shared gaze at the object as a way by which the

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meaning that the mother gives to the object becomes the meaning of the object for the child. I hypothesize that responsiveness may help children project the self into the future experience, forming a sense of continuity. The following discussion considers responsiveness of parents and children and its function in the conversation. Another function of responsiveness will be discussed in relation to its effects on memory.

The results revealed that the total responsiveness ratio in conversations between parents and children did not differ by age. This is a surprising result because it means that parents do not respond to their child's developing abilities by increasing or decreasing their responsiveness. For instance, it could have been expected that parents of younger children would be more responsive in order to capture the child's limited attention, and parents of older children would be more comfortable delivering "lectures" to their child; this is not the case. It is possible, then, that responsiveness is an attribute of parental style.

Similarly, as already mentioned, no age-related changes in the pattern of the parent-child interaction were found for total conversation length and the amount of parental elaboration. In contrast to the pattern of parent-child anticipatory conversations found here, studies on parent-child memory talk have found that parents provide scaffolding to young children, gradually adjusting the amount and nature of their talk to the child's growing capacity to narrate memories (Bauer & Wewerka, 1997; Eisenberg, 1985; Fivush et al., 1987). However, these findings should be considered in light of the different demands and perspectives of our culture, as cross-cultural studies have shown. The organization of mother-child memory talk is culture specific and related to factors such as general rules of social interaction and parental belief about the role of children

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(Mullen, 1994). Mullen & Yi (1995) propose that different socialization goals may be the reason for cultural differences in such conversations. But socialization goals differ also within cultures, and may vary in different situations. Parents' socialization goals in conversations about the future may be different from those in conversations about the past, and this may be the reason why the degree of parental elaboration and responsiveness in this study were not adjusted to the child's age.

Whereas parents' responsiveness was not related to children's age, compared to their parents, a higher proportion of older children's speech was responsive (children were more responsive to their parents than the parents were to the child). The proportions of responsive speech of younger children and their parents were not different (i.e., both parent and child were equally responsive relative to their respective total amount of speech). Older children were also more responsive than younger children, though the difference did not reach significance. This indicates that, although the total proportion of responsive speech (of parent and child together) does not change with age, there is a shift as children grow older, and they become more attuned than their parents in the interaction.

Why were older children more responsive than their parents? A possible explanation is related to the degree of children's involvement in the planning process, and parents' anticipation of this involvement. We should remember that responsiveness indicates attunement rather than agreement. Because older children may have a more definite opinion regarding the plan that the parent presents, they may express it more easily. Further, compared to younger children, older children have more control over their schedule and are more actively involved in different aspects of planning in the family;

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they are more interested in the anticipated activity and involved in its details. This may lead to the higher responsiveness ratio of older children. However, parents of older children may expect resistance, and thus not encourage the child's involvement in the conversation. These parents' reduced responsiveness may be an indication that they act on the plan of execution (Eisenmann, 1996). That is, by being less responsive than their children, they may be leaving less room for negotiating the anticipated visit.

The data provide further evidence for the possibility that children's degree of responsiveness is related to the degree of their involvement in the conversation. The amount of children's talk was related to (positive or resistant) involvement and interest. High-responsiveness in the conversation was found to be related to more speech for children, but not for parents.

At this point, it is important to remember that although conversations were categorized as low- and high-responsive, what is mostly discussed here is responsiveness *within* conversations. In other words, all parents and children were both responsive and non-responsive (of course in varying degrees), and they acted in a different manner in these parts of the conversation. I suggest here the possibility that, as responsive and non-responsive segments of the conversations are different in the quality of personal involvement of parent and child, these segments may also have different functions with regard to future-talk. It is possible that responsiveness in anticipatory conversations provides the intersubjective context for the co-construction of the anticipated experience, and non-responsiveness serves to guide the conversation to follow the parent's agenda. But this hypothesis needs further examination of the content that is discussed in both types of segments as well as the structure of the interaction. For instance, a comparison of

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lengths of speech turns in responsive and non-responsive segments for both parent and child may suggest whether parents and children acted in a uniform way throughout the conversation.

An examination of the effects of distinctiveness of visit description on responsiveness ratio may suggest ways in which responsiveness and content are related, since parents described the visit in a distinct way by providing specific details about it. The results indicate that only for high-responsive dyads, total responsiveness ratio decreased when the conversation included a distinct description of the visit. Only parents contributed to this decrease. That is, within the high-responsive group, parents who particularized the anticipated visit were less responsive than parents who did not particularize the visit. Thus, being specific about the details of the visit and its unique features was related to reduced responsiveness.

This brings us back to the difference between older children and their parents in the proportion of responsive speech. I suggested a possibility that when parents guide the conversation their responsiveness decreases. The finding that for high-responsive parents responsiveness decreased when they describe the details of the visit in a distinct manner may support this claim.

To summarize, parents did not adjust the degree of responsiveness to children's age and gender, but the results suggest that within the high-responsive group, the degree of parents' responsiveness decreased when they particularized the visit. The results discussed here are not sufficient to support a conclusion that reciprocal responsiveness reflects a dyadic style of conducting conversations. However, there is some evidence that the nature of responsiveness is dynamic and situated. That is, in the context of

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anticipatory conversations, parents, who initiate and guide such conversations, decrease their responsiveness to the child as they wish to proceed. Thus, similar to bridging, aspects of responsiveness may give an idea of approaches that parents use to guide the conversation on the level of the interaction. The relation of responsiveness to the other proposed function of anticipatory conversations, creating continuity of an experiencing self, is discussed in relation to memory.

Bridging and Responsiveness—Implications for the Structure of Future-Talk

The identification of bridging and responsiveness in the parent-child interaction as important components in conversations about the future has interesting implications for the claim that the structure of future talk is in the form of a script account (Nelson, 1993b). Several aspects of the conversations should be considered: Parents in the study sequenced anticipated activities in the conversation, which conforms with the form of a script. Consistent with Nelson's (1993b) argument, they did not introduce expected 'trouble' as part of the story that was being told. But, we already know the story is not limited to the description of the details of the anticipated event. 'Trouble' may be introduced either by the child or by the parent on the level of the interaction. For instance, the child may express, directly or indirectly, resistance to the plan or to participating in the conversation. The parent, on the other hand, may detect the child's lack of enthusiasm, and repeatedly attempt to change the child's position.

Although the overt content in bridging segments is not the future, their function may be considered as future-oriented. Obviously, the structure of the conversation changes as memories or talk about knowledge are integrated into the story. Thus, it is possible that

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the structure of future talk involves shifts between discourse forms, as well as increased tension in the interaction. Analyzing the language about time that parents use to introduce the future event and comparing it to other kinds of speech about time may help explore this issue.

ANTICIPATION AND MEMORY

Let us return to discussing possible factors that may account for the variation in children's narratives. This question, the study's central goal, was addressed by examining the relation between the anticipatory conversations and memory. Specifically, I hypothesized that parental framing of the event might affect themes in children's narratives, that a distinct visit description would facilitate recall of the unique features of the event, and that increased responsiveness might result in more coherent and cohesive memory accounts of the event.

The results revealed that all three conversation variables (bridging, distinctiveness, and reciprocal responsiveness) affected either the themes in the memory narratives or their structure and cohesion. Bridging to memory was related to an overall increased focus on activities in immediate memory narratives, suggesting that bridging supports the immediate experience through framing. Distinctiveness was related to an increased elaboration in delayed memory only on the content of the visit, suggesting that distinctiveness may be related not to memory for the specific episode but to knowledge. Responsiveness emerged as a critical factor in influencing children's delayed memory.

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More responsive conversations were related to longer and more complex delayed memory narratives with an increased evaluative component.

It is important to add that the present study explored only the final effects of anticipatory conversations on memory, but not the course of causality. That is, the study did not address the question of whether anticipatory conversation affects the child's memory directly, or through shaping the way the child is to view the experience as it occurs. However, there is some indication that responsiveness in anticipatory conversations affects delayed memory and that bridging to memory in these conversations affects the immediate representation.

Framing and Themes in Personal Narratives

I hypothesized that the main theme in memory narratives of children whose preparation included bridging to memory would be their activities during the visit, and that narratives of children whose preparation included bridging to knowledge would focus on the content of the visit. However, the results indicated that only bridging to museum memory, and not to knowledge, was related to topics (activities) that children mentioned.

