CHILDREN’S MENTAL REPRESENTATIONS OF ATTACHMENT: ASSOCIATIONS WITH ATTACHMENT SECURITY AND PARENT-CHILD NARRATIVE QUALITY

BY

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DISSERTATION

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Abstract

The goal of this study was to examine the antecedents and correlates of children’s mental representations of attachment at 5 years (Attachment Story Completion Task, Bretherton, Ridgeway, & Cassidy, 1990; MacArthur Story Stem Battery, Bretherton, Oppenheim, Buchsbaum, Emde, & the MacArthur Narrative Group, 1990). Predictors included children’s attachment security with mothers and fathers assessed via the Attachment Q-Set (AQS, Waters, 1987) at 3 years, and parent-child narrative quality regarding positive and negative events at 5 years. Participants included 71 children and their mothers and fathers. Structural equation models (SEM) indicated that children’s attachment security exerted a significant indirect effect on children’s mental representations through parent-child narrative quality. Specifically, children’s attachment security with fathers was related to their mental representations via father-child reminiscing about positive events, and children’s attachment security with mothers was related to their mental representations via mother-child reminiscing about negative events. Results are discussed in terms of the development and implications of attachment relationships within the family context.
To my husband Chung and my loving family.
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Introduction

Bowlby and Ainsworth’s theory of attachment (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969/1982, 1973) highlights the influence of early, close parent-child relationships on children’s social-emotional development. A central premise of attachment theory concerns the development of internal working models of attachment relationships (Bowlby, 1969/1982, 1973). Borrowing from Freud’s (1940) and Craik’s (1943) conceptualization of internal representations, Bowlby (1969/1982, 1988) proposed that working models are mental representations that mirror the history of interactions between children and their caregivers and are hypothesized to influence children’s perceptions of self, others, and relationships (Bretherton & Munholland, 2008). For example, infants whose caregivers are sensitive and responsive are more likely to represent themselves as worthy of care and their caregivers as trustworthy and emotionally available. In contrast, infants whose caregivers are insensitive and unresponsive are more likely to represent themselves as unworthy of care and their caregivers as untrustworthy and emotionally unavailable, and thus develop a negative view of themselves and others.

Bowlby (1969/1982, 1973) argued that mental representations of secure attachment enable children’s extended explorations of the larger world beyond the family and their ability to endure prolonged separations from their caregivers, which is a central developmental task for children during the preschool and early kindergarten years (e.g., Sroufe, 1996). Although a few studies have explored correlates of children’s attachment representations (e.g., Bretherton, Ridgeway, & Cassidy, 1990; Oppenheim & Waters, 1995), evidence concerning influences on children’s development of these mental representations over time is still limited. The present study addressed this issue by examining two potential correlates of children’s mental
representations of attachment at 5 years of age: (1) attachment security at 3 years of age and (2) concurrent parent-child narrative quality. The unique and joint effects of these two variables on children’s mental representations of attachment were examined. The possibility that children’s attachment security might exert an indirect effect on children’s mental representations through parent-child narratives quality was also considered. These indirect pathways seem plausible given that children’s prior attachment security may both influence narrative quality, which may in turn be related to children’s mental representations of attachment. Thus, children’s attachment security might have both direct and indirect effects on the child’s mental representations of attachment.

Children’s Mental Representations of Attachment

Researchers have conceptualized children’s mental representations of attachment as a type of schema specific to parent-child relationships, containing abstract, generalized, and organized representations of experience (e.g., Bretherton & Munholland, 2008; Neisser, 1967). According to script theory, initial scripts are highly generalized and sparse, as infants form basic, fundamental expectations regarding the emotional availability of the caregiver based on their daily interactions (Farrar & Goodman, 1990). Beginning in the preschool years, advances in cognition and language promote the development of more elaborate and complex mental representations. Schemas are then organized hierarchically, such that more generalized representations (e.g., from early, sensorimotor period) are situated at the top of the hierarchy. The lower levels of the hierarchy involve more specific events, as well as events that deviate from the generalized representations (see Fivush, 2006). Some cognitive researchers have argued that the top, most generalized level of the hierarchy are more difficult to change (Fivush, Kuebli, & Clubb, 1992). This view is consistent with the prototype perspective of attachment theory,
such that early, non-linguistic forms of representation provide more stable, unchanging source of the representations, even though there is room for updating representations based on new experiences (Sroufe, 1979; Sroufe, Egeland, & Kreutzer, 1990; see also Fraley, 2002).

Few studies have actually examined children’s mental representations of attachment during infancy. In a recent study, Johnson, Dweck, and Chen (2007) presented video clips of animated ellipses (the larger ellipse represented the mother and the smaller ellipse represented the child) performing separations and reunions to infants whose attachment security/insecurity had been assessed using Strange Situation. In some of the separations/reunions the mother ellipse was unresponsive to the child’s bids, while in others the mother was responsive. Securely attached infants found it surprising that the mother ellipse was unresponsive to the bids of the child ellipse. In other words, these infants looked reliably longer at the unresponsive condition. In contrast, insecurely attached infants found it surprising that the mother ellipse had acted responsively (i.e., they looked reliably longer at the responsive condition). As such, there is some evidence supporting Bowlby’s claim that part of infants’ experiences with their caregivers are being reflected on their mental representations of relationships.

