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What Happened in Kindergarten? Mother-Child Conversations About Life Story Chapters

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Abstract

Research indicates that adults form life story chapters, representations of extended time periods that include people, places and activities. Life chapter memories are distinct from episodic memories and have implications for behavior, self and mental health, yet little is known about their development during childhood. Two exploratory studies examined parent-child conversations about life chapters. In Study 1, mothers recorded naturalistic conversations with their 5-6 year old children about two chapters in the child's life. In Study 2, mothers recorded conversations with their 6-7 year old children about a particular life chapter—the child's kindergarten year—and also about a specific episode of their choice. The results indicated that young children are able to recall and discuss information about life chapters and that parents actively scaffold children's discussion of general information in chapters as well as specific events. Mothers' conversational style when discussing chapters (e.g., elaborativeness) predicted children's memory contributions, and was also positively correlated with their style when discussing specific events. The results suggest new avenues for research on the ontogeny of life chapters, the factors that shape them, and their role in development.

Keywords: memory, parent-child conversation, conversational style, life chapters

What Happened in Kindergarten?

Mother-Child Conversations about Life Story Chapters

In the decades following the publication of Neisser's (1982) paradigm-changing book, *Memory Observed: Remembering in Natural Contexts*, systematic studies of autobiographical memory for events occurring outside the laboratory have become an increasingly prominent part of academic psychology in general and developmental psychology in particular. One important line of research examines how parent-child conversations about specific past events shape both what young children remember about those events and their more general memory styles. Across studies, parents' natural ways of talking about the past, and in particular the degree to which they adopt an "elaborative" conversational style when probing their children's memories, are associated with the quality of children's recall (Fivush, Haden, & Reese, 2006). The results of these studies support a "social construction model" of autobiographical memory development (Fivush & Nelson, 2004; Nelson & Fivush, 2004; Pillemer & White, 1989; Wang, 2013) that is consistent with Neisser's (1982) vision of an ecologically valid psychology of memory.

Although research on parent-child memory conversations has produced a compelling theoretical account of how social interaction shapes autobiographical memory, its potential value and impact are limited by an almost exclusive focus on children's memories of specific, one-moment-in-time special events. The present studies broaden the scope of this research to include, for the first time, parent-child conversations about extended lifetime periods. In the introduction that follows, we first identify possible reasons for the current focus on memories of specific events. Second, we describe the concept of "life story chapters" and briefly describe recent research with adult participants illustrating its potential scientific value. Third,

we summarize research and theory on the development of the life story, including life story chapters, in middle childhood and adolescence. Fourth, we offer a rationale for including life story chapters in research on parent-child conversations about the past. Then, we present two initial studies that explore how parents and children co-construct memories of chapters in the child's emerging life story.

Why the research focus on parent-child conversations about specific events?

An extensive research literature documenting how parents scaffold their children's recall of the personal past has focused almost exclusively on memories of specific events. Participating parents are encouraged to engage their child in talk about unique episodes, as in Reese, Haden and Fivush's (1993) seminal empirical study: "the researcher then requested that the mother choose three past events to talk about that spanned no more than 1 day and were one-time occurrences the child had experienced neither before or since. Thus, the mothers were asked to avoid talking about events that were extended in time" (p. 408). The privileging of specific memory is also a prominent component of social cultural developmental theory, where autobiographical memory is defined as "an explicit memory of an event that occurred in a specific time and place in one's personal past" (Nelson & Fivush, 2004, p. 486).

The origins of the pervasive research emphasis on young children's recall of specific episodes may be traced to earlier attempts by developmental psychologists to account for the phenomenon of infantile or childhood amnesia—Freud's (1905/1953) observation that adults frequently have difficulty remembering their earliest life experiences. Freud's preferred explanation was that early memories are inaccessible in adulthood because they are repressed, but developmental science offered seemingly more plausible and powerful scientific accounts

focused on age-related changes in cognition, language and social circumstances (for more complete descriptions of alternative theories, see Bauer, 2007; Pillemer, 1998; Pillemer & White, 1989; Wang, 2013; White & Pillemer, 1979). Attempting to solve the childhood amnesia puzzle provided a rationale and impetus for new research and theory on autobiographical memory development (Pillemer, 1998). Accordingly, earlier (e.g., Pillemer, Picariello, & Pruett, 1994) and recent (e.g., Bauer & Larkina, 2016) studies focusing on children's autobiographical memory are frequently framed as efforts to explain childhood amnesia. Importantly, because childhood amnesia refers to adults' inability to recall specific episodes rather than extended events or common routines, the focus on particular events was a natural outgrowth of efforts by developmental psychologists to understand it.

Although the primary focus on parent-child conversations of specific past events has produced a wealth of valuable findings, several important questions remain unanswered. When parents and children talk about temporally extended lifetime periods in the child's life—such as the kindergarten year or last summer's vacation at the lake—do parents scaffold the conversation in ways that are similar to or different from talk about specific events, such as the first day of kindergarten or the time a violent storm interrupted a family picnic? Do parents' styles of probing about the temporally extended past also shape how the child remembers these experiences? Recent research involving adults and older children, to be described in the following section, suggests that new research on parent-child conversations about lifetime periods could have important theoretical and practical implications.

Life story chapters

Recent research and theory has introduced the concept of “life story chapters,” defined as “abstract, conceptual memory representations that refer to subjectively defined temporally extended life periods with beginnings and endings...They include information about the people, places, activities, and objects associated with the period” (Thomsen & Pillemer, 2017, p. 468); in addition, chapters are often associated with a characteristic overall emotional tone (Thomsen, Steiner, & Pillemer, 2016). For example, a chapter describing “the first year of my marriage” could include general information about living circumstances (“our apartment was cozy, not crowded”), relationships with one’s spouse (“we agreed on everything except money”), activities (“we loved cooking together”), as well as specific recollections that fit within the chapter structure (“I remember the night when she said she wanted to get pregnant in the next year”). Life story chapters are similar conceptually to “lifetime periods,” a prominent component of Conway and Pleydell-Pearce’s (2000) influential theoretical model of autobiographical memory. Adults naturally use chapters when orally describing their life stories (Thomsen, 2009), they readily provide life story chapters in response to direct probes (Thomsen & Berntsen, 2008), and they can segment transcripts of their spoken life narratives into distinct chapters (Pillemer, Krensky, Kleinman, Goldsmith, & White, 1991; Steiner, Pillemer, Thomsen, & Minigan, 2014).

Chapters contain general knowledge of people, activities, locations, and emotions typical of an extended period, whereas vivid memories of specific events often represent episodes that are novel or unique (Thomsen & Pillemer, 2017). Accordingly, adults rate chapters as more central to personal identity than specific memories (Steiner, Pillemer, & Thomsen, 2017; Thomsen & Pillemer, 2017). In several studies, the emotional tone of chapters was more strongly

and consistently associated with trait measures of personality and self-esteem than the emotional tone of specific memories (Steiner et al., 2017; Thomsen & Pillemer, 2017). Taken together, these recent findings suggest that life story chapters are both familiar to adults and tied to their enduring conceptions of self.