Bridging to memory had a facilitating effect on the number of mentions of activities immediately following the visit. Compared to children whose anticipatory conversations did not include bridging to memory, children whose parents linked the visit to memories of similar visits mentioned more activities and maintained this degree of elaboration on activities over the long delay. Children whose preparation did not include bridging to memory increased their elaboration on activities with time, so that there was no difference in mentions of activities between children with or without bridging. Thus,

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while the narratives of children without bridging to memory showed an increased focus on the activities in which they were involved only with time, children with bridging to memory were able to elaborate more on these activities immediately following the visit. It is possible that this type of framing in anticipatory conversations has a role in organizing children's experience, which is then expressed in their immediate memory narratives.

The degree to which children elaborated on activities was not related to their age but to whether bridging to memory was included in the anticipatory conversation. I noted previously that reference to activities may be related to the self as agent in the experience or to the self embedded in activity, since it consists of activities in which individual and collective first person are involved. Either way, age should have affected reference to activities. However, expected age differences were not found, and the data show that bridging, and not age, was the central factor here. It appears that bridging to memory enables children to form links between past and future experiences, and this may be a basis for extending this experience into the future.

Distinctiveness of Visit Description and Themes in Personal Narratives

Distinctiveness complements the function of bridging in anticipatory conversations: while bridging focuses on similarities to other experiences, presenting the experience as distinct calls attention to differences from these experiences. Since a distinct description of the visit highlighted its unique features, it was expected that subsequent memory for the specific visit would be more elaborate with regard to workshop-related themes (because the workshop was a novel experience for the child) with more expression of the child's personal perspective.

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The results were not consistent with this initial expectation. They indicated that a distinct visit description only increased children's elaboration on the content of the workshop from immediate to delayed memory, while it was not related to children's mentions of activities that were part of the visit. The focus on content of children whose preparation did not include a distinct description of the visit did not change with time. In addition, a distinct description of the visit did not affect the amount of orienting and evaluative information children included in their narratives.

Why was distinctiveness in the conversation not as effective as expected? It seems that distinctiveness in anticipation is not enough for the child to experience the event in a unique way, but that it is sufficient to affect what may become with time knowledge of what was learned. As the preliminary analysis of the conversations indicated that distinctiveness was a salient dimension which varied among conversations, it was only reasonable to assume that its influence would be broader than found. Another possibility, then, is that the global coding of distinctiveness I used did not capture more subtle variations among conversations, and thus it was not sufficient to examine more subtle effects of distinctiveness on memory.

Responsiveness and Memory—Extending the Experiencing Self into the Future

Responsiveness reflects parent and child attunement to each other which may lead to increased engagement in the topics discussed. It may help the child to create links between the future event and other personal, experiential aspects of it. It may also allow the child to take in the parental perspective and meaning. Thus the 'here and now' is expanded and the child is able to relate to a future self. I expected that the effects on

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memory would be, in a similar way, related to transforming the representation of the event into a more personal narrative.

The expected effects of responsiveness were found only in children's delayed memory narratives. While immediate memory narratives were more coherent and cohesive with age, the narrative organization of children's delayed accounts did not show expected age differences. Instead, reciprocal responsiveness emerged as the only variable that explained the variance in the delayed memory narratives. This suggests a delayed consolidation of the effects of both the anticipatory conversation and the experience itself over the intervening period.

The finding that responsiveness affected delayed memory is intriguing, and obviously a great deal more research is needed to support it. A preliminary study (Presler, 1996) also revealed that only over time did different styles of anticipatory conversations affect the degree of cohesion and narration in children's memory accounts, and that the nature of the interaction (child- versus adult-centered interaction) had an important role in the process. The question now is how responsiveness affects the coherence of delayed and not immediate memory for the experience.

A CLOSER LOOK AT THE MAJOR FINDINGS: PERSONAL AND SOCIAL CONTEXTS OF MEMORY

While the results provided data in support of the fundamental proposition of the study, that anticipatory conversations affects subsequent memory for the anticipated event, aspects of the findings provided some surprises as well.

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1) The effects of age on children's memory reports were not clear: The characteristics of kindergartners' and 2nd graders' narratives raised the question of whether age effects, when found, were an outcome of the child's developing skills or of other factors in the child's life. In addition, expected effects of children's age on the structure and cohesion of their memory narratives were found only for immediate memory.
2) Only one form of bridging in the conversations, to memory, was related to subsequent memory. Expected effects of bridging to knowledge on children's references to the content of the visit were not found.
3) Children's narratives changed over time and showed systematic shifts that had not been expected. It appeared that what was becoming evident in the study was a process of consolidation of memory.
4) The effects of responsiveness on length, structure, and cohesion of children's narratives, though partially expected, need further discussion.

Age and Age-Related Transitions—an Experiential Perspective

I have discussed thus far the possibility that age is only one factor in the child's memory and that the child's story is influenced by other factors as well. The findings indicated that older children elaborated more than younger children on workshop-related rather than peripheral themes. A possible explanation for this finding was that older children were better able to understand the goal of the visit as a result of their more advanced cognitive skills. However, with time, 2nd graders' narratives became more focused on the workshop, and, at the same time, more concise and general and less personal. This may

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suggest another possibility, one that views the child's experience in a broader perspective and considers changes in the child's life that take place at certain ages.

As children make transitions between cultures (i.e., home and school), there are changes in the expected progression of their narrative skills. The child learns first the language of everyday experience, and then the more formal language that schools teach (Nelson, 1996). It is possible that delayed narratives of 2nd graders (the oldest group) reflect the transition to school-based discourse, which includes practices such as the importance of making generalizations (Daiute, 1998). Children's encounter with this new school culture may be followed by a decrease in the use of explicit evaluation. Until children master the new genre, their narratives become more scripted and general, with a reduction of interpretation. Daiute & Nelson (1997) assert that this *story-to-script* progression is one link in the development of the use of evaluation in narratives. The findings that 2nd graders' delayed memory narratives included increased generalization and focus and reduced evaluation support this claim.

The nature of the personal narratives of kindergarten children may provide further support for the proposition that transitions in children's life may affect their personal memory narratives. Kindergartners' accounts were inferior compared even to those of younger children: they were shorter, less cohesive, and less focused on the workshop. Their narratives resembled a referential script, with very little evaluative and orienting information. It is possible that kindergartners' memory narratives reflect the anticipated transition to school. This transition is not limited only to the child's experience; it characterizes the child's social environment as well. Teachers as well as parents provide this anticipatory preparation during the Kindergarten year. In fact, the conversation data

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indicate that although there was a clear distinction between the way parents talked to younger and older children with respect to bridging, kindergartners' parents were different . They did not show any preferred type of bridging: Some emphasized knowledge while others linked the visit to memory.

This approach to children's memory has implications for the long term accessibility of these memories: The data show that, for 2nd graders, memory for an experience that is identified with school requirements and with knowledge becomes more focused, but also more concise and general, with a decrease in the personal perspective. If this is the case, then is it possible that, with time, memory for such events becomes less accessible for children in their early school years compared to younger children? Certainly, future research should examine this possibility more directly.

The data, then, indicate that children's narratives did not always show expected developmental progression. However, when development is considered in a broader context, it is possible to argue that age-related transitions in children's lives have an important role in their personal narratives. This approach to development has been proposed by Nelson (1996) in her discussion of the experiential perspective. She writes:

> Experience-based knowledge derives from varying sources: from action in the world, from perception... from social interactions and activities, and from cultural arrangements... it assumes that dynamic processes are in continual interaction with the experienced world, yielding ever-changing models of reality. (p. 6)

Applying this view to the findings in the current study implies that reported memory for an event is the outcome of the complexity of the child's experience; it takes place within a social world, and derives from several interrelated sources.

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The findings also raise the question of why the effects of age-related transitions became evident only in delayed memory, whereas children's memory narratives showed expected age differences immediately following the event. This question leads us to the proposition that is discussed next, that consolidation of memory and other processes in the child's life are intertwined, and that children's personal narratives reflect a dynamically-changing integration of these processes.

Bridging—the Child's Perspective

Bridging to knowledge characterized the type of framing used by parents of older children and of boys to present the anticipated event. I hypothesized that the narratives of children whose preparation included bridging to knowledge would focus on the content of the visit. However, bridging to knowledge did not affect children's reference to content or any other dimensions in their memory narratives.

A possible explanation may be that this type of bridging was not relevant for younger children, and that for older children it was not necessary. Older children focused mainly on the content of the visit in their narratives, and with time they even increased their elaboration on content. It is possible that older children are able to use their experience as well as other sources to frame the visit and to form expectations, regardless of whether their parents linked the visit to knowledge.