As children develop, their mental representations continue to guide their actions and help them understand and interpret others’ behaviors. With increasing age, advances in cognitive and linguistic capacities allow children to reflect on and discuss emotional experiences and behaviors related to their attachment relationships. Taking advantage of these cognitive and linguistic changes, researchers have used semi-projective methods such as the Attachment Story Completion Task (ASCT; Bretherton et al., 1990), and MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, et al., 1990) to assess children’s attachment representations. The ASCT includes five story stems (Spilled juice, Hurt knee, Monster in the bedroom, Departure, and
Reunion), each of which focuses on a slightly different attachment theme (i.e., mishap, pain, fear, separation, and reunion). The MSSB, developed after the ASCT, included these story stems (except Monster in the bedroom) as well as ten new story stems (e.g., Lost dog, Mothers’ headache, Gift for mom or dad, Three’s a Crowd, Hot soup, Parental quarrel, Stealing candy, Bathroom shelf, Child exclusion by parents, and The cookie jar). These story stems tap into issues such as children’s mental representations of attachment, compliance, and conflict. The assumption of these assessments is that children will project their beliefs and emotions regarding internalized representations about their relationships during doll play, which will reveal the way they process attachment and related information (Bretherton & Munholland, 2008). Depending on their focus, researchers have chosen story stems from the ASCT and the MSSB that best suit their needs and purposes at hand. In the present study, a combination of story stems most relevant to attachment was chosen from ASCT and MSSB to assess children’s mental representations of attachment.

Attachment researchers have proposed that children with positive mental representations of attachment have open access to their thoughts, feelings, and memories related to attachment. In contrast, children with negative mental representations have limited, distorted, or even biased access to their attachment related thoughts, feelings, and memories (e.g., Bretherton & Munholland, 2008). Past research has documented links between these projective measures and previous/concurrent assessments of children’s attachment security. It is possible that prior attachment security (based on sensorimotor representations) provides children with a foundation that organizes their thoughts and feelings regarding attachment relationships in a coherent way. In one study, concordance was found between secure/insecure classifications for the ASCT (measured at 37-months) and the Strange Situation (measured at 18-months) and the modified
Cassidy-Marvin Strange Situation (measured concurrently). The security ratings from the ASCT were also significantly correlated with AQS attachment security (measured at 25-months and concurrently) (Bretherton et al., 1990). Similarly, another study also documented significant association between security ratings from the ASCT (measured at 5-years) and AQS security (measured at 15-months) (Smeekens, Riksen-Walraven, & van Bakel, 2009). Moreover, children’s attachment behaviors during separations and reunions with their mothers in a preschool setting were significantly associated with more secure attachment representations using the Attachment Doll-play Interview. This interview is a story completion task similar to ASCT and MSSB. It involves separation, reunion, and other mildly distressing situations (Oppenheim, 1997). Besides these associations with other attachment measures, researchers have also documented that more secure responses on these semi-projective measures are related to a range of social-emotional outcomes including lower levels of internalizing behaviors (Verschuren & Marcoen, 1999), higher levels of peer competence (Smeekens et al., 2009), and higher levels of social adaptation and competence (Bureau & Moss, 2010; Verschuren & Marcoen, 1999).

*Children’s Attachment Security Assessed via the Attachment Q-Set*

The unique history of behavioral and emotional exchanges between the caregivers and children during infancy and early childhood provides a basis for children’s development of secure base relationships (e.g., Ainsworth et al., 1978; De Wolff & van IJzendoorn, 1997; Mangelsdorf & Brown, 2009; van IJzendoorn & De Wolff, 1997; see also Mangelsdorf, Gunnar, Kestenbaum, Lang, & Andreas, 1990; Wong, Mangelsdorf, Brown, Neff, & Schoppe-Sullivan, 2009 for examples of other child, parent, and family factors associated with attachment security). Securely attached children use their caregivers as a secure base for exploration and are effective
in seeking and maintaining proximity and contact from their caregivers when they are distressed (Ainsworth et al., 1978). Insecurely attached children show either low apparent desire for contact or interaction (i.e., avoidant), some angry, resisting behaviors in the context of proximity and/or contact (i.e., resistant), or may fail to use a coherent pattern of attachment behavior (i.e., disorganized) when they are distressed (Solomon & George, 2008). Unlike the Strange Situation (Ainsworth et al., 1978) or the Cassidy-Marvin system (Cassidy & Marvin, with the MacArthur Attachment Working Group, 1992), which assess children’s attachment security in a lab setting, the AQs (Waters, 1987) provides the means for assessing children’s secure base behaviors in more naturalistic settings such as the home. The purpose of this measure is to capture the smoothness of parent-child interaction and the organization and balance between proximity seeking and exploration (Posada, Waters, Crowell, & Lay, 1995). In past research, sorts have been completed by parents (usually mothers) or observers, but some researchers have cautioned about the sorts completed by parents because of potential biases (see van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004).