Development of life story chapters

Although many studies have documented how parent-child conversations may enhance development of autobiographical memory for specific personal episodes, researchers have yet to explore parent-child talk about life story chapters. Research on the development of the life story suggests that the concept of a “life chapter” should be challenging for very young children. Habermas and Bluck (2000) proposed that a coherent life story does not emerge until early adolescence, when single events are incorporated into a meaningful and integrated narrative. Follow-up empirical studies demonstrated that narrative coherence increases in middle childhood through late adolescence (Habermas & Paha, 2001; Habermas & de Silveira, 2008; Habermas, Ehlert-Lerche, & de Silveira, 2009). When 9-year-olds were asked to write their life narratives, a majority simply described lists of personal episodes, with some participants providing a single event memory; narrative coherence increased substantially by the age of 12 (Bohn & Berntsen, 2008). Chen, McAnally, and Reese (2013) asked children ages 8 to 12 to describe personal chapters in their life beginning in the present and working backwards; 12-year-olds were less likely than younger children to have chapters composed entirely of single event descriptions. Steiner and Pillemer (2018) elicited spoken life stories from early adolescents ages 10 to 14; in a second session participants divided their transcribed narratives into self-defined chapters. Ten-year-olds were more likely than older children to include at least one chapter

consisting of a single event. These studies indicate that young children may be unlikely to think about the past as a sequence of abstract, thematically organized chapters. Nevertheless, it is possible that children may show higher levels of proficiency when constructing a life story chapter with parental guidance.

Parent-child conversations about specific memories and chapters

Nelson and Fivush (2004; Fivush & Nelson, 2004) proposed a socio-cultural model of autobiographical memory development. Beginning in the preschool years, children develop the ability to construct and retain memories of specific events through verbal interactions with adults. When engaging in joint reminiscing with their children, adults provide an organizing structure, or scaffolding, as they co-construct the child's memories. These dialogues help the child learn that memories are mental representations of events that occurred at a particular time and place and can be experienced from multiple perspectives; the conversations also carry the implicit or explicit meta-message that remembering and sharing personal details is a highly valued and potentially useful activity.

Parents differ systematically in the way that they reminisce about specific events with their young children. Specifically, research studies have identified two basic styles of maternal reminiscing (see Fivush et al., 2006 for a review). High elaborative mothers listen carefully to their children's input and expand on what has been said, using rich descriptive language. These mothers ask open-ended questions, encouraging the child to take an active role in creating a full and detailed account of past events. In contrast, low elaborative mothers tend to repeat their own questions, oftentimes in a yes-no format. The exchanges produce less information, there is less collaboration, and the co-constructed memory may not have a story-like quality. Children of high

elaborative mothers have richer and more detailed autobiographical memories (Farrant & Reese, 2000; Newcombe & Reese, 2004; Reese et al., 1993; Reese, Levya, Sparks & Grolnick, 2010), and they also recount earlier memories of childhood once they reach adolescence (Jack, MacDonald, Reese, & Hayne, 2009).

The socio-cultural model provides a theoretically plausible and empirically supported account of how parent-child conversations foster the development of autobiographical memory for specific events beginning in the preschool years. Parent-child conversations also may contribute to young children's ability to construct and remember temporally extended time periods, here labeled life story chapters (Thomsen, 2015). By engaging children in conversations about temporally extended time periods and asking elaborative questions about the people, locations, and activities associated with these periods, parents may support the development of life story chapters. Based on these ideas, we examined whether elaborative questioning would enhance the informational richness of children's chapter descriptions. Studies on the development of the life story, described earlier, suggest that very young children may be more adept at describing specific past events than describing temporally extended life chapters. Will parent-child conversations hold a focus on general chapter themes and recurrent activities or will they move to the potentially more familiar and developmentally appropriate terrain of specific episodes? More generally, are the patterns of associations between styles of parent-child memory talk and children's recall that have been consistently found for specific memories also evident when the research focus is on parent-child talk about life story chapters? To begin to address these questions, we conducted two studies of parent-child conversations about life story chapters.

The current studies

In two studies, parents engaged their children in talk about chapters from the child's life that the parent had identified prior to the conversations. Parents were not instructed how to structure the conversations; rather, they were encouraged to talk with their child as they might in a naturally occurring setting. Study 1 was an initial exploratory effort to examine how mothers and children discuss extended autobiographical periods. We investigated the content of the chapters, qualities of maternal elaboration, and whether the discussions focused on specific episodes or general chapter-relevant topics. In addition, we examined correlations between indices of maternal conversational styles and children's memory production. In Study 2, parents talked with their children about both a life story chapter and a specific memory; this design enabled direct comparisons between parents' conversational styles and children's memory when the target event is either temporally extended or pinpointed in time.

Study 1

Study 1 was an exploratory examination of how mothers and children talk about life story chapters. The first purpose was descriptive. We were interested in the primary topics of parent-defined children's chapters (e.g., sports activities; vacations; preschool); whether the children's chapters focused on types of information that are evident in adults' chapters: people, activities and locations (e.g., Brown, Hansen, Lee, Vanderveen, & Conrad, 2012; Conway & Pleydell-Pearce, 2000; Thomsen & Pillemer, 2017); whether the memory conversations tended to focus on temporally extended events rather than specific episodes; and whether mothers' and children's talk about chapters could be reliably coded using categories employed in studies of conversations about specific memories (e.g., memory/elaborative questions, evaluations). The

second purpose was to assess whether associations between parental conversational styles and children's memory production that are evident when targeting specific memories in prior studies would also be apparent in conversations about temporally extended chapters. Although we expected to find a positive correlation between mothers' elaborativeness and children's recall of life chapters, this was not an a priori necessity. Since conversational style is often inconsistent across contexts (Fivush et al., 2006), it was possible that parents would not adopt elaborative conversational strategies when engaging their children in talk about temporally extended events, or that children's memory production would be less responsive to parental elaboration in this context than in typical studies of specific episodes.

Participants

Twenty-three mothers participated with their 5- to 6-year-old kindergarten children (12 boys, 11 girls; age *range* 60-81 months; $M = 73$, $SD = 5.97$). Kindergartners were chosen for participation because prior research on parent-child conversations about specific past events has included children in this age range (e.g., Reese, Haden, & Fivush, 1993), and because they were presumably old enough to have experienced identifiable life chapters (e.g., a preschool year). The majority of mothers (96%) and children (92%) were white, with the remainder reported as "other ethnicity." Mothers were highly educated, with 96% having completed a college degree or higher.