Although bridging is introduced by parents into the conversation, these findings highlight the active role of the child in the construction of experience and memory. Bridging is a way that parents use to frame an anticipated event, but it has to be relevant

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to the child's interests, needs, and previous knowledge. These are additional factors that enter into the complex process of forming a personal narrative.

Reciprocal Responsiveness—Empathy and Empathic Failures in Parent-Child Interactions

The strong effects of responsiveness on the structure and cohesion of children's narratives raise the question of the role of responsiveness in anticipatory conversations and how it affects the coherence of children's memory for the experience.

Considering possible relations between responsiveness and related processes that are described in object-relations theory in light of the findings in the present study may help shed some light on this question. I wish to clarify that the following discussion should be considered with caution and is presented to provide a theoretical framework for the concept of responsiveness. In the introduction I discussed Bretherton's (1993) claim, which is based on Bowlby's attachment theory, about the relation between parental sensitivity to the child and memory. However, Bretherton refers to general parent-child communication patterns and history. In the present study responsiveness was identified more locally, in actual parent-child conversations. We should keep in mind, though, that the findings in this study are preliminary, and more data are needed before we can draw even tentative conclusions about the way that responsiveness affects memory. This does not mean that responsiveness should not be seriously considered as a way of characterizing an important dimension in parent-child verbal interaction. I propose here that it captures attunement to an internal state beyond the words that the other uses, and the subsequent communication of this attunement.

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The process that I have attempted to identify by the coding on which I based the analysis of responsiveness aims at what may be described in a therapeutic setting or in mother-child interaction as *holding* [a concept that describes early maternal care (Winnicott, 1960) or *empathy* (Kohut, 1971)]. In this process, the mother (or therapist) knows what the child feels, and is somehow able to return the knowledge of this subjective experience to the child. In an attempt to clarify what is meant when clinicians speak of similar terms, such as parental *mirroring* and *empathic responsiveness*, Stern (1985) proposes the term *affect attunement*. He describes it as a non-verbal reflection, which is really an intersubjective exchange about affect, in which both mother and infant know that "the transaction has occurred" (p. 139). In this interchange, the mother goes beyond imitation of the child in that she involves modifications and variations. Stern claims that attuned behaviors shift the focus of attention to what is behind behavior, to an internal state that is being shared.

Responsiveness differs from affect attunement in that it happens on the verbal plan of the interaction. Still, this does not imply that the internal state of the other is explicitly discussed. Like affect attunement, responsiveness involves an additional element which goes beyond reflecting the other: mere repetitions that were not followed by elaboration or by a different affective tone were not coded as responsive. Reference to the other must be the starting point, but only an addition to it (in the form of modification, elaboration, or variation) may give meaning in the intersubjective space (see Appendix I for examples). In a sense, going beyond reflecting the other involves adding a *foreign* element to the interaction, thus simultaneously reflecting the self and creating alienation [a process that Lacan (1977) describes as part of *mirroring*].

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Finally, anticipatory conversations include non-responsive segments as well. If parental empathy is expressed in responsive segments, it may be possible to claim that non-responsive segments represent empathic failures. It is possible, as I already suggested, that parents guide the conversation in non-responsive segments. A pilot study (Presler, in preparation, a) revealed that parents use empathic failures to guide the conversation and operate on the plane of execution (Eisenmann, 1996). This may mean that, in order to tell the child the details of the anticipated event, parents reveal empathic failures which they express by being non-responsive to the child. There are several ways in which the parent may be non-responsive, some of which are very subtle: The parent may answer the child's question and proceed to discuss other topics, the parent may not respond to the child's questions or comments, and the parent may miss the point the child wants to clarify. The parent may also respond to the child with a positive evaluation (such as "that's great," "very good," "I don't believe you remembered it"), but use it to stop further discussion. I did not analyze this aspect in the conversations, but coding segments as non-responsive was based on lack of empathy in the responses, indicating that parents repeatedly showed empathic failures in non-responsive segments (see Appendix J for examples).

Considering the question of how responsiveness may affect memory coherence, I suggest that it may enable the child to create an enriched representation of the anticipated experience. This enriched representation may be more accessible in memory.

That is, responsiveness enhances the child's involvement in the conversation in two ways: a) by being attuned to the parent's own state as the parent presents the experience, and b) by being more active in the interaction, as the parent is attuned to the child's ideas

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and affect, allowing the child to express them, and giving them meaning. In responsive segments, both parent and child are attuned to aspects of the experience about which the child is excited, interested, reluctant, or concerned.

When the anticipated experience is constructed in a more meaningful way, the evaluative component in the child's subsequent memory narrative may increase. The claim of self psychology (Kohut, 1971, 1977) is that maternal empathy forms the basis for a cohesive self in that it provides continuity and support for the child's internal state. This claim may be relevant to responsiveness as it is viewed in this study: Responsive moments in conversations (i.e., empathic moments) may create a sense of continuity and support. This function of responsiveness can also be compared to the function of bridging in future-talk with one difference: the continuity that the child may experience through responsiveness is related to the child's *sense of experiencing self* while bridging offers continuity between past, present and future in the form of *similar experiences*. Thus responsiveness may provide a personal and affective context for the pre-construction of the anticipated experience in which ways of viewing the experience are explored and articulated, not always explicitly. It is possible that this is where fantasy plays a role. And indeed, more responsive conversations were related to more vivid delayed memory accounts with a marked evaluative component.

Prewriting Memories:

Delayed Effects of Anticipatory Conversations and Consolidation of Memory

The findings in the study provided evidence for systematic changes in children's memory accounts, some of which were related to the anticipatory conversations. The changes

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were: (1) A general increase with time in the focus on workshop-related themes, and a decrease in talk about other exhibits; (2) changes in 2nd graders' narratives, with an increasing focus on the workshop, but also more concise and general, and less personal accounts; (3) a relation between children's age and the length, structure and cohesion of their immediate, but not delayed, memory narratives; (4) the emergence of responsiveness in anticipatory conversations as the only explanatory variable of the variation in delayed memory narratives; and (5) a delayed effect of a distinct description of the visit in the conversations on elaboration on content.

These findings suggest that the child's age is only one factor that affects personal event memory and that other age-related transitions, such as school entry, may have a major influence on the child's story. The findings also suggest the possibility that delayed memory narratives may reflect transformations in memory for the event as a result of several dynamically interrelated factors. With regard to the influence of anticipatory conversations, it appears that the pre-construction of experience indeed affected children's memory for the event, but only after the long delay.

The central questions that should be addressed now are (a) what factors affected the shifts in children's memory reports and how, and (b) how could conversations before the event affect memory long after the event, but not immediately after. Earlier in the discussion I proposed that the shifts in children's memory accounts may be the outcome of a process of consolidation of memory. The questions then may be rephrased: how does consolidation of memory take place, and how do anticipatory conversations enter into this process?

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Consolidation of memory is viewed here as a process of gradual coordination and integration of different aspects of the event as well as other experiences into a coherent story. As already mentioned, delayed memory may reflect such transformations in memory of the event as a result of dynamically interrelated factors in the child's life.

The idea that memory representations integrate aspects of the experience and of other factors, and that this process takes time, is not new. Research on the effects of verbal reinstatement and reenactment on young children's recall (Fivush & Hamond, 1989; Hudson, 1994; Rovee-Collier, 1995), as well as studies of children's suggestibility, show that the amount, content, and structure of children's memory reflect an integration of the representation of the experience itself and post-event processes (such as sharing memories, repeated questioning, and reinstatement). In her discussion of *time windows* and the integration of post-event information with the memory representation of the initial event, Rovee-Collier (1995) states that "the question of how information from two separate, temporally discrete events become integrated or linked is a central problem in cognition" (p. 147). The findings in the current study suggest that a similar process of integration may explain changes in memory over time. However, instead of post-event processes, the representation of the experience becomes integrated with the representation constructed in anticipatory conversations, children's interests, and home and school experiences.

The work of Bartlett (1932) has provided evidence for the social influence on transformations of memory, which involve the reconstruction of past events using pre-existing schemas. This process is interpretive and is influenced by culture and socialization. It is suggested here that this social influence is being exerted in

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conversations about the future that parents have with children. Such conversations have an important role in the socialization process and, following Vygotsky's (1978) model of internalization, may be integrated into subsequent memory of the event. After the anticipated experience is discussed by the parent and child, it may be internally recounted by the child, and this way of re-experiencing may converge with the event as it is experienced.