Previous research has documented associations between the AQs and Strange Situation during infancy as well as reunion-based assessments of attachment among preschoolers (van IJzendoorn et al., 2004). As mentioned before, some researchers reported significant associations between AQs security and children’s mental representations of attachment (e.g., Bretherton et al., 1990). Using data from Bretherton et al. (1990), Waters and colleagues recoded children’s responses during doll play using the script analysis approach and found significant association between AQs security and children’s scriptedness (Waters, Rodrigues, & Ridgeway, 1998). Based on prior studies, it was expected that children’s attachment security (assessed by AQs) would be associated with their mental representations of attachment (assessed by ASCT and
MSSB). Note that in previous studies, children’s attachment security with mothers, but not fathers, was examined. In this study, children’s attachment security with both mothers and fathers were included. Thus, the individual and cumulative effects of security with both parents could be examined.

**Parent-Child Narrative Quality**

During the first two years of life, infants’ mental representations of attachment are largely affective and nonverbal (Bretherton, 1991; Emde, 1983; Sroufe, 1990). As children enter preschool and kindergarten years, their cognitive and linguistic advancements allow them to represent their experience in more complex and sophisticated ways (Ainsworth, 1989; Crittenden, 1990). Through day-to-day interactions, children converse with their parents about here-and-now, past, and future events. Parent-child reminiscing, in particular, is an important form of social interaction (Bruner, 1997; Miller, Cho, & Bracey, 2005; Ochs & Capps, 2001; Shweder et al., 2006). Through the discussion of past events with their parents, children are provided with an opportunity to revisit their experiences and ultimately revise, reconstruct, and consolidate their understanding of self, others, and relationships (Miller, 1994; Miller & Mangelsdorf, 2005; Nelson, 2003; Stern, 1989; Thompson, 2000).

Parents’ guidance during reminiscing is especially important during the preschool and kindergarten years. A number of studies have documented individual differences in parents’ (primarily mothers’) narrative styles when they share past events with their children. Their narrative styles tend to be quite consistent with the same children (Reese, Haden, & Fivush, 1993) and have implications for children’s cognitive and social-emotional outcomes. For example, parents who are high in elaboration (i.e., provide rich details of past events by including descriptive and evaluative information and use statements and open-ended questions)
have children who report richer accounts of past events involving themselves and their families (Reese & Fivush, 1993). These children also adopt more elaborative narrative styles when they later engage in narratives outside their families (Haden, Haine, & Fivush, 1997). Moreover, a number of studies have found that mothers with elaborative narrative styles are more likely to have children who are securely attached (Bost et al., 2006; Fivush & Vasudeva, 2002; Laible, 2004; Laible & Thompson, 2000; Newcombe & Reese; 2004; Reese & Farrant, 2003). Children whose mothers have more elaborative narrative styles are also more likely to have better memory of past events (Belsky, Spritz, & Crnic, 1996; Reese & Farrant, 2003; Thompson, 2009). Some researchers have argued that elaboration reflects parental sensitivity within the context of parent-child reminiscing (Fivush, Haden, & Reese, 2006). By being elaborative and providing rich details, parents are highlighting the important emotional components of past events for their children and help them relate these events to their developing self-concepts (Fivush, 1994).

In addition to parental elaboration, researchers have documented other narrative qualities that are distinct in secure parent-child dyads. According to Bretherton and Munholland (2008), the communication style of secure parent-child dyads is flexible and open, such that securely attached children have open access to their thoughts, feelings, and memories related to attachment. In contrast, insecurely attached children have limited, distorted, or even biased access to their attachment related thoughts, feelings, and memories (see also Bowlby, 1988). Indeed, past research has documented that secure mother-child dyads engage in more open and coherent (Etzion-Carasso & Oppenheim, 2000; Pillemer, 1998; Thompson, 2000), mutually-balanced (Gini, Oppenheim, & Sagi-Schwartz, 2007), and emotionally matched (Oppenheim, Koren-Karie, & Sagi-Schwartz, 2007) communication than insecure mother-child dyads. Secure dyads also use more emotional references and evaluations (Laible & Thompson, 2000) and are
also more likely to discuss negative emotions when they discussed past events (Laible, 2004) than insecure dyads. Moreover, there is evidence suggesting that children who are securely attached have greater understanding of their emotions than children who are insecurely attached (Laible & Thompson, 1998; Ontai & Thompson, 2002; Steele, Steele, Croft, & Fonagy, 1999). It is possible that securely attached children can reflect on emotional messages parents convey in their conversations and develop a better sense of self and others through joint reminiscing. Taken together, there is evidence suggesting that higher narrative quality is associated with secure attachment. Therefore, it was expected that higher narrative quality of parent-child reminiscing would be associated with children’s attachment security as well as their mental representations of attachment. Previous research has documented that narratives about positive and negative experiences are related (Sales, Fivush, & Peterson, 2003) but yield distinct information regarding parent-child dyads (e.g., Laible & Song, 2006). Thus this study examined the discussion of positive and negative events separately, as it was thought that they might have differential associations with children’s mental representations. The continuity of children’s attachment security over time may be partly due to parents’ continuous effort in helping children understand their emotions through the discussion of past events (Thompson, 2006). As such, it was predicted that there would be an indirect effect from children’s attachment security to their mental representations through narrative quality assessed during parent-child reminiscing.