Procedure

Participants were recruited via information distributed through local school systems or via word of mouth and were paid for their participation. Mothers provided written consent at the outset of the study. Data collection took place either at children's homes or at a university

research laboratory, depending on mothers' preferences. The same researcher collected all of the data and the procedure was the same for all participants. First, mothers completed a short demographic questionnaire. Next, out of earshot of the child, they were told that they were going to be asked to talk with their child about life chapters, and before doing so should identify life chapters to discuss. Mothers were instructed:

Think back over the course of the child's life and identify four chapters in his or her life story. A chapter should describe an extended period of time in the child's life, lasting weeks, months or years, and may include information about people, locations and activities that were involved. For example, when doing this task for himself or herself, an adult might describe a life chapter focusing on his or her first year of college, a summer trip to Maine, or his or her marriage.

Mothers were told that they were allowed to choose chapters focusing on any topic or theme so long as they covered an extended time period lasting weeks, months, or years. The researcher reviewed mothers' chapter selections to ensure that they met these criteria. Mothers then wrote several sentences describing the chapters on a piece of paper to use as a cue during the conversation with their child in order to make sure the conversation went smoothly. Mothers also gave their child's age at the beginning and ending of the chapter or indicated that the chapter was still ongoing.

Next, mothers were instructed to select the two most recent chapters of the four to discuss with their child. They were provided with a digital audio recorder and instructed to discuss the two chapters in any way that they would naturally or normally talk with their child, with no time limit. The researcher left for the duration of the mother-child conversation, so that the

conversation could take place as naturally as possible. The session lasted approximately 30 minutes.

Coding

Mother-child conversations were transcribed verbatim, and trained coders coded all variables by hand from the transcriptions. To characterize the general topic of the chapters, a coder first identified six mutually exclusive topical categories by reading through the transcriptions. Each chapter was then scored as focusing on a time period associated with one of these categories: the child's preschool or kindergarten year, an activity (e.g., a sport season or other seasonal activity), moving to a new residence, a family vacation, the birth of a sibling, or other (e.g., an injury, care of a pet). To further assess content, each chapter was coded for the presence or absence of the following features: references to people (other than the child), locations, activities and emotion.

Prior to coding the conversations, off-topic talk (12% of conversational turns in the original transcriptions) and talk about the future (< 4% of conversational turns) was eliminated from the transcriptions, so that all analyzed speech pertained to the life story chapters. To evaluate the extent to which conversations referred to extended time periods versus specific episodes, mothers' and children's conversational turns were coded separately as referring to either "general" or "specific" memory, in a coding scheme adapted from Pillemer, Goldsmith, Panter, and White (1988). Conversational turns were coded as general if they focused on information or events that were part of the extended life story chapter but were not tied to a one-point-in-time event that took place at a particular date and time. For example, a turn might refer to repeated events that happened more than once or over the course of many days (e.g., learning

to ice skate, going to the library), or to other information that was part of the chapter as a whole (e.g., living in Maryland, liking butterflies). Conversational turns were coded as specific when they referred to events that were tied to a specific date and time that happened once during the course of a single day, usually characterizing a unique experience (e.g., making a gingerbread man in class, finding a monarch butterfly). If a conversational turn referred to a specific event but contained information associated with a general memory (e.g., the day we captured a monarch butterfly in our net when we lived in Maryland), it was coded as specific.

Mothers' and children's speech was also coded separately in a coding scheme adapted from past research on mother-child conversations about specific episodes (Fivush & Fromhoff, 1988; Leichtman, Camilleri, Pillemer, Amato-Wierda, Hogan, & Dongo, 2017; Leichtman, Pillemer, Wang, Koreishi, & Han, 2000; Reese & Fivush, 1993; Reese et al., 1993). Descriptions of mother and child conversational variables and examples of how they were coded are shown in Table 1. Each sentence mothers spoke (which included statements and questions) was coded as referring to one of the following mutually exclusive categories: memory/elaborative questions, yes/no questions, context statements or evaluations. A composite variable entitled *elaborativeness* was calculated by summing across these four categories.

In line with our central goal of assessing how well children could contribute to discussions of life chapters, and how this was related to mothers' elaborativeness, coding of children's speech focused on memory responses (Reese et al., 1993). Each sentence children spoke was coded as either a memory response—in which the child contributed new information to the conversation—or as a non-memory response, in which they did not. Non-memory responses included sentences in which the child provided an evaluation (e.g., confirming or

disconfirming information the mother provided without adding new information, for example by just saying yes or no) or in which they repeated previous content or made an observation without contributing new information.

One coder first coded all of the variables for the entire dataset. To assess reliability, an additional hypothesis-blind coder recoded the entire dataset. The interrater reliability estimate for specific vs. general memory was $\kappa = .75$, with 97% agreement for specific and 99% agreement for general. Interrater reliability for the *elaborativeness* variable was calculated by computing kappa across mutually exclusive categories including: memory/elaborative questions, yes/no questions, context statements, evaluations and other; $\kappa = .94$. Percent agreements were 96% for memory/elaborative questions, 99% for yes/no questions, 99% for context statements, and 98% for evaluations. Interrater reliability for children's memory responses was $\kappa = .90$, with 98% agreement for memory responses and 96% agreement for non-memory responses.

Results

All analyses reported below are based on transcriptions with off-topic talk and future talk removed, as described in the coding section. Chapter conversations for the two selected chapters combined ranged from 47-167 ($M = 83.22$, $SD = 33.87$) conversational turns for mothers and 41-163 ($M = 81.09$, $SD = 34.07$) conversational turns for children.

Chapter content. Analysis of chapter content indicated that the most common topic of focus was the preschool or kindergarten year (43%), followed by discussion of an activity (13%), moving to a new residence (13%), a family vacation (9%), the birth of a sibling (9%), or other (13%). Consistent with literature on adult's life story chapters (e.g., Thomsen et al., 2016), the

majority of conversations contained references to people other than the child (95%), specific locations (83%), and activities (87%). Many of the conversations (65%) also contained references to emotions.

In line with instructions to mothers to discuss chapters, on average 21.61 ($SD = 19.68$) or 25% of mothers' conversational turns and 16.43 ($SD = 15.14$) or 30% of children's memory responses referred to one-point-in-time events within chapters, while the remaining 75% of mothers' conversational turns and 70% of children's memory responses referred to general chapter information. All chapter conversations contained at least one conversational turn referring to a specific event. The first mention of a specific event occurred on average in the 15th conversational turn ($M = 14.95$, $SD = 13.26$; range 2-48). The mention of a specific event was first made by the mother in 57% (13/23) of transcriptions, and by the child in the remaining 43%.