However, the main findings in the study indicate that there was a shift in the factors that accounted for the variation in children's memory narratives. The issue of changes in memory accounts over time has been already noted by Bartlett (1932), who observed a possible delay in manifest transformations of memory before they actually appear. More recent evidence of changes in children's memory accounts refers to the constructive nature of memory. For instance, Fivush et al. (1995) report that preschoolers' narratives of personally experienced events became more elaborate and more complex over time, because of children's more advanced narrative skills at the time of the memory assessment.

Why did the effects of anticipatory conversations emerge only at the delayed memory assessment? The process of *working-through* in psychoanalysis (Laplanche & Pontalis, 1973) offers a description of the way aspects of experience are integrated with other information, until a new insight, or, rather, representation is achieved. Working-through leads to an integration of repressed elements into the personality as a whole. This is achieved in a process of gradual work of evaluating these elements in light of different contexts of experience. The emphasis is on the time that it takes for change to occur because of the multiple links that are gradually being created. This description may help

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understand the delayed effects of anticipatory conversations found in this study, although it is not the repressed elements of the experience that have to be integrated, but personal, parental, school, and other cultural interpretations of the experience.

At this point I should point out that the changes in personal narratives that are reported here refer to the time period from two days following the event to about two months later. Thus, after a short delay, the event is still salient and little work has been done. It is possible that children's accounts of the event are a transformed verbal representation of what they have experienced. Children construct these accounts using the language of everyday experience and age-related narrative skills. Parental framing of the event may shape what is extracted from the event experience at this point. However, the task that children face is to make sense of the experience and achieve a sense of continuity. Integrating the novel experience into the child's life story takes time, and may result in a change in the way the experience itself is represented in memory, that is, in a transformation of memory. After the long delay, children's accounts of the event may reflect the integration of the representation of the experience itself with other contexts in their lives and aspects of the anticipatory conversations.

Thus consolidation of memory may involve the complex integration of aspects of experience with the initial memory representation: the child's developing skills; past, present and future experiences; new genres, or language; the anticipatory representation of the experience as constructed by framing and personal links and meaning created in the conversation; and memory of the conversation. All together may enter into the child's memory narrative.

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NOTES

1 This model should not be confused with Neisser's important proposal to apply an ecological approach to the study of memory, and conduct ecologically valid research. This proposal led to an increased interest in studying memory for everyday events in naturalistic setting.

2 The 'Wolf Man' (Freud, 1918) "understood" the meaning of his parents' intercourse only at the age of four, when he had the pathogenic dream about it, and not at the time he witnessed it. What he saw became an event several years later.

Very concretely, the condensation of time and meaning and the multiple layers of possible reconstructive dialogues are exemplified in Hitchcock's film Mirage: The hero, while following a woman down the stairs, is looking further down to words written on the wall; SUB1, SUB2, SUB3, and SUB4. These words lead his gaze (and that of the viewers) to other stairs, in another, previous time, giving the old stairs a meaning of buried anxiety, and the present stairs—the meaning of literally being trapped by one's own past. This is a moment of invasion of the unconscious which "disrupts the homeostatic indifference of relations between subjects" (Zizeck, 1989, p.183), and Hitchcock is using and at the same time creating a parallel, humorous dialogue with the viewers about Freud's model of consciousness. The meaning of the past event, then, lies within this moment in the present, which also holds a broader meaning, still unknown to us, the viewers (who are experiencing the event—another mirage perhaps, of watching a film). Thus the mirage is experienced as more real than reality, and the meaning of reality, experienced as being more powerful than the 'real' event, carries some subjective

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truth (certainty). Hitchcock's use of the direction of the gaze of both the hero and the audience is significant. The other is introduced through the eye of the viewer. An instantaneous relationship is established between the other and the hero, since the other serves as a container for anxiety of which the hero is not aware yet. Interestingly, in constituting events and memories, the significant role of the other has been recognized by many investigators. Like in Eve's story, the contents of what one sees bound the event and are determined in other places, at other times, and by different forms and contexts of recounting the event.

3 Examples of other aspects are: strategies (verbal and non-verbal, overt and covert) parents and children use to guide the conversation, parental framing of the conversations, and the meaning of children's initiations in this context.

4 In addition to bridging to memory and to knowledge, 40% of the parents linked the conversation itself to the child's memory of a note from school, or to me, the investigator. Thus they turned the conversation itself into a story, a link in a sequence of events that happened before, and events that would happen after it.

5 An analysis of the amount of speech in the conversation for boys and girls by parental bridging to knowledge (whose parents linked or did not link the visit to knowledge) revealed that, while there were no differences in the amount of speech of girls with and without bridging and of boys without bridging, boys whose parents linked the visit to knowledge spoke more than others (see Appendix G, Fig. G1).

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APPENDIX A

Child Free Recall Interview Protocol

Can you tell me what happened when you went to the museum with your mom/dad?

Tell me everything.

What else?

Can you tell me more?

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APPENDIX B

Follow-up Questions for Parents

#1 1) Was this the first time you and your child discussed the visit to the museum?

2) If not, when did you discuss it first? How often?

3) What was your child's reaction to the visit?

4) What types of leisure-time activities do you do together?

5) How many times have you been to a museum in the last 6 months? Two years?

6) Can you recall which museums you visited?

7) Is it your child's first visit to the museum?

8) What's your child's general attitude toward museum visits?

9) What do you imagine you'd be doing at the Museum?

10) Do you have any memories of visiting the Natural History Museum? Can you tell me about it?

#2 1) Did your child discuss the visit to the museum? With whom?

2) If yes, when, and who initiated the conversation?

3) When did you get to the Museum?

4) What did you see before/after the workshop?

5) What part of the workshop did your child like most?

6) Do you know why?

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APPENDIX C

Transcribing Conventions (based on MacWhinney, 1995)

Utterance terminators:

. ? !

+...	Trailing off
-? .	Rising contour
-,.	
+/.	Interruption
+//.	Self interruption
+/?	Interruption of question
+^	Quick uptake
+,	Self completion
++	Other completion
# ## ###	Pause
-:	Lengthening of previous word
<> [!]	Stressing
<> [>]	Overlap follows
<> [<]	Overlap precedes
<> [/]	Retracing without correction
<> [//]	Retracing with correction
<> [/-]	False start without retracing
+"/.	Before quote
+"	Quote
<> ["]	Quotation mark

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APPENDIX D

Bridging to Museum-Memory and to Knowledge

Parents linked the anticipated visit to memories of other museum visits in different ways; they talked about informative or experiential aspects, in an elaborate, short or general manner.

* Parents mentioned specific (episodic) memories, with an emphasis on emotions that were related to theses memories.
* Parents "tested" the child's memory.
* Parents talked about the particular museum or other museums, or about general museum-memories, with an emphasis on the informative aspect.

Jos21,(5;10)

M: Josh Michael, have you [!] ever been to the Museum of Natural History?
C: yes.
M: you have [!] ?
when [!] ?
d(o) you remember?
C: a long time ago.
M: mmm!
what did you see [!] there?
d(o) you remember?
%com: in a thick, playful voice.
C: dinosaurs.
M: you saw dinosaurs [!] -? .
C: bones [!] of them.

Ali51, (5;3)

M: so d(o) you want to hear of the fun thing we are gonna do together?
C: yeah.
M: d(o) you remember we went with Abba and xx to the museum of Natural History?

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C: yeah.

M: xx which museum we looked about?
remember you and I liked the exhibits [!] where they showed different kinds of houses [!] people lived in?

M: remember that?

C: yeah.

M: and different tools [!] they used -,.
and different clothing they wore -? .

C: <yeah> [>].

M: <remember> [<] that?

Cha41, (5;5)

M: # Abba is gonna take you to a museum [!] with Eli [!] .
do you know what the museum is called?

C: I [/] I don't know.

M: okay.
the museum is called # the American Museum of Natural History.
d(o) you remember when we went to a museum?

C: yeah.

M: what kind of museum d(o) you remember going to?

C: xxx -,.
they had dinosaurs that moved -,.

%com: mother repeats Cha's words in the same singing tone.

M: the dinosaurs that moved -,.
what else.
what else d(o) you remember?
we went to a lot [!] of museums.

Shi11, (7;1)

M: d(o) you know what museum it is?
d(o) you remember this?

C:: # Museum of History.

M: of Natural [!] history .
d(o) you remember that we went there once before?
at least once before?

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C: no I don't.

M: d(o) you remember the big Museum that once we went to with the Stavskys?
not that long ago where we saw all those scenes of animals -? and things -? .
remember that big big hall -,.
and they had all those different animals but not alive -,.
stuffed animals with big scenes of them -? .