Role of Fathers

It is noteworthy that all of the studies to-date that examined the association between attachment and parent-child narratives about past events have focused exclusively on mother-child dyads. Given that researchers have noted that fathers today are more involved in caregiving than fathers of previous generations (Pleck & Masciadrelli, 2004) and father involvement is
associated with favorable child outcomes (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Marsiglio, Amato, Day, & Lamb, 2000), it is imperative to include fathers in research on young children’s social-emotional development. By including both mothers and fathers, the present study provides a more complete picture about the role of attachment and parent-child reminiscing styles within the family.

Summary and Research Questions

Attachment theory provides a useful framework to examine the influence of early, close parent-child relationships on children’s self-development. Based on the daily interactions with caregivers, children form mental representations of attachment. These representations may be related to children’s attachment security earlier, as well as to the narrative quality of parent-child reminiscing. Narrative quality, in particular, may contribute to the continuity of children’s attachment over time, such that children during the preschool and kindergarten years especially rely on their parents scaffolding of past events involving emotions to gain a better understanding of themselves, others, and their relationships. The following questions were examined in the present study: 1) Do children’s attachment security with mothers and fathers and the narrative quality of parent-child reminiscing jointly predict children’s mental representations of attachment? 2) Does children’s attachment security exert an indirect effect on their mental representations of attachment through parent-child narrative quality? 3) And finally, do the associations between attachment security and narrative quality, narrative quality and children’s mental representations, and children’s attachment security and their mental representations differ when examining children’s relationships with their mothers, and children’s relationships with their fathers?
Method

Research Design

The present study is part of an ongoing longitudinal study of children’s social-emotional development and family relationships that includes families from central Illinois. Families were recruited from childbirth preparation classes, community newsletters, and flyers. Participating families were also asked to give contact information for other families who might be interested in participating in this study. Couples were married or cohabitating at the time of participation. Some families participated in previous phases of this project \((n = 50)\), and some families were recruited explicitly for the 5-year-old phases of the longitudinal project \((n = 21)\). Families received a $25 gift certificate for a local retail store at each of these two time points for their participation.

Participants

There were 34 girls and 37 boys who participated in this investigation. Children on average were 3.09 years old \((SD = .10)\) during the 3-year-old assessment and 4.91 years old \((SD = .39)\) during the 5-year-old assessment. Mothers were on average 34.78 years old \((SD = 4.79)\) and fathers were 37.73 years old \((SD = 6.70)\) during the 5-year-old assessment. For mothers, 1% had only completed high school, 6% had completed some college, 46% had completed a Bachelor’s degree, 33% had completed a Master’s degree, and 14% had received a Ph.D. degree or equivalent. For fathers, 6% had completed some high school, 1% had only completed high school, 7% had completed some college, 33% had completed a Bachelor’s degree, 25% had completed a Master’s degree, and 28% had received a Ph.D. degree or equivalent. The average family income was within the $61,000 – 70,000 range. For mothers, 83% were European American, 9% were Asian American, 4% were African American, 3% were Latina, and 1% were
of mixed ethnicity. For fathers, 82% were European American, 9% were African American, 4% were Latino, 4% were Asian American, and 1% were of mixed ethnicity. Sixty-nine percent of mothers and 90% of fathers were employed. Mothers and fathers worked on average for 21-30 hours and 31-40 hours per week, respectively. When families who participated in both the 3-year-old and 5-year-old assessments and those who only participated in the 5-year-old assessment were compared on demographic variables, they did not differ except on fathers’ education. On average, fathers of families who were recruited at the 5-year-old assessment were slightly more educated than fathers of families who participated in both 3-year-old and 5-year-old assessments. Specifically, fathers who were recruited at the 5-year-old assessment had on average received a Master’s degree, and fathers who participated in both 3-year-old and 5-year-old assessments on average had received a Bachelor’s degree.

**Time 1: 3-year Home Visit**

**Procedure**

Families were scheduled for a home visit by two research assistants when their child was approximately 3 years of age. Prior to this visit, mothers and fathers were sent a packet of questionnaires asking them about themselves, their child, and their relationships. These questionnaire measures were collected at the home visit. Each home visit was approximately 2.5 hours long: the visit included a parent involvement interview, parent-child dyadic structured play and free time, triadic family interaction, and marital interaction. At the beginning of the visit, one parent participated in an hour-long interview assessing parental involvement while the other parent engaged in an assessment of the parent-child relationship. The parent-child relationship assessment began with a 15 minute period of structured play during which the parent was instructed to help the child with three puzzle sets for 15 minutes. During the remainder of the
time (approximately 45 minutes), the parent and child were free to interact however they liked. Parental involvement interviews and dyadic parent-child relationship assessments took place in separate areas of the house. When the first parent interview was completed, the procedure was repeated for the other parent and the child, with a new set of puzzles for the dyadic play. The order of parent interviews (mother or father) was counter-balanced. After the interview, the family (mother, father, and child) was reunited for a 15-minute semi-structured triadic interaction which involved building a playground with Lincoln Logs. Finally, parents completed a questionnaire together about their division of household tasks for about 15 minutes, while the child continued to play with the Lincoln Logs. The entire visit (except the parent interview) was videotaped.