Mothers provided estimates of the timing of chapters in the child's life, and identified whether or not chapters were ongoing. Based on this information, children were between 1 month and 78 months at the start of the chapters, $M = 53.37$, $SD = 15.97$ months. The majority (54%) of chapters began when children were between 48 and 60 months of age, i.e., when children were 4-5 years old, within 1-2 years of the time of the parent-child conversations. The duration of chapters was between 3 weeks and 6 years, with a mean of 12.61 months ($SD = 14.16$); the duration of the majority of the chapters (54%) was between 9 and 24 months. Mothers reported that 65% of chapters were ongoing, while 35% were completed. Ongoing chapters were on average longer in duration ($M = 15.54$ months) than completed chapters ($M = 7.13$ months), $t(44) = 1.98$, $p = .05$. There was no difference in children's ages at the start of ongoing and completed chapters, $t(44) = .73$, $p = .47$.

Mother-child conversational variables. In the following analyses of mother-child conversational variables, we collapsed across the two chapters that each dyad discussed. Mothers' speech ranged substantially in overall elaborativeness, and its subcomponents. Children also varied substantially in the degree to which they provided memory responses. (See Table 2 for means, standard deviations and ranges of mother and child variables.) Memory responses constituted 63% of children's conversational turns.

Subcomponents of mothers' elaborativeness were inter-correlated (in particular, mothers' memory/elaborative questions and yes/no questions), consistent with the concept of an "elaborative style" that researchers have documented in conversations about specific one-point-in-time past events. With the exception of context statements, each component of mothers' elaborativeness, as well as the composite elaborativeness variable, was also significantly positively correlated with children's memory responses (Table 3). This pattern of associations was similar when partial correlations were conducted controlling for the percentage of mothers' conversational turns that referred to a specific event memory, as opposed to general chapter information, suggesting that relationships between maternal conversational style and children's chapter memory performance were not dependent on the degree to which mothers questioned their children about particular episodes.

We then examined whether this pattern of results would hold when controlling for number of words in the conversation. The number of words in the entire parent-child conversation, including the speech of both mother and child, was calculated using Microsoft Word. In Study 1, number of words was highly correlated with number of mothers' conversational turns ($r = .51, p = .01$), and with mothers' elaborativeness ($r = .87, p < .001$).

Regarding sub-components of elaborativeness, number of words was not significantly correlated with memory/elaborative questions ($r = .09, p = .66$) or yes/no questions ($r = .34, p = .08$), but was significantly correlated with context statements ($r = .84, p < .001$) and evaluations ($r = .46, p = .03$).

We conducted a series of analyses examining relationships between mothers' conversational variables and children's memory responses controlling for the total number of words in the conversation. With number of words partialled out, correlations between mothers' elaborativeness and children's memory responses ($r = .24, p = .29$), yes/no questions and memory responses ($r = .32, p = .45$) and context statements and memory responses ($r = -.37, p = .09$) were not significant. In contrast, the correlation between mothers' memory/elaborative questions and children's memory responses remained significant ($r = .64, p < .001$), as did the correlation between mothers' evaluations and children's memory responses ($r = .64, p < .001$).

Discussion

The results of this exploratory study provided several important insights. First, mothers were able to engage their young children in discussions of life story chapters, and children participated by providing additional memory information. The selected chapters were about extended periods in the child's life defined by a number of different themes, with the preschool or kindergarten school year being particularly prominent. They included components such as discussion of people, locations, and activities that are similar to how the contents of life story chapters are described in the literature on adults.

In line with instructions to mothers to discuss children's life story chapters, the majority of the conversational turns within the mother-child conversations focused on general

information, including repeated events. This general discussion of chapter content was punctuated by references to one-point-in-time events, which constituted a quarter of the conversational turns for mothers and less than a third of children's memory responses.

Analyses of mother's elaborativeness and children's memory responses showed a pattern of results reminiscent of well-documented findings regarding parent-child conversations about specific memories. Mothers who engaged in more elaborative memory talk, including asking more memory/elaborative and yes/no questions, had children who provided more responses that contributed new chapter information. These results persisted in analyses controlling for the percentage of mothers' conversational turns that were focused on specific events within the chapters, suggesting that correlations between maternal conversational style and children's memory production were not a function of mothers shifting the focus to specific episodes rather than temporally extended chapters.

Study 2 explored whether these findings would replicate in a new sample of mothers and children, and included a comparison of conversations about life story chapters and specific past episodes.

Study 2

Study 2 investigated mother-child conversations about both a particular life chapter—the kindergarten year—and also a specific, one-point-in-time past event of the mother's choosing that occurred during the same general time period as the kindergarten chapter. Our first purpose was to examine the same variables in the chapter conversation as in Study 1 with a fresh sample of mothers and children and with an added degree of control. Since all mothers in Study 2 talked with their child about the same chapter of the child's life and the elapsed time since the chapter

occurred was roughly equivalent for all children, the potential impact of content differences was minimized. Further, because we selected children for the sample who were in the spring semester of first grade, we were assured that all children had completed the life story chapter their mothers discussed with them.

A second purpose of Study 2 was to compare the variables in the chapter conversation with the same variables in the specific event conversation. We were interested in the similarities and differences between the two conversations, including the extent to which the conversations would refer differentially to specific versus general memory information, and whether the relationship between mothers' conversational variables and children's memory responses would be similar in the two conversational contexts. We also examined whether mothers' conversational variables and children's memory responses would be correlated across the two conversations. Theorists have noted that while stable individual differences in parental elaboration when reminiscing about specific past events have been documented, these differences do not necessarily extend to conversations during other parent-child interactions, for example, while parents are engaged in playing or caregiving (Fivush et al., 2006; Haden & Fivush, 1996). Therefore, we were interested in whether individual differences would be consistent across conversations about chapters and specific memories.

Participants

Twenty-eight parents (26 mothers, 2 fathers) participated with their 6- to 7-year-old first grade children (8 boys, 20 girls; age *range* 78-92 months; $M = 86$, $SD = 3.50$). First graders were chosen for participation because they had all experienced and completed the same life chapter (kindergarten) with a similar delay interval. Two additional mother-child dyads initially took

part, but were eliminated before the data were coded due to the fact that the children were still in kindergarten. We included data from two fathers who returned recordings, despite the fact that we recruited only mothers (and for simplicity continue to refer to the participating parents as “mothers”). The majority of mothers and children (90% each) were white, with the remainder reported as Hispanic (7%) or “other ethnicity” (3%). Mothers were highly educated, with 90% having completed a college degree or higher.

Procedure

Participants were recruited via information distributed through local school systems or word of mouth and were paid for their participation. Mothers provided written consent at the outset of the study. Mothers who agreed to participate received a packet that included written step-by-step instructions on how to participate in the study, along with a digital recorder and instructions on how to use it.