A conversation was coded as including bridging to knowledge when the parent linked the future activity to knowledge the child has or should have.

Parents linked the visit to knowledge in a variety of ways, for instance by reminding existing knowledge, posing general questions about child's knowledge, providing knowledge about Indians, or reading a book about Indians.

* Parents talked about how the Indians used to live, eat, dress, get food.
* They talked about how difficult it was to live the way Indians did.
* Parents talked about the wrong that was done to Indians, thus providing (explicitly or implicitly) their version of what happened to Indians.
* Parents talked about the way the child had acquired knowledge about Indians: "something you've studied" or Thanksgiving.

Jac51, (5;3)

M: there's gonna be a presentation about the Plains Indians -,.
M: d(o) you want to know anything about them?
M: or d(o) you want to wait till you hear about them there [!] ?
C: hear about them.
M: okay.
C: and a little [!] bit.
M: okay.
M: the Plains Indians were Indians who lived in sort of the central part of the United States.

Jon11, (5;7)

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M: ## so # you know what the Indians are?

C: yeah.

M: you do?

M: what are Indians?

C: uh # they shoot arrows.

%com: mother changes voice, sounds dramatic.

M: they shoot arrows [!].

M: # but some [/-] they don't always [!] shoot arrows [!] .

(mother continues to talk about Indians.)

M: +^ so you xx learned about Indians in school?

C: # yeah.

C: when it was &t time to +//.

C: you know what?

M: what?

M: # Thanks.

C: ++ giving.

M: Thanksgiving!

%com: Jon laughs, he is enjoying himself.

C: Thanksgiving [!] gobble gobble.

C: I didn't get the gobble gobble.

M: you didn't gobble gobble.

C: yeah, yeah.

M: and d(o) you remember what else you learned about the Indians?

Ari.11, (7;6)

M: well tomorrow # we're gonna go on a tour # <of an exhibit> [>] at the American Museum of Natural History -,.

C: <xxx> [<] ?

M: and <it's going to be> [//] the subject will be about Native Americans [!]

M: something you're studying.

M: and what they're gonna do # is talk about it -,.

M: show you some items in the Museum that could help you understand it a little better -,.

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APPENDIX E

Criteria Used to Determine Reciprocal Responsiveness and Identifying Responsive Segments in Conversations:

Coding reciprocal responsiveness in the conversations is done in two phases: First, sequences of 3 responsive speech turns are identified, and then the boundaries of the responsive segment are determined.

Determining the Boundaries of a Responsive Segment. A responsive segment may include partial speech turns. The decision where a responsive segment starts within a speech turn is usually limited to parental speech turns, because parents express themselves in a more elaborate and complex manner than children. The parent may present several ideas, and the child may respond to one of them. Another example is a parental responsive response to the child which is followed by a transition to another topic, which reflects the way the parent wants to guide the conversation.

A responsive segment may include a partial speech turn. A segment begins with the introduction of the topic, which is the parent's utterance that expresses the idea to which the child then responds. The last utterance in a segment is the one that is followed by a topic change. Usually, the parent pauses and may add "okay" or "so," and this marks the transition to the next idea. Many times the parent marks the transition to another topic by a pause, or by saying "okay".

Coding Responsiveness. A responsive segment consists of at least 3 speech turns. A speech turn is included in the 3-turn sequence if it is responsive to the previous turn or if the next turn can be coded as responsive. The most telling are instances where the

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parent elaborates on child's comment, or when the child provides a longer response, and then the parent elaborates.

Speaker1: Statement or question.

Speaker2: Contingent comment, response or question (including yes-no, if the next speaker elaborates on it).

Speaker1: Response: elaboration (adding new aspect).

A responsive segment includes speech turns that are contingent and specific. One turn should add an element to the what the other speaker says. A responsive turn should not be not general and should relate to the previous turn in a specific way. Elaboration, a question that calls for elaboration, expressions of interest, request for clarification, are all expressions of responsiveness. Elaboration may take the form of labeling child's response and referring to an internal state that is behind the words (for instance, a thought, intention or affect). For example, mother and child talk about taking a bus to New York. The child says "yes!!" and mother responds "you like that, don't you."

Reciprocal responsiveness is a measure on the level of the interaction. Knowing the intention of the speaker is not enough for coding a turn as responsive. It is the combination with the response of the other that guides the coding. For instance, the parent may pose an known-answer question, which initially is not considered responsive. However, if the child's answer is different from the parent's expectation and the parent then responds to it, the parental question is considered an initiation of a responsive segment, even though the parent's intention was different.

Generally, responsiveness is related to the speaker's degree of freedom to choose the next move in the conversation, and to whether this choice is then responsive. A

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question with illocutionary force and the subsequent response (for instance, pausing in the middle of an utterance, thus giving the child a chance for other-completion, or asking known-answer or yes or no questions), or participation in the conversation in a way that limits the other's freedom to respond (such as singing when the parent talks about the visit), are not coded as part of the 3-turn sequence.

Non-Responsive Utterances and Sequences. Not all sequences of 3 speech turns are responsive. For instance, an evaluative response of the parent to the child's response (similar to a question-answer-evaluation sequence in teacher-talk) may indicate responsiveness, but more likely, it may reflect a parental strategy to suppress the child's response, and thus to be able to proceed with the conversation.

The following questions, comments, and responses are not considered responsive:

1) Responses indicating attentiveness: Some dyads interact more than others. Both parent and child refer to each other (usually mother, not child) with questions, such as : you know what? Or phrase their comments in the form of questions. This is an attempt to elicit involvement and a response. Children may make 'small' comments such as "yeah", "umm", to communicate they are attentive.
2) A general invitation to speak: Utterances such as "any questions?" or "say something" to which the child may respond are not responsive, because they are not specific.
3) Evaluation, such as: "You're cute", "that's true", "that's right", "that's a good," "great question!" (unless the parent adds and elaborates on the child's utterance).
4) Request for repetition, such as "can you repeat that?", and "just tell me one more time."
5) Repetition of a whole or partial utterance of the other.

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However, when the repetition is used to express excitement, it is coded as responsive. For instance, the following repetition is responsive.

Mother: We'll see what they have, okay?
Child: Okay okay okay!

Another form of repetition is when the parent asks 'you know?' or 'remember what...?' and the child answers with 'what' or 'yes/ no' without elaborating. This is not coded as responsive because it is a way to control the other's responses. Parent repeats child's response, or repeats it as question.

6) Other-completion, such as:

Mother: "the museum of" +...
Child: "++Natural History!"

7) Yes/ no questions, or either/ or, and answers without further elaboration. But when the child says "yes!" expressing excitement, it is coded as responsive. Parental elaboration on child's personal perspective of yes-no answer is considered responsive.

M: Remember we went to the museum?
C: I don't remember.
M: You used to like it a lot.
You used to like these animals.

8) Known-answer questions and answers.

"How old are you?"

"Where are we going this Sunday?" when the child knows about the planned visit.

"What is your name ?" (parent to child)

When the child's response to a known-answer question is unexpected, both are coded as responsiveness.

9) A series of questions, in the same topic, presented by the parent and the child responses to each question are not responsive. For instance:

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P: When was it?

C: A long time ago.

P: What did you see there?

C: A tent.

10) Discussions of present interaction that is not related to the topic of conversation (usually initiated by the child in a verbal or nonverbal way. Although the parent may respond in a responsive or non-responsive way, this sequence is not considered responsive. The reason is that what guides the parent's responses is an attempt to find the best way to get back to topic, and after responding to the child, the parent always gets back to the previous topic (I defined this response as redirecting). Interactions about the tape-recorder are many times an example. However, coding such sequences as non-responsive should be done with caution. Not very often, the parent's response to the child is responsive and indicates interest in the child's present perspective without using this response as a way to silence the child's temporary resistance. The following sequence is an example. The 5-year-old child is playing while the mother is talking about the visit.

M: you (a)re adding waterfalls [!] ?

C: yeah.
for power plants.

M: oh for power plants.
that's good!
I never was able to get [!] a power plant going +//.
I mean waterfalls [!] .
I was [//] just seem to make lakes [!] .

C: ## this is hot.

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you needed that xxx to get some water.

M: and it [!] it [/] only works on mountains.

oh maybe that's [!] my problem.

The mother does not ignore the child's activities, but in this segment she is not anxious to proceed with the previous topic of conversation. She is not trying to cause the child to stop playing. She gives the child a chance to respond to her comments, and does not use the pauses to redirect.