Questionnaire Measures

Demographics. Mothers and fathers individually provided information about their age, education level, ethnicity, marital status, family income, and work hours (see Appendix A).

Observational Measures

Parent-child attachment security. The Attachment Q-Set (AQS; Waters, 1987) was used to assess children’s secure-base behaviors and attachment security with mothers and fathers. It contains 90 statements about how effectively a child uses the caregiver as a secure base for exploration and safe haven when distressed (see Ainsworth & Marvin, 1995). After reviewing the videotaped recording of the dyadic parent-child relationship assessment, triadic interaction, and marital interaction, two trained observers sorted the items along a continuum ranging from 1 (least descriptive) to 9 (most descriptive) of the child’s behaviors with each parent, according to a 9-category fixed square distribution (i.e., 10 items in each of 9 categories), with the “score” for a particular item being the category (i.e., 1 to 9) in which it was placed (see Appendix B). The
child’s AQS security with mothers and fathers were rated by independent observers. AQS security scores to mothers and fathers were computed separately by correlating the child’s Q-sort scores with those for a hypothetical “very securely attached” child (see Waters & Deane, 1985). The AQS has been used in a wide variety of contexts and age groups as a valid measure of attachment security which indexes children’s secure-base behavior organized around a specific caregiver (Vaughn & Waters, 1990). In the present study, two raters overlapped on 14 cases for mothers and 28 cases for fathers and achieved satisfactory inter-rater reliability (Intraclass correlations [ICCs] were = .78 for mothers and fathers).

Time 2: 5-year Home Visit

Procedure

Families were scheduled for an evening home visit by two research assistants when their child was approximately 5 years of age. Prior to this visit, mothers and fathers were sent a packet of questionnaires asking them about themselves, their child, and their relationships. These questionnaire measures were collected at the home visit. Each visit was approximately 2.5 to 3 hours long, which included language and temperament assessments, story completion, parent-child reminiscing, family dinner, and triadic and marital interactions. At the beginning of the visit, a research assistant administered a 10-minute language assessment and 25-minute story completion game to the child in a separate room. Meanwhile, parents independently wrote down 3 areas of disagreement they had regarding child rearing, and were asked to discuss two of the areas (15 minutes). Later, the child was united with one parent to talk about two past events involving both of them, which took approximately 5-10 minutes. The family then had dinner. After dinner, a research assistant administered the temperament assessment to the child, which involved a series of games (20 minutes). The child was then reunited with the other parent to talk
about two past events. Finally, parents and child gathered together for family interaction, which involved Lego building (10 minutes) and family drawing (10 minutes). The entire visit (except the language assessment) was videotaped.

**Questionnaire Measures**

**Demographics.** Mothers and fathers individually provided information about their age, education level, ethnicity, marital status, family income, and work hours (see Appendix C).

**Observational Measures**

**Story completion task.** A total of four story-stems (Hot soup, Monster in the bedroom, Departure, and Reunion) were presented to the child to elicit narratives regarding attachment behavior toward caregivers (see Table 1). These story-stems were selected from the Attachment Story Completion Task (ASCT; Bretherton et al., 1990) and MacArthur Story-Stem Battery (MSSB; Bretherton, Oppenheim, et al., 1990). Stories were presented using wooden dolls and props, including a mother, father, grandmother, child, and sibling. The child doll was the same gender and ethnicity as the target child. Before administering the story stems, the research assistant invited the child to play the story completion game together, such that the research assistant would begin stories and the child would finish them. The child was first presented with a warm-up story about a birthday party with a pleasant but non-attachment related theme. The child was then presented with the rest of the attachment-related story-stems and asked “show me and tell me what happens next.” Non-directive questions such as “Does anything else happen in the story?” or “What are they doing?” were used to facilitate the child’s production of narratives. The story ended when the child indicates that he/she was finished with the story. When appropriate, the research assistant asked the child “How does the story end?”
The child’s responses were transcribed and coded by two raters based on the adaptations of the coding systems developed by the MacArthur Narrative Workgroup (Oppenheim, Nir, Warren, & Emde, 1997; Warren, 2003). Given the focus of the present study, the continuous scales of coherence (how unified the story was) and security (how effectively the child addressed the major issues in the story and used the parents as secure base) were used in the analyses (see Appendix D). Two raters overlapped on over 25% of the coding and achieved satisfactory interrater agreement (Gammas ranged from .90 to 1.00, $M = .96$; ICCs ranged from .91 to .98, $M = .94$). In this study, Gammas are presented because they take chance agreement into account (similar to Cohen's Kappa) and are more appropriate for use with ordinal rating scale data (see Hays, 1981; L. Hubert, personal communication, January 21, 2009; Liebetrau, 1983). The coherence and security scales were used to create a latent variable of children’s mental representations of attachment. The two scales were highly correlated ($r = .94, p < .001$).