All data collection took place in children's homes. Mothers were instructed to choose a moment that was convenient for them when they had a quiet time alone with their child to record two conversations. The packets for mothers contained three sealed envelopes, labeled “open first”, “open second” and “open third.” The envelope labeled “open first” contained instructions for the first conversation, which mothers were told to complete before opening the second envelope. The second envelope contained instructions for the second conversation, which mothers were told to complete before opening the third envelope. The two conversations mothers were asked to complete included the kindergarten chapter and a specific memory (“a particular event that was special or fun for your child”), following the protocol of previous research (e.g.,

Leichtman et al., 2017; Sahin-Acar & Leichtman, 2015; Wang, Leichtman & Davies, 2000).

Instructions to mothers for both conversations are presented in Appendix A.

The order of the conversations was counterbalanced across participants using random assignment so that half of participants received instructions to talk about the chapter first, and half received instructions to talk about the specific event first. The third envelope contained a brief demographic questionnaire.

Coding

Mother-child conversations were transcribed verbatim, and trained individuals coded all variables by hand from the transcriptions. Chapter conversations and specific event conversations were coded separately.

Chapter conversations. Coding of the chapter conversations was similar to coding in Study 1. All chapters focused on the kindergarten year of the child's life, as per instructions, so it was not necessary to further code the topic of the chapter. Each chapter was coded for descriptions of people, locations, activities and emotions, as in Study 1.

As in Study 1, off-topic speech (representing 2% of conversational turns in the original transcriptions) was eliminated from the transcriptions, so that all analyzed speech pertained to the kindergarten chapter. The conversations contained no talk about the future that required removal. Mothers' and children's conversational turns were coded separately as referring to either "general" or "specific" memory, using the same criteria as in Study 1.

Mothers' and children's speech was also coded separately using the same coding scheme as in Study 1 for the variables shown in Table 1 (e.g., mothers' elaborativeness and children's memory responses).

Specific event conversations. As in the protocol for coding the chapter conversations, before the specific event conversations were coded, off-topic talk (< 4% of conversational turns) and future event talk (< 2% of conversational turns) was eliminated. Coding of specific event conversations focused on similar variables as coding of the chapter conversations. Conversational turns were coded as either specific or general, and mothers' and children's conversational variables (e.g., elaborativeness, memory responses) shown in Table 1 were coded.

Interrater reliability. One coder first coded all of the variables for the entire dataset. To assess reliability, an additional hypothesis-blind coder coded 9 randomly-selected transcriptions (32%) each of the chapter and specific event conversations. Interrater reliability for specific vs. general memory was as follows: in the chapter conversation, kappa = .89, with 94% agreement on specific and 96% agreement on general; in the specific event conversation kappa = .87, with 99% agreement on specific and 96% agreement on general. Interrater reliability for the *elaborativeness* variable was again calculated by computing kappa across memory/elaborative questions, yes/no questions, context statements, evaluations and other. In the chapter conversation, reliability was kappa = .90; with 95% agreement for memory/elaborative questions, 97% for yes/no questions, 94% for context statements, and 92% for evaluations. In the specific event conversation, interrater agreement was kappa = .88; with 94% agreement for memory/elaborative questions, 95% for yes/no questions, 91% for context statements, and 94% for evaluations. Interrater reliability on the variable indexing children's memory responses in the chapter conversation was kappa = .91, with 97% agreement for memory responses and 94%

agreement for non-memory responses; in the specific event conversation it was $\kappa = .89$, with 98% agreement for memory responses and 96% agreement for non-memory responses.

Results

We first present results pertinent to the chapter conversations, followed by results pertinent to the specific event conversations, and finally comparisons of and correlations between variables in the two conversations. All reported statistics are based on analyses of transcriptions with off-topic and future talk removed. For examples of the chapter and specific event conversations, see Appendix B.

Chapter conversations. Chapter conversations ranged from 2-80 ($M = 30.11$, $SD = 18.69$) conversational turns for mothers and 5-86 ($M = 30.00$, $SD = 20.03$) conversational turns for children. All chapters focused on the child's kindergarten year, as per instructions. The majority of conversations contained references to people other than the child (83%), specific locations (83%), and activities (96%), and some also contained references to emotions (28%). In line with instructions to mothers to discuss chapters, on average 9.5 ($SD = 11.18$) or 31% of mothers' conversational turns and 7.11 ($SD = 8.34$) or 36% of children's memory responses referred to one-point-in-time events within chapters, while the majority (69% for mothers and 64% for children) referred to general chapter information. Although chapter conversations usually included some discussion of specific past events, several participants (4/28 or 14%) never referred to a specific event in their chapter conversation. Among those participants who did refer to a specific event during at least one conversational turn in the chapter conversation, the first mention of a specific event was on average at the 9th conversational turn ($M = 8.54$, $SD =$

5.01, *range* 1-18). In 62% of these transcriptions, it was the child who first mentioned the specific event, whereas in the remaining 38% it was the mother.

Turning to mother-child conversational variables, as in Study 1, mothers' speech in the chapter conversation ranged substantially in elaborativeness and its subcomponents. Children also varied substantially in the number of memory responses they gave. (See Table 4 for means, standard deviations and ranges of mother and child variables.)

The subcomponents of mothers' elaborativeness were all highly correlated with each other, suggesting an "elaborative style" in these chapter conversations. Each component of mothers' elaborativeness, as well as the composite elaborativeness variable, was also significantly positively correlated with children's memory responses (Table 5). These correlations remained highly significant in analyses partialling out the percentage of mothers' conversational turns that referred to specific events (all p 's < .01).

We then examined whether this pattern of results would hold when controlling for number of words in the conversation. The number of words in the entire parent-child conversation about the kindergarten life chapter, including the speech of both mother and child, was calculated using Microsoft Word. Number of words was highly correlated with mothers' conversational turns ($r = .86, p < .001$), and also with mothers' elaborativeness ($r = .89, p < .001$). Number of words was highly correlated with all subcomponents of elaborativeness, including: memory/elaborative questions ($r = .50, p = .007$), yes/no questions ($r = .75, p < .001$), context statements ($r = .89, p < .001$), and evaluations ($r = .77, p < .001$).

We ran a series of analyses examining correlations (in the kindergarten chapter conversation) between mothers' conversational variables and children's memory responses

controlling for the total number of words in the conversation. Correlations between almost all mothers' conversational variables and children's memory responses remained significant, including: mothers' elaborativeness ($r = .56, p = .003$), memory/elaborative questions ($r = .60, p = .001$), yes/no questions ($r = .59, p = .001$) and evaluations ($r = .47, p = .01$). The only exception was context statements ($r = .05, p = .80$).