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APPENDIX F

List of Topics in Memory Accounts

Museum/mention

-activities

Indians/ mention

-related obj.

-activities

WORKSHOP/ mention

W/related objects

-activities, general

-activities specific

STORIES/ mention

-activities

-ref. to ***number***

-content G. Ref.

ch. G. Ref.-World

ch.. Ref - buffaloW

ch. G. Ref.-Music

ch. Specific -stone

ch. Specific - BuffaloW

ch. Specific - music

PROJECT/ mention

picture

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activities- general

- Specific

-materials

-shape

-content, General

con. Specific

MUSIC/mention/songs

-objects

-activities

DIAMONDS/mention

-activities

.Dinosaurs

-activities

Other Exhibits

-activities

Tom, **guide.**

-activities

Actors I

Parent

sibling/friend

everybody/kids

Other

Place: Classroom

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Story place

Museum/Other

Gift Shop

Home

Food

Procedural Activities

Personal Exp, W-related

W-Off

TROUBLE, W-related

Other

LOST

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APPENDIX G

Tables

Table G1a

Immediate and Delayed Memory: Means (and Standard Deviations) of Mentions of Activities by Bridging to Knowledge and Age

		Time 1		Time 2	
Age-group	Bridging to Knowledge	Mean		Mean	
Pre-K	No	.63	(1.06)	1.38	(1.69)
	Yes	.67	(1.15)	2.00	(.00)
	Total Mean	.64	(1.03)	1.55	(1.44)
K	No	.33	(.58)	1.33	(.58)
	Yes	.80	(.84)	.80	(.84)
	Total Mean	.63	(.74)	1.00	(.76)
1st Grade	No	1.25	(.50)	.75	(.96)
	Yes	.70	(.95)	.90	(1.20)
	Total Mean	.86	(.86)	.88	(1.10)
2nd Grade	No	1.33	(.58)	1.00	(1.00)
	Yes	.57	(.79)	2.00	(1.15)
	Total Mean	.80	(.79)	1.70	(1.16)
Total	No	.83	(.86)	1.17	(1.25)
	Yes	.68	(.85)	1.32	(1.15)
	Total Mean	.74	(.85)	1.26	(1.18)

Table G1b

Immediate and Delayed Memory: Means (and Standard Deviations) of Mentions of Content by Bridging to Knowledge and Age

		Time 1		Time 2	
Age-group	Bridging to Knowledge	Mean		Mean	
Pre-K	No	.88	(1.13)	1.50	(.93)
	Yes	.67	(.58)	2.67	(2.08)
	Total Mean	.82	(.98)	1.82	(1.33)
K	No	1.00	(1.00)	2.00	(1.00)
	Yes	1.00	(1.22)	1.40	(1.52)
	Total Mean	1.00	(1.07)	1.63	(1.30)
1st Grade	No	2.25	(1.71)	3.25	(2.50)
	Yes	2.60	(2.32)	2.50	(2.51)
	Total Mean	2.50	(2.10)	2.71	(2.43)
2nd Grade	No	3.67	(.58)	3.33	(1.15)
	Yes	2.71	(150)	5.14	(3.13)
	Total Mean	3.00	(1.33)	4.60	2.76)
Total	No	1.67	(1.53)	2.28	(1.56)
	Yes	2.08	(1.89)	3.04	(2.75)
	Total Mean	1.91	(1.74)	2.72	(2.33)

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Table G2a
Mentions of Activities in the Two Memory Accounts by Age-Group and Distinctiveness of Visit Description

		Time1		Time2	
Age Group	Distinct	Mean		Mean	
Pre-K	No	.50	(1.00)	1.00	(.82)
	Yes	.71	(1.11)	1.86	(1.68)
	Total Mean	.64	(1.03)	1.55	(1.44)
K	No	.50	(.58)	.75	(.50)
	Yes	.75	(.96)	1.25	(.96)
	Total Mean	.63	(.74)	1.00	(.76)
1st Grade	No	.60	(.89)	.40	(.55)
	Yes	1.00	(.87)	1.11	(1.27)
	Total Mean	.86	(.86)	.86	(1.10)
2nd Grade	No	1.00	(.00)	2.33	(.58)
	Yes	.71	(.95)	1.43	(1.27)
	Total Mean	.80	(.79)	1.70	(1.16)
Total	No	.63	(.72)	1.00	(.89)
	Yes	.81	(.92)	1.41	(1.31)
	Total Mean	.74	(.85)	1.26	(1.18)

Table G2b
Mentions of Content in the Two Memory Accounts by Age-Group and Distinctiveness of Visit Description

		Time1		Time2	
Age Group	Distinct	Mean		Mean	
Pre-K	No	.25	(.50)	1.50	(.58)
	Yes	1.14	(1.07)	2.00	(1.63)
	Total Mean	.82	(.98)	1.82	(1.33)
K	No	1.50	(1.29)	.75	(.50)
	Yes	.50	(.58)	2.50	(1.29)
	Total Mean	1.00	(1.07)	1.63	(1.30)
1st Grade	No	2.40	(2.79)	1.80	(.84)
	Yes	2.56	(1.81)	3.22	(2.91)
	Total Mean	2.50	(2.10)	2.71	(2.43)
2nd Grade	No	3.67	(.58)	3.67	(1.53)
	Yes	2.71	(1.50)	5.00	(3.16)
	Total Mean	3.00	(1.33)	4.60	(2.76)
Total	No	1.88	(1.99)	1.81	(1.28)
	Yes	1.93	(1.62)	3.26	(2.65)
	Total	1.91	(1.74)	2.72	(2.33)

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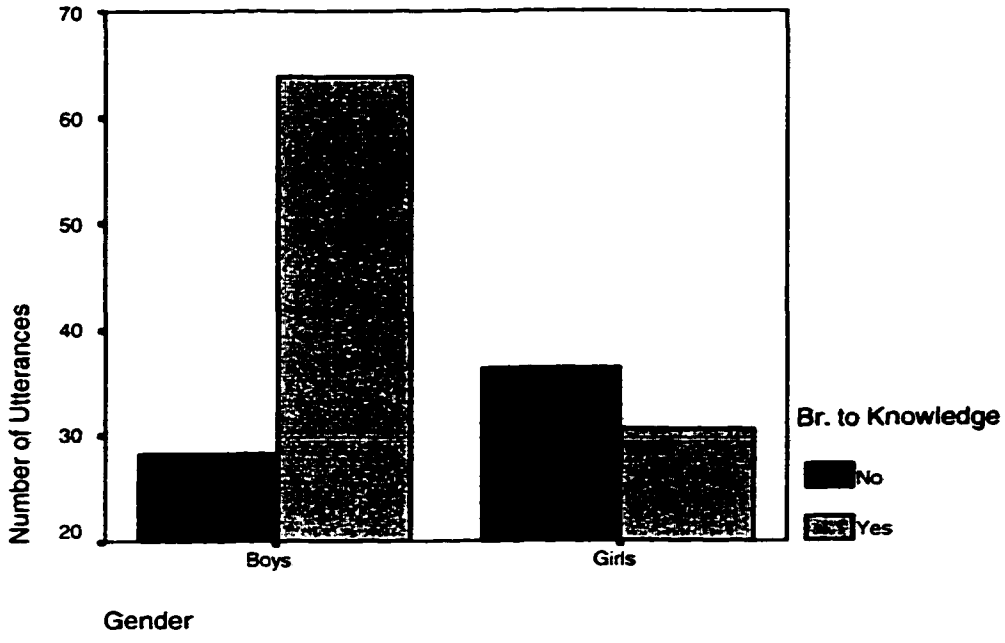

Fig. G1. Child number of utterances in conversation by gender and bridging to knowledge.

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APPENDIX H

Examples of the Development of Memory Narratives over Time

Girl, 5;4

Time 1

**INV: What happened when you went to the museum with your mom?*

*HAN:we listened to the music of # the sound -, .

*HAN:the music # that this [/] this man was playing -,.

*HAN:and ### um +...

**INV: What else happened?*

*HAN:we looked at these Indians [!] -,.

*HAN:and +...

*HAN:I forgot the name of the animal [!] we did.

**INV: What else happened?*

*HAN:well ### we -: drawed on those # animals.

Time 2

**INV: What happened when you went to the museum with your mom?*

*HAN:well, first [!] we went in the art room -,.

*HAN:and then we looked around -,.

*HAN:# when we xx first xx -,.

*HAN:<and -: we> [//] ### and then <he told us> [//] he asked us +"/.