*Parent-child reminiscing.* Mothers and fathers individually engaged their child in a conversation about one positive and one negative event that involved both of them. Parents were asked to select events that happened within the past two weeks and help the child remember these events in as natural a way as possible (see Fivush & Fromhoff, 1988; Laible & Song, 2006). There was no time limit on this task, but on average parents and children took 5-10 minutes to complete reminiscing. All conversations were videotaped and transcribed. The parent, child, dyadic, and narrative codes are presented below. Most of the codes were adapted from “The Joint Story Telling (JST) Task Scales” (Gini, Oppenheim, & Haimovich, 2002) and the adapted version for preschool children (Gini, 2005). A description of these codes can be found in Gini et al. (2007) (see also Appendix D). The JST task originally involves having a child and his/her
mother read a picture book together, but the coding scheme is highly applicable to the context of parent-child reminiscing (M. Gini, personal communication, August 15, 2009).

**Parental codes.** Mothers’ and fathers’ elaboration (the extent to which parent provides high amounts of background detail and use open-ended questions to elicit responses from child, see Fivush & Fromhoff, 1988), emotion validation (the extent to which parent validates child’s perspective, feelings, and action, see Waters et al., 2010), warmth and positive affect (amount and intensity of parental verbal and non-verbal positive affect toward the child, see Gini et al., 2002), interest in the child (how well parent attends to and focuses on the child, see Gini et al., 2002), and rejection/hostility (verbal and non-verbal hostility or derogation exhibited towards the child, see Gini et al., 2002) were coded. All these scales were coded on 5-point scales except for rejection/hostility, which was coded on a 7-point scale.

**Child codes.** These codes included avoidance/evasion (the frequency in which child avoids the topic of discussion by changing the topic, saying “I don’t know” or “I don’t remember”, and verbally or physically refusing to continue the conversation with parent, adapted from McCabe & Peterson, 1991, see also Waters et al., 2010), warmth and positive affect (amount and intensity of verbal and non-verbal positive affect toward the parent, see Gini et al., 2002), cooperation and responsiveness (how well the child provides initiative and emotional investment in contributing to the narratives, and eagerness and willingness to engage with the parent, see Gini et al., 2002), and anger/hostility (verbal and non-verbal expressions of negative emotions such as anger, dislike, irritation, or hostility expressed toward the parent, see Gini et al., 2002). Cooperation and responsiveness was rated on a 5-point scale and anger/hostility was rated on a 7-point scale.
Dyadic codes. These codes were based on Gini (2005) and Gini et al. (2002) and included the level of intersubjectivity (extent to which parent and child join forces to co-construct the narratives and share a common frame-of-mind while completing the task), mutuality of dyadic communication (extent to which parent-child dialogue is mutual, fluent, and emotionally open), and level of dyadic collaboration (extent to which both parent and child contribute to the co-construction of narratives). Both intersubjectivity and mutuality of dyadic communication were rated on 5-point scales, and level of dyadic collaboration was rated on a 4-point scale.

Narrative code. The coherence scale referred to the clarity of the discourse (e.g., who, what, where, when, and why about the event) and whether the discussion was on-topic (see Laible, 2004). This code was rated on a 5-point scale.

Two raters overlapped on 20% of the coding and achieved satisfactory interrater agreement, with one exception: the reliability for avoidance/evasion was low for mother-child reminiscing about positive event (Gamma = .57). Thus this scale was removed from subsequent analyses. For parent-child discussion of a positive event, Gammas ranged from .68 to 1.00 ($M = .82$) for mother-child reminiscing and .73 to 1.00 ($M = .92$) for father-child reminiscing. For the discussion of a negative event, Gammas ranged from .71 to 1.00 ($M = .89$) for mother-child reminiscing and .69 to .97 ($M = .81$) for father-child reminiscing. ICCs ranged from .69 to .93 ($M = .79$) for mother-child discussion of a positive event, .64 to .91 ($M = .83$) for father-child discussion of a positive event, .64 to 1.00 ($M = .81$) for mother-child discussion of a negative event, and .64 to .93 ($M = .83$) for father-child discussion of a negative event.

To reduce the number of variables, principal component analyses (PCAs) with varimax rotations were conducted separately for mother-child and father-child discussion of positive and negative events. In total, 4 PCAs were conducted and 3 very similar components emerged for
each of the PCAs. For mother-child reminiscing about a positive event, the first component explained 47.45% of variance and was comprised of parent elaboration, emotion validation, interest, child cooperation and responsiveness, intersubjectivity, mutuality of dyadic communication, collaboration, and coherence. The second component explained 15.08% of variance and was comprised of parent rejection/hostility and child anger/hostility. The third component explained 13.33% of variance and was comprised of parent and child warmth. For father-child reminiscing about a positive event a similar three factor solution emerged with the same variables loading on each component as they had for mothers. For fathers the first component explained 46.35% of variance. The second component explained 17.91% of variance, and the third component explained 17.08% of variance. Scales with factor loadings of .55 and higher were combined into composite variables. The first composite, quality of interaction, was created separately for mothers and fathers by summing the standardized scores of parent elaboration, emotion validation, interest, child cooperation and responsiveness, intersubjectivity, mutuality of dyadic communication, collaboration, and coherence. The second composite, parent-child negative affect, was created by summing the standardized scores of parent rejection/hostility and child anger/hostility. The third composite, parent-child positive affect, was created by summing the standardized scores of parent and child warmth.