Specific event conversations. Specific event conversations ranged from 5- 50 ($M = 19.89, SD = 12.02$) conversational turns for mothers and 4-52 ($M = 19.93, SD = 12.25$) conversational turns for children. Consistent with instructions given to participants, all conversations focused on a clearly identifiable specific past event (e.g., going to a birthday party, visiting the zoo), with the exception of one. Because this conversation did not meet the criteria for a specific event conversation, it was not coded, although the chapter conversation from the same dyad was included in the dataset. Thus, in all analyses that focus on the specific event conversation, the sample size was $N = 27$. In line with instructions to discuss specific events, on average 18.07 ($SD = 12.61$) or 91% of mothers' conversational turns and 11.67 ($SD = 8.24$) or 91% of children's memory responses referred to one-point-in-time events, while the remainder referred to general themes.

In terms of mother-child conversational variables, mothers' speech ranged substantially in overall elaborativeness and its subcomponents, in line with previous literature on mother-child discussions of past events (e.g., Leichtman et al., 2000). Children also varied substantially in the degree to which they provided memory responses. (See Table 4 for means, standard deviations and ranges of mother and child variables.)

The subcomponents of mothers' elaborativeness were almost all significantly correlated with each other, also consistent with previous findings. Each component of mothers' elaborativeness, as well as the composite elaborativeness variable, were again significantly positively correlated with children's memory responses, similar to the pattern in the chapter conversation (Table 5).

We then examined whether this pattern of results would hold when controlling for number of words in the conversation. The number of words in the entire parent-child conversation about the specific event, including the speech of both mother and child, was calculated using Microsoft Word. The number of words was highly correlated with mothers' conversational turns ($r = .74, p < .001$), and also with mothers' elaborativeness ($r = .85, p < .001$). Number of words was highly correlated with all subcomponents of elaborativeness, including: memory/elaborative questions ($r = .62, p = .001$), yes/no questions ($r = .56, p = .003$), context statements ($r = .76, p < .001$), and evaluations ($r = .74, p < .001$).

We conducted a series of analyses examining correlations between mothers' conversational variables and children's specific event memory responses controlling for the total number of words in the conversation. The relationship between mothers' elaborativeness and children's memory responses remained significant ($r = .66, p < .001$), as did the relationship between mothers' yes/no questions and children's memory responses ($r = .64, p < .001$). Relationships between mothers' memory/elaborative questions and children's memory responses ($r = .40, p = .055$), mothers' context statements and children's memory responses ($r = .16, p = .44$), and mothers' evaluations and children's memory responses ($r = .12, p = .57$) were no longer significant at the $p < .05$ level.

Comparison and relationship between conversations. To directly compare the chapter and specific event conversations, paired samples t-tests were run contrasting the same variables in each, including mothers' elaborativeness and its subcomponents and children's memory responses. Measured in conversational turns for mother and child combined, chapter conversations ($M = 61.22$, $SD = 38.68$) contained approximately one-third more turns than specific event conversations ($M = 39.81$, $SD = 24.15$), $t(26) = 4.28$, $p < .001$. Consistent with this difference, all elements of the conversations were significantly greater in the chapter conversation; see means in Table 4 (all p 's $< .01$). However, these differences all became non-significant when the same analyses were conducted using the ratio of each variable over conversational turns, all p 's $> .10$. For example, when elaborativeness/mother's total conversational turns in the chapter conversation was contrasted with elaborativeness/mother's total conversational turns in the specific event conversation, $t(26) = -.43$, $p = .67$, and when memory responses/children's total conversational turns in the chapter conversation were contrasted with memory responses/children's total conversational turns in the specific event conversation, $t(26) = -1.22$, $p = .23$, differences between the conversations were no longer apparent.

Correlations between identical variables in the chapter and specific event conversations were assessed and are displayed in Table 5. Mothers' memory/elaborative questions, yes/no questions, evaluations, context statements and overall elaborativeness were all highly correlated across the two conversations (all p 's $< .01$). Children's memory responses in the chapter and specific event conversations were also correlated ($r = .80$, $p < .001$), indicating high levels of consistency in the style of both conversational partners in the two conversational contexts.

Discussion

Results of Study 2 confirmed the pattern of findings established in Study 1, and provided further insight into the comparison between mother-child reminiscing conversations about chapters and specific events. Here, mothers and children again engaged in detailed chapter conversations, this time focusing on the child's kindergarten year, which on average contained more conversational turns than specific event conversations. Similar to chapter conversations in Study 1, dyads typically discussed the people, locations and activities that were part of the chapter, and the majority of conversational turns focused on general chapter information. In contrast, the majority of conversational turns in the specific event conversations focused on specific one-point-in-time memories, confirming that the focus of the two conversations was different.

Comparisons between the conversations indicated that once the number of conversational turns was taken into account, the mean levels of identical variables in the two conversations were similar. The components of mother's elaborativeness were closely associated with children's memory responses in both the chapter and specific event conversations. Further, mothers' elaborativeness was positively correlated in the chapter and specific event conversations, and children's memory responses also were positively correlated across the conversations.

General Discussion

Previous research has convincingly shown that parents differ in the degree to which they use an elaborative questioning strategy when talking with their preschool and kindergarten children about events that occurred in the child's personal past, and that parents' conversational style is a consistent predictor of children's memory performance (Fivush & Nelson, 2004; Fivush

et al., 2006; Wang, 2013). This work has focused almost exclusively on parent-child talk about circumscribed, one-moment-in-time events, but recent research on temporally extended past experiences reported by older children and adults indicates that life story chapters are also a familiar and integral component of autobiographical memory (Thomsen, 2015; Thomsen et al., 2016). Yet research on the development of autobiographical memory in early childhood has not targeted parent-child conversations about chapters in the child's life. Accordingly, the present two studies were designed as a first effort to describe the quality of parent-child talk about chapters, to examine correlations between parents' conversational styles and children's chapter memory performance, and to compare findings for chapters to findings when the conversational topic is memories of specific events.

When asked to discuss life story chapters in any way that seemed natural to them, mother-child pairs in Study 1 engaged in lengthy and detailed conversations where the focus was primarily on general chapter information rather than on specific events that had occurred within the chapter, and children readily provided new information about chapter content. Consistent with literature on adults' chapters (Thomsen, 2015; Thomsen et al., 2016), children's chapters frequently included information about locations, people, activities, and emotions. Components of parents' conversational styles identified in studies of specific memories (e.g., memory/elaborative questions, yes/no questions) could be reliably coded in chapter conversations. Consistent with our expectations, parental elaborativeness was strongly and positively associated with children's independent contributions to chapter memory discussions. This finding is consistent with the idea that children learn to think about the past as extended time periods through conversations with parents. Such conversations may also play a role in

structuring children's memory, such that temporally extended chapters come to provide an organizational structure for specific recollections (Conway & Pleydell-Pearce, 2000; Thomsen, 2015).