*HAN:+" what like cartoon d(o) you like -,.

*HAN:<and # and then> [/] and then he said +"/.

*HAN:+" let's look around in the Museum -,.

*HAN:and then he played the instruments -,.

*HAN:and then we went back in the room -,.

*HAN:and -: <we ### we> [//] <he cut out> [/] he cut out # these animals -,.

*HAN:and then we drew on them what [/] what the story was about.

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Boy, 5;3

Time 1

**INV: What happened when you went to the museum with your mom?*

*JAC: we went to the diamond exhibit.

*JAC: # which I hated.

*JAC: ## but I liked the movie that was there.

*JAC: and -: # then -: uh # we went to that Africa exhibit.

*JAC: oh no wait .

*JAC: that's um like # where we got some fruit loops with ice cream.

*JAC: and then I got my ## gift [!] .

*JAC: ## and then # pretty much ## we went home!

*JAC: and that's it!

Time 2

**INV: What happened when you went to the museum with your mom?*

*JAC: a man +//.

*JAC: ## uh who was the head of # the program -? .

*JAC: +, he told some stories.

*JAC: one was about ## the woodpecker [!] -,.

*JAC: one was about ## the rock [!] -,.

*JAC: and on was about ## the +...

*JAC: after [!] we heard the # stories -,.

*JAC: we # came back to the room -,.

*JAC: then the head of the ## program -,.

*JAC: told us to cut out [!] -, a shaped buffalo .

*JAC: ## and then we colored it of one of the stories.

*JAC: and mine [!] was about # the rock.

*JAC: ### and -: # before[!] we were getting there -,.

*JAC: we took a ferry [!] -,.

*JAC: I think [!] a bus.

*JAC: but I'm not sure.

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*JAC: and # a taxi.

*JAC: that's how we got there.

*JAC: and uh # part on foot.

*JAC: ### and that's mostly it.

Boy, 5;10

Time 1

**INV: What happened when you went to the museum with your mom?*

*SHA: um ## uh # there was a diamond [!] exhibit -,.

*SHA: and there was these stories about the Plain Indians.

*SHA: and [/] # um ## uh # <and there was> [/] # um ## and [/] um and when you got in there were these # um three dinosaur bones.

*SHA: <uh ## um> [/] there was a line to wait <for the> [//] for a man.

*SHA: ### and um [/] ## so we went in the ## uh reptile room.

*SHA: and ### I saw a baby tortoise.

*SHA: and what else +...

*SHA: and # there was um # a crocodile [!] .

*SHA: and it had a alligator.

*SHA: and [/] ### and -: ### there was stuff.

*SHA: I don't know if it was stuff [!] .

*SHA: but there was boy with two marks on his leg.

Time 2

**INV: What happened when you went to the museum with your mom?*

*SHA: I had a fun time -,.

*SHA: uh ### we [/] ## um we pretended [!] it was paper -,.

*SHA: but it was buffalo skin -,.

*SHA: and we drew some stuff.

*SHA: and [/] and ### uh there was a program.

Boy, 6;10

Time 1

**INV: you said you know all about something?*

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*ZAC: I know all about +//.

*ZAC: oh yeah!

*ZAC: I know all about how [/] ## how # the world was -: born.

*ZAC: ## because # I know # that Jews know how is xx.

*ZAC: and it's about +//.

*ZAC: it's a folk tale passed by # Jews and Jews and Jews and Jews and Jews.

*INV: *What happened when you went to the museum with your mom?*

*ZAC: because why [!] ?

*INV: *I would like to know what happened.*

*ZAC: do I have to say it all over ?

*INV: *whatever you want.*

*ZAC: well # I don't remember the first [!] one -,.

*ZAC: but I think <I remember the> [/] ## I remember the last one <and the> [/] and the one before [!] the last one.

*ZAC: # um # that um ## there was this girl -? .

*ZAC: and # a [!] a boy was so frightened -? .

*ZAC: and the other one wanted to um # see her -? .

*ZAC: and he went # to see her.

*ZAC: and [/] um # and [/] and she made a cloud -,.

*ZAC: and he turned into -: um # snakes and bones.

*ZAC: ## and -: I think the other one talks about # like um the flute -,.

*ZAC: how um # she listened [!] to the music -,.

*ZAC: and it's telling her that [/] that a man likes [!] # her.

*ZAC: and then [!] ## it tells her that um +"/.

*ZAC: +" if he gives you horses # to your father [!] -,.

*ZAC: +" then -: he will choose [!] to be married to you.

*ZAC: and <gave to the &hors> [//] he gave the horses to the father [!] -,.

*ZAC: so they got ## married [!].

*ZAC: ## okay?

*INV: *uhum.*

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Time 2

**INV: What happened when you went to the museum with your mom?*

*ZAC: first we talked [/] talked about like cartoons -,.

*ZAC: and then [!] we went to hear stories -,.

*ZAC: and then [!] we made &pic pictures.

*ZAC: and then ## I [/] I think I went home -,.

*ZAC: or I might have got like something.

*ZAC: ### and uh that was the end.

Boy, 7;3

Time 1

**INV: What happened when you went to the museum with your mom?*

*ELI: um [/] # well # first [!] # when I came in we were early [!] -,.

*ELI: and um [/] when [//] we were looking at animals [!] .

*ELI: and # we saw # an alligator on one side and a crocodile on the other.

*ELI: the crocodile was fourteen # feet and ## about um ## and seven inches -? .

*ELI: and the alligator <was twelve> [/] and [//] was twelve feet.

*ELI: and then when we came to the museum # um [/] we came to the um [/] # part.

*ELI: then [/] # then <um we were> [//] <um we looked> [//] # we went outside -,.

*ELI: <and we> [//] and # outside of the room -,.

*ELI: and [/] and the man who was telling us about it told us some stories [!] -,.

*ELI: um <then # um he told and then he> [//] and then we came back and we did a project [!].

*ELI: and then you took pictures of us -,.

*ELI: and we got to play the drums [!] .

*ELI: and then I went to play .

*ELI: and then I went to watch # um the diamonds.

*ELI: I saw ## three [!] movies.

*ELI: about the diamonds .

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*ELI: and then we went out and we got ice cream -,.

*ELI: and then we went home.

Time 2

**INV: What happened when you went to the museum with your mom?*

*ELI: um [/] ## I had a lot fun listening to those stories -,.

*ELI: and -: I liked making the pictures [!] .

*ELI: um ## I [/] I was like the first one to get back -? .

*ELI: with another kid.

*ELI: but we both went the other way -,.

*ELI: and we ran there.

*ELI: # without every one else [!] .

*ELI: so every one came back about a minute later -,.

*ELI: and -: [/] and we said +"/.

*ELI: +" hi!

%com: sounds cheerful, laughs.

*ELI: that [!] was funny!

*ELI: and # we went and then we made our projects -,.

*ELI: # and then we got our pictures taken with it -,.

*ELI: # and -: on the way home I got some ice [!] cream.

*ELI: # and -: # my sister was like # all [!] sticky [!] .

%com: laughs throughout the segment.

*ELI: when [/] when we came home she was like -,.

*ELI: she came to the car.

*ELI: # she put her hands out on the car -,.

*ELI: she was like +"/.

*ELI: +" mommy!

*ELI: +" my hands don't feel so good.

*ELI: so # we got home and we washed my sister up.

*ELI: and then we had [/] had dinner -,.

*ELI: and # my father came over the next day -,.

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*ELI: and -: I showed him what I made.

*ELI: <he said> [//] he asked where I got it from.

*ELI: and when I said +"/.

*ELI: +" I made it in [/] in the museum of natural history.

*ELI: and he said +"/.

%com: changes his voice.

*ELI: +" oh nice!

Girl, 7; 7

Time 1

**INV: What happened when you went to the museum with your mom?*

*TOV: he told us three stories -,.

*TOV: and then we did a project -,.

*TOV: # and the first -: story # was -,.

*TOV: how we got Earth [!] and how everything human.

*TOV: the um ### second -: story -: ## was about -: ### +//.

*TOV: was it the flying woman?

*INV: the woman, yeah.

*TOV: ## the third story was about -: +...

%com: TOV seems disturbed, she does not remember.

**INV: music?*

**INV: # What else happened?*

*TOV: well on the third [!] story he # told us how # um ## somebody ## um was embarrassed to go to somebody and say that he liked her.

*TOV: so [/] ## so um one night when he went to bed -,.

*TOV: he -: um ## dreamed # of # a woodpecker [!] pecking holes [!] in a branch -,.