For mother-child reminiscing about a negative event, the first component explained 37.40% of variance and was comprised of parent elaboration, emotion validation, interest, child cooperation and responsiveness, intersubjectivity, mutuality of dyadic communication, collaboration, and coherence. The second component explained 22.87% of variance and was comprised of parent rejection/hostility and child anger/hostility. The third component explained 15.70% of variance and was comprised of parent and child warmth. For father-child reminiscing
about a negative event a similar three factor solution emerged. The first component explained 46.84% of variance. The second component explained 17.02% of variance, and the third component explained 15.50% of variance. Again, scales with factor loadings of .55 and higher were combined into composite variables. The first composite, quality of interaction, was created separately for mothers and fathers by summing the standardized scores of parent elaboration, emotion validation, interest, child cooperation and responsiveness, intersubjectivity, mutuality of dyadic communication, collaboration, and coherence. The second composite, parent-child negative affect, was created by summing the standardized scores of parent rejection/hostility and child anger/hostility. The third composite, parent-child positive affect, was created by summing the standardized scores of parent and child warmth.

The intercorrelations among the quality of interaction, and parent-child positive and negative affect for reminiscing about positive and negative events are presented in Table 2. These associations were largely significant within positive (absolute $r$’s range from .15 to .50) and negative (absolute $r$’s range from .16 to .55) events. To further reduce the number of variables, four composite variables were created to represent the overall narrative quality, by taking the mean of the quality of interaction, positive affect and negative affect (original scores reverse-coded) for mother-child and father-child reminiscing about positive and negative events. The alphas of these composite variables ranged from .91 to .93 ($M = .92$).

Language assessment. The Expressive Vocabulary Test Version 2 (EVT-2; Williams, 2007), which assesses children’s expressive vocabulary and word retrieval, was presented as a game to the child. For each item, the research assistant presented a picture and read a stimulus question (e.g., What is this?), and the child was asked to respond with a one-word answer. When the child gave a correct answer, the examiner reinforced the correct response by saying “That’s
right! This is a _______.” If the child responded incorrectly or said “I don’t know” after prompting, the examiner will say “I think this is a _______. That’s okay. Let’s see the next picture.” The child’s responses were recorded on a scoring sheet by the research assistant. To establish basal the child needed to get 5 consecutive correct items, and to establish ceiling the child needed to give 5 consecutive incorrect items. Scores based on the norms provided by the Assist software purchased with the test, taking child gender into account, were computed for each child. The standard scores were used in the present study in order to examine the effects of children’s language ability on both parent-child narrative quality and on children’s mental representations of attachment.
Results

Analyses were conducted in several steps. First, data imputation methods were used to deal with missing values. Second, preliminary analyses were used to examine associations among demographic variables, dependent variable, and independent variables. Child gender and parent gender effects were also examined. Third, descriptive statistics for the means and standard deviations were presented. Correlational analyses were conducted to examine associations for all variables. Finally, structural equation models (SEM) were used to examine the unique and joint effects of children’s attachment security with mothers and fathers (assessed by AQS) and parent-child narrative quality on children’s mental representations of attachment. These models also examined the indirect effects of children’s attachment security on their mental representations of attachment via narrative quality.

Treatment of Missing Data

Out of the 71 families who participated in this study, 50 families participated in the 3-year-old and 5-year-old assessments, and 21 families participated in only the 5-year-old assessment. As such, children’s AQS scores were missing for these families. For the families who participated in both assessments, only 47 AQS scores to mothers and 46 AQS scores to fathers were available because of coding issues. The data were mostly missing at random, thus it is safe to assume that the association between AQS and other study measures was the same for children who did and did not have the AQS scores (K. Grimm, personal communication, November 8, 2010), and that multiple imputation is appropriate (C. Anderson, personal communication, November 9, 2010). Multiple imputation has advantages over older methods of dealing with missing data such as case deletion, mean substitution, and single imputation. It makes use of the associations among all variables to impute missing data with high precision and
solves the problem of uncertainty by producing different plausible versions of the complete data (see Schafer & Graham, 2002). As such, this method was used to generate multiple simulated values for the missing AQS data points (Schafer, 1999). NORM (Schafer, 2000), which uses an expectation-maximization (EM) algorithm to generate start values for the replacement of missing data, is used in the present study. To preserve relationships among the study variables, the imputation model includes the demographic variables (e.g., child gender, child age, mother and father age, education, and work hours, family income), predictor variables (e.g., children’s AQS security scores, parent-child narrative quality of reminiscing about positive and negative events), and dependent variables (children’s coherence and security of their mental representations of attachment). The percentage of missingness was computed for all the variables included in the imputation model. Although the percentages of missingness was 33.8% and 35.2% for children’s AQS security scores with mothers and fathers, other percentages were low for the rest of the variables, and the average percentage of missingness across all the variables was 4.8%. The efficiency associated with three imputed data sets was 97% for data with 10% of missingness (Rubin, 1987), and thus three imputations were sufficient given that less than 5% of data was missing overall in the present study. Analyses were then conducted with each imputed data set, and the results presented below were based on the average across the three data sets.