Study 2 included direct within-participant comparisons between conversations about a particular life story chapter (the kindergarten year) and a specific event (an event identified by the parent as special or fun for the child) that took place during that same period of the child's life. As in Study 1, parents and children engaged in extended conversations about the kindergarten life chapters. Indeed, conversations about life chapters contained more conversational turns than conversations about specific events, perhaps because life chapters by definition span a longer time period and have the potential to refer to multiple specific events and extensive general information. Correlations between parental elaborativeness and children's memory production were positive and highly significant for both the chapter and specific event conversations. In addition, parents who were highly elaborative when talking with their children about chapters also tended to be highly elaborative when talking with their children about specific events, and children's memory production was strongly and positively correlated across the chapter and specific event conversations.

In both Study 1 and Study 2, indices of parental elaboration were strongly correlated with the number of words spoken in parent-child chapter and memory conversations. This raises the question of whether associations between parental elaboration and children's memory responses are attributable primarily to the fact that high elaborative parent-child pairs simply talk more expansively than low elaborative parent-child pairs. The high correlations between parental elaboration and number of words is entirely consistent with the defining qualities of high

elaborative parents, who “talk a great deal about past events, asking many questions and providing a great deal of embellished detail”; in contrast, low elaborative parents engage in less expansive memory talk, “discussing the past in less detail and asking fewer and more redundant questions” (Fivush & Nelson, 2004, pp. 574-575). Because expansiveness is a defining feature of an elaborative parental conversational style, it is problematic conceptually to separate quality from quantity of talk in analyses of parent-child conversations about the past. Nevertheless, positive correlations between indices of parental elaboration and children's memory responses remained significant when controlling for the total number of words spoken, suggesting that amount of memory talk does not fully explain the observed correlations; particular qualities of an elaborative style, such as asking memory/elaborative questions and providing evaluations, also appear to be associated with children's more detailed and extensive memory responses.

The strikingly similar patterns of results for parent-child talk about life story chapters and talk about specific events have potentially important consequences for both memory theory and new research. Because prior research has focused on conversations about memories of pinpointed episodes in the child's personal life, parental elaborativeness has been portrayed as a way to promote in the child a conception of the self as “having a unique perspective, thus creating a truly personal past” (Fivush & Nelson, 2004, p. 576). In contrast, general memories, which do not target particular moments, “often imply social conventions and an individual's relation to significant others and the community, thus contributing to a sense of relatedness and belonging” (Wang, 2013, p. 77). By this reasoning, in the current studies a general memory of kindergarten, such as the daily activity of playing outside on school grounds, would not be expected to promote the same sense of uniqueness as would a specific memory of a particular

occurrence, such as the child winning a race or finally mastering the fear of going down the big slide.

Despite these apparent differences in underlying goals or functions of reminiscing about specific versus general experiences, Study 2 showed that relationships between parental elaborativeness and children's memory performance when talking about specific events were strikingly similar to relationships when talking about chapters: indeed, the correlation between the composite parental elaboration index for chapters and specific memories was a robust .81, and the correlation between children's memory responses, in which the child added new information to the conversation, across the chapter and specific event conversations was .80. These findings would seem to call into question the idea that the primary and distinctive function of elaborative parent-child memory talk is to promote specific autobiographical memories and a unique sense of self, since they demonstrate that this kind of talk also occurs in the context of more general reflections on a life chapter. However, another possibility is that reminiscing about specific events is not the only form of parent-child memory talk that serves the function of highlighting for children what is unique and special about themselves and their own histories. Chapters are a form of general memory that may also be important to forming a distinct and eventually mature sense of individual identity.

Cross-cultural studies have identified an association between elaborative parent-child conversations about specific past events and the degree to which a culture embraces individualistic versus collectivist values (Leichtman, Wang, & Pillemer, 2003; Pillemer, 1998; Sahin-Acar & Leichtman, 2015; Wang, 2001; 2013). Parents in individualistic cultures tend to engage in more elaborative questioning of their children during reminiscing, and the children's

personal memories are more detailed and self-focused, promoting the goal of independence. In contrast, parents' memory questioning in more collectivist cultures focuses less on specific details of the child's particular circumstances, instead emphasizing group processes, promoting the goal of interdependence. Our findings call into question the idea that cultural differences in parent-child memory talk are evident primarily because the focus is on unique personal episodes. They suggest that reminiscing about particular events may be only one component of a broader interactive style that encompasses memory talk about the self—whether the topic is a one-time occurrence or a broader description of the temporally extended events that comprise life story chapters. Although research has shown that individual differences in parents' elaboration do not extend across all conversational contexts (e.g., Fivush et al., 2006; Haden & Fivush, 1996), they may extend across more varied forms of reminiscing than researchers have typically considered. New cross-cultural studies could compare relationships between parental memory styles and children's memory performance when the discussions focus on life story chapters versus specific events. If cultural differences are still evident when the focus is on general rather than specific information, this would question the privileged status of specific memories in theories of autobiographical memory in general and cross-cultural differences in particular.

Another research strategy would involve comparing parent-child talk about specific events and temporally extended experiences that occurred in academic settings. Prior research has shown that when parents engage their preschool children in after school conversations about particular school activities that the child experienced firsthand, such as a surprise visit of a teacher and her newborn baby (Leichtman et al., 2000) or a special science demonstration about properties of light (Leichtman et al., 2017), high maternal elaborativeness is positively associated

children's memory for the event. Children could also be queried about temporally extended activities or "chapters" in the school year, such as a month-long ecology project in which seeds are planted and flowers are tended. Our findings suggest that an elaborative maternal conversational style will be positively associated with the richness of children's memory reports even when the focus is on temporally-extended learning activities in a group setting.

One potential limitation of the present studies is the use of homogeneous samples: most of the participating parents were white and college educated. In light of prior research showing cultural differences in maternal elaborativeness and in the detail and quality of self-representations in children's memories (Wang, 2013), further work with diverse populations is desirable. Although prior research has failed to find a relationship between maternal education and maternal elaborativeness (Fivush et al., 2006; Leichtman et al., 2017), the scope of future studies should also be broadened to include more socioeconomically diverse samples.

In conclusion, theories of autobiographical memory assign a key role to temporally extended lifetime periods or chapters (Barsalou, 1988; Brown et al., 2012; Conway & Pleydell-Pearce, 2000; Thomsen et al., 2016), yet prior developmental research and theory has focused almost exclusively on memories of specific past episodes. The present studies were designed as a starting point for new work on the origins and early development of life story chapter memories, especially as they are facilitated by conversations with parents. In light of recent research with adults showing that the emotional tone of life story chapters is more predictive of personality and self esteem than the emotional tone of specific memories (Steiner et al., 2017; Thomsen & Pillemer, 2017), deepening our understanding of how chapters develop could provide new

insights into how they contribute to both a coherent and continuous sense of self and psychological well being.

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Appendix A

Conversation Instructions for Parents

Instructions for the life story chapter conversation:

We would like you to have a conversation with your child about **a chapter in your child's life**. A chapter is an extended period of time in a person's life that lasts weeks, months or even years. The chapter we would like you to talk about today is: **the child's kindergarten year**. Take your time and discuss this chapter in any way you would naturally or normally talk with your child. There is no time limit and how you discuss the chapter is totally up to you.