*TOV: and ## it didn't look like um a flute -,.

*TOV: <and so> [/] and so when he woke up -,.

*TOV: he took off the branch and he carved a woodpecker on it.

*TOV: because ## um the woodpecker made the holes -? .

*TOV: and then he # blew the flute -: -,.

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*TOV: <so the &wom> [//] so the girl would know +...

%com: a very long pause.

*INV: *and what happened?*

*TOV: ### and +...

*INV: *xx?*

*TOV: yes.

*INV: *and +...*

*TOV: and then +...

*INV: *What else happened?*

%com: Tova sounds very embarrassed.

*TOV: they fell in love with each other.

Time 2

*INV: *What happened when you went to the museum with your mom?*

*TOV: ### can I tell what Museum it is?

*INV: *you can tell me whatever you want about it.*

*TOV: the first story was about how bean turned into Earth and the Sun.

*TOV: and the second story was about the flying woman -, who taught the Indians ## what to do.

*TOV: # the third story was about the flute.

*INV: *uhu.*

*INV: *what else happened?*

*TOV: I drew a picture -,.

*TOV: ### and +...

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APPENDIX I

Examples of Variations in Responsive Segments

Responsive segments include an addition of an element—elaboration, a different affective tone, variation. These utterances are highlighted in the following examples.

AAR, Boy, 5;10

M: and he's gonna show [!] us all different things [!] about the Indians.

M: what kind of things d(o) you expect he might show us?

M: ## #any ideas?

-------- (AAR talks about bones of Indians and what they wore)

C: and you know what?

M: what [!] ?

C: the Indians [!] were not only there # when [/] # when the pilgrims [!] got in.

C: when Christopher &co Columbus got in.

M: were they really [!] ?

C: yeah!

M: wow!

M: # I wonder if that's these Indians -, or if its different ones.

M: we'll find out on Sunday.

M: we make sure and find out, okay?

M: if it's the same Indians that worked with the pilgrims, alright?

ALEE Boy, 7;4

M: there's gonna be uh <an educator> [//] a Museum of Natural History educator who's goin(g) (t)o do [!] this with us +//.

M: you and me -,.

M: and the other children and parents -,.

M: +, and we're goin(g) (t)o uh learn about the Plains Indians -? .

C: is there any other kid from my class?

M: yeah!

M: **I don't know who -,.**

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M: **but you're gonna see maybe tomorrow who they are -,.**

M: **and on Sunday you'll see all of them!**

ALEE Boy, 7;4

M: and # I think # that part of the tree that is the most famous -,.

M: that they used to make certain kinds of medicine from -? .

M: was [/] was the bark of trees.

C: I [/] I know.

C: <the inside> [>] +/.

M: **<do you> [<] think of other parts**?

C: the inside.

C: (be)cause inside [!] +//.

C: <I &wa> [//] I watched one day a show called <Buddy xx> ["] -? .

M: on TV?

C: yeah.

M: uhum.

C: I don't know if this is real or not.

C: but in there # like # three boys took a knife!

C: and <cut in> [/-] broke one hole into a lot of trees.

C: and then out came a little kind of liquid.

C: and uh +/.

M: you know what that liquid is called?

C: +, and the liquid was a # very [!] powerful kind of medicine.

M: d(o) you know what that liquid is?

M: **that is the life blood of trees -? .**

SHO Girl, 5;8

M: and then we (a)re gonna take a bus and a xx.

C: a bus?

%com: mother laughs.

M: it's in the city.

M: **## you like <that>** [>] ?

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C: <like> [<] Abba's bus?

%com: mother laughs.

M: like Abba's bus.

%com: mother laughs.

C: yes!

%com: SHO is jumping up and down.

CHA Girl, 6;9

M: you are gonna go with either me or daddy -,.

M: we haven't decided yet -,.

M: and +/.

C: me or you or [!] the baby?

M: well # we'll [/] we'll see about the baby.

M: I'd like for the baby to stay home.

M: it's important for either me <or you> [>] +/.

C: <but if you [!] > [<] go.

C: but if you [!] go.

C: the baby has [!] <to come> [>] -, right?

M: <okay> [<] .

M: okay.

M: **well we can get the baby a bottle too.**

M: that's okay too.

HAI Boy, 5;2

M: well on Sunday # we're gonna get to go to the museum +/.

%com: in a loud lively voice.

C: and we <are got> [//] not gonna see dinosaur bones there, aren't we.

M: I don't know -,.

M: I don't know if the dinosaur bones **are still up [!].**

M: **but in addition to the dinosaur bones -, they have a lot of other parts of the Museum -,.**

M: and they're goin(g) to have -: +/.

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C: dinosaurs?

M: **well you think they're gonna have real [!] dinosaurs?**

C: +^ no.

C: they just gonna have fake [!] ones.

M: fake <ones> [>].

HAI Boy, 5;2

C: I [/] I remember -,.

C: there was this big [!] big [!] large dinosaur that people weren't allowed on it.

M: they weren't, right.

M: so do we climb on things from the museum?

C: no.

M: no.

C: **only # in the garden.**

SAR Girl, 8;2

M: so I want <you to know> [>] that I am offering this to you +/.

%com: SAR is yelling.

C: <what xx> [<] +/?

C: ## what exhibit is Max going to ?

M: to the Indians [!] museum!

M: to the Plains Indians museum [//] uh # exhibit in the museum.

M: **and you spend only about one [!] hour.**

M: or one and a half hours.

C: +^ whatever exhibit Max goes to I [!] will <go> [>] .

M: <one> [<] hour.

C: one hour?

C: let me think.

M: right.

C: I'll think again.

M: **## one hour is like two Barney shows.**

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M: you know that?

M: (d)o you know how long one hour is?

C: and one whole Sesame street [!].

C: ## <and one whole> [//] and one # Sesame Street.

M: ## right.

M: or one Sesame Street.

C: um # okay, I'll go with you.

C: wherever Max goes to.

ELI Boy, 5;2

M: # what we're doin'-, is on Sunday [!] we're gonna go to the big [!] museum in New York City.

M: d(o) you remember we once went to the Museum in <New York > [>] City with the dinosaurs?

C: <yeah> [<].

C: that's cool!

M: it's <cool> [>] ?

C: <xxx> [<].

M: **you like that idea?**

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APPENDIX J

Empathic Failures in Non-Responsive Segments

AAR Boy, 5;10

M: what kind of things d(o) you expect he might show us?

M: ## #any ideas?

C: *# the bones about them -?* .

M: the bones [!] about the Indians.

M: maybe.

M: that's a good thought [!].

C: *+^ and what they wore.*

M: what they wore.

M: okay.

C: *# <an(d) how # they> [/] # and how they knew all these things.*

M: how they know all these things -? .

AVI Girl, 5;1

C: *<and and and> [/] and Morah Anne asked everybody if they saw dinosaur bones and when*

*FTH: and what did you say?

C: *I said at the Museum of Natural History!*

*FTH: and you [/] you saw it last year.

*FTH: right AVI?

C: *right.*

C: *&sh she just asked &wh if you saw [!]* .

*FTH: uhu!

C: *when [!] you saw.*

*FTH: that's very interesting!

C: *what will we do after [!] it?*

*FTH: well, have you girls ever been to any other museums recently?

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AAR Boy, 5;10

M: what did you see [!] there?

M: d(o) you remember?

%com: in a thick, playful voice.

C: *dinosaurs.*

M: you saw dinosaurs [!] -? .

C: *bones [!] of them.*

M: bones of them.

M: that's right.

M: what else?

ARI Girl, 7;5

M: and we're getting ready for our trip to the Museum -, the American Musuem of Natural History tomorrow.

C: *why d(o) you have to talk about it xx?*

M: well so the teacher could understand afterwards.

M: well tomorrow +/.

C: *understand what?*

M: well tomorrow # we're gonna go on a tour # <of an exhibit> [>] at the American Museum of Natural History -,.

CHA Boy, 5;5

M: and what are you gonna be doing there?

C:: *we gonna be playing with fun stuff.*

M: we're gonna be playing with fun stuff?

M: and what else are we gonna be doing?

NAH Boy, 7;2

M: uh a lot of the Indians' land got taken away.

M: and +/.

%com: yelling.

C: *this is so terrible !*

M: okay, now I just want # to talk to you a little bit about # what happened

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to the Indians in the last maybe forty fifty years -,.

M: uh at the time of the first world war -,.

M: which was in the early &ni nineteen hundreds -,.

M: that wasn't so long ago -,.

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