**Associations with Demographic Variables**

Preliminary analyses examined whether demographic variables such as parent age, education, work hours, and family income were related to children’s attachment representations (coherence and security). None of the associations were significant. Next, the associations between the demographic variables and independent variables (including children’s AQS with mothers and fathers, mother-child and father-child reminiscing quality for positive and negative
events, and children’s language ability) were examined. Significant associations emerged for children’s language ability, such that greater language ability was associated with higher parent age, education and family income. In addition, the effect of child gender was also examined and the results of t-tests indicated that boys and girls did not differ on their mental representations of attachment, father-child quality of reminiscing, and language ability. However, girls scored higher than boys on the quality of mother-child reminiscing about positive events, $t(69) = 3.57, p = .001$, and negative events, $t(69) = 2.64, p = .01$. In order to explore this child gender difference more fully, the composite variables were decomposed to see which of the reminiscing scales were responsible for such gender differences.

Twelve 2 (parent gender) × 2 (child gender) × 2 (types of event) MANOVAs were conducted on the different parent-child reminiscing scales (see Appendix E). There was a parent gender main effect for parental rejection/hostility, $F(1, 68) = 6.45, p < .05$, such that mothers showed more rejection/hostility than fathers. There were significant child gender main effects for parental elaboration, $F(1, 68) = 4.75, p < .05$, warmth and positive affect, $F(1, 67) = 4.91, p < .05$, and interest in the child, $F(1, 68) = 4.19, p < .05$, such that parents were more elaborative, displayed more warmth/positive affect and interest toward their daughters than their sons. There were types of event main effects for parental elaboration, $F(1, 68) = 6.30, p < .05$, emotion validation, $F(1, 68) = 11.03, p = .001$, warmth and positive affect, $F(1, 67) = 12.46, p = .001$, rejection/hostility, $F(1, 68) = 5.23, p < .05$, child cooperation/responsiveness, $F(1, 68) = 6.60, p < .05$, anger/hostility, $F(1, 68) = 12.00, p = .001$, dyadic intersubjectivity, $F(1, 68) = 13.03, p = .001$, mutuality of communication, $F(1, 68) = 13.30, p = .001$, and level of collaboration, $F(1, 68) = 8.10, p < .01$, such that parents and children scored higher on these scales when positive event was discussed (with the exception of parental rejection/hostility and child anger/hostility).
For child warmth and positive affect, there was a significant child gender X event interaction, $F(1, 67) = 4.76, p < .05$, such that girls displayed more warmth/positive affect during the discussion of positive events, and boys did not differentiate between the types of event. Finally, there were significant parent gender X child gender interactions for child cooperation/responsiveness, $F(1, 68) = 8.20, p < .01$, dyadic intersubjectivity, $F(1, 68) = 6.88, p = .01$, communication, $F(1, 68) = 6.77, p = .01$, and coherence, $F(1, 68) = 3.84, p = .05$. Girls were more cooperative toward their mothers, and boys were more cooperative toward their fathers. Mother-daughter dyads were higher on intersubjectivity, communication, and coherence than other parent-child dyads.

Fishers’ $r$-to-$z$ transformations were used to examine whether boys and girls differed on their AQS security with mothers and fathers. These scores did not differ as a function of child gender. Finally, the effect of parent gender was also examined, and the results of paired sample t-tests indicated that there were no significant differences between mother-child and father-child reminiscing quality about positive and negative events, and children’s AQS security with mothers and fathers.

**Associations among Predictor and Outcome Variables**

Descriptive statistics and inter-correlations among the predictor and outcome variables are presented in Tables 3 and 4 (without data imputation) and Tables 5 and 6 (with data imputation), respectively. Based on the imputed data, children’s coherent representations were associated with the security of their mental representations ($r(71) = .94, p < .001$), mother-child and father-child reminiscing quality about positive events ($r(71) = .27, p < .05$ and $r(71) = .35, p < .01$) and negative events ($r(71) = .25, p < .05$ and $r(71) = .30, p < .01$), and language ability ($r(71) = .30, p < .01$). Children’s secure representations were associated with mother-child and
father-child reminiscing quality about positive events \( (r(71) = .23, p < .05 \text{ and } r(71) = .27, p < .05) \), and children’s language ability \( (r(71) = .23, p < .05) \). Children’s coherent and secure representations were not associated with their AQS security. Children’s AQS security with mothers was associated with mother-child reminiscing about negative events \( (r(71) = .30, p < .01) \). Their security with fathers was associated with father-child reminiscing about positive \( (r(71) = .23, p < .05) \) and negative events \( (r(71) = .29, p < .01) \). Children’s AQS security