Instructions for the specific event conversation:

We would like you to have a conversation with your child about a specific memory. A specific memory takes place on a particular occasion and lasts less than a day. Please select a specific event that your child experienced **during his or her kindergarten year**. The specific memory we would like you to talk about today is: **A particular event that was special or fun for your child**. Take your time and discuss this specific memory in any way you would naturally or normally talk with your child. There is no time limit and how you discuss the memory is totally up to you.

Appendix B

Sample Chapter and Specific Event Conversations

Chapter Conversation (Topic: The kindergarten year)

Mother: What were your favorite things about it?

Child: Well, about kindergarten, um, we, we did at, lots of activities together. Um, we, we had um, lots of animals that we have seen, like a butterfly, little chicks.

Mother: Yeah. I remember you talking about the little chicks.

Child: And we had play, like plants that we planted. And, and kindergarten was so cool.

Mother: It was so cool. Do you remember your friends in your class?

Child: Yeah. Sam, Katherine, um, Spencer, Lisa, Jack, um, I think that's all I can remember.

Mother: So I remember, I remember you talking a lot about "centers." What was centers?

Child: Well, we were building. There's a building blocks. We played games.

Mother: Did you do centers every day?

Child: Not always every day but some days.

Specific Event Conversation (Topic: A day at the beach)

Mother: What do you remember seeing?

Child: Um, we saw lots of seagulls and one almost stole my potato chips. And, well, he did steal my potato chip.

Mother: What did you do when we were on the beach? Did you guys boogie board or anything?

Child: We took our boogie boards and we rode on them. And then, and then when I didn't want to go on my boogie board anymore we dried off and then I played in the sand a little bit. And then my dad took me out in the water. And um, I didn't have my floaty on...well, I think I did have my floaty on. And he took me way into um, he took me like where the deep water was. Uh, but I had my floaty on. And, and I couldn't touch the ground. But I was floating and it was really deep.

Mother: Wow. So do you remember anything else that you saw or...?

Child: Well, another thing was that we were at the beach and it was going to start to rain...and then all of a sudden it brightened. The sun came out again.

Table 1

Mothers' and Children's Main Conversational Variables, Coded for Conversations about Life Story Chapter (Study 1) and Conversations about Chapter and Specific Event (Study 2)

Variable	Description	Example
Mothers' Variables		
(Mutually Exclusive):		
Memory/elaborative questions	Questions focusing on "what", "where", or "who"; open-ended; repetitions of the same question not counted	"What were some of the best parts of being in kindergarten?"
Yes/no questions	Questions requiring children to confirm or deny information; repetitions not counted	"Do you remember the beach house?"
Context statements	Statements requiring no response from the child; repetitions not counted	"I remember you telling me about that."
Evaluations	Statements confirming or disconfirming information provided by the child; repetitions not counted	"That's right."
(Composite):		
Elaborativeness	Composite measure equal to the sum of memory/elaborative questions, yes/no questions, context statements and evaluations	
Children's Variable		
Memory responses	Conversational turns in which the child provided new information or moved the conversation to a new aspect of the event	"We saw whales."

Table 2

Means, Standard Deviations and Ranges of Mothers' and Children's Main Conversational Variables, Collapsed across the Two Chapter Conversations (Study 1), N = 23

Variable	Mean	SD	Range
Mothers' Variables			
Memory/elaborative questions	23.30	12.79	0-51
Yes/no questions	44.26	21.11	14-103
Context statements	61.13	50.97	15-260
Evaluations	9.70	5.60	3-24
Elaborativeness ^a	138.39	62.19	60-303
Children's Variable			
Memory Responses	51.26	21.07	23-112

^aElaborativeness is a composite variable equal to the sum of memory/elaborative questions, yes/no questions, context statements and evaluations.

Table 3

Correlations between Mothers' Conversational Variables and Children's Memory Responses, Collapsed across the Two Chapter Conversations
(Study 1), $N = 23$

	1	2	3	4	5
1 Memory/elaborative questions					
2 Yes/no questions	.67**				
3 Context statements	-.21	.10			
4 Evaluations	.22	.23	.44*		
5 Elaborativeness	.28	.58**	.85**	.57**	
6 Memory Responses	.63**	.41*	.10	.70**	.42*

* $p < .05$, ** $p < .01$

Table 4

Means, Standard Deviations and Ranges of Mothers' and Children's Main Conversational Variables in the Life Story Chapter and Specific Event Conversations (Study 2), N = 28

Variable	Mean	SD	Range
Chapter Conversation			
Mothers' Variables			
Memory/elaborative questions	10.00	6.03	2-28
Yes/no questions	19.71	10.68	3-43
Context statements	20.57	20.24	2-94
Evaluations	7.04	6.86	0-31
Elaborativeness ^a	57.32	38.69	9-182
Children's Variable			
Memory Responses	19.54	15.16	4-65
Specific Event Conversation			
Mothers' Variables			
Memory/elaborative questions	7.41	5.66	1-25
Yes/no questions	13.74	8.42	2-37
Context statements	13.56	9.50	1-45
Evaluations	4.37	4.25	0-18
Elaborativeness ^a	39.07	22.02	8-101
Children's Variable			
Memory Responses	12.89	8.80	3-41

^aElaborativeness is a composite variable equal to the sum of memory/elaborative questions, yes/no questions, context statements and evaluations.

Table 5

Correlations between Mothers' Conversational Variables and Children's Memory Responses in Chapter and Specific Event Conversations (labeled SpEv), N = 28

	1	2	3	4	5	6	7	8	9	10	11
Memory/elaborative											
1 questions											
2 Yes/no questions	.69**										
3 Context statements	.40*	.77**									
4 Evaluations	.50**	.67**	.82**								
5 Elaborativeness	.65**	.91**	.95**	.87**							
6 Memory Responses	.67**	.85**	.82**	.82**	.91**						
Memory/elaborative											
7 questions <i>SpEv</i>	.77**	.51**	.34	.40*	.51**	.57**					
8 Yes/no questions <i>SpEv</i>	.80**	.69**	.36	.41*	.58**	.64**	.73**				
9 Context statements <i>SpEv</i>	.32	.60**	.85**	.71**	.78**	.64**	.42*	.39*			
10 Evaluations <i>SpEv</i>	.35	.49**	.61**	.67**	.63**	.67**	.33	.38*	.65**		
11 Elaborativeness <i>SpEv</i>	.71**	.75**	.71**	.69**	.81**	.80**	.78**	.81**	.82**	.71**	
12 Memory Responses <i>SpEv</i>	.60**	.72**	.66**	.65**	.75**	.80**	.70**	.76**	.70**	.68**	.91**

* $p < .05$, ** $p < .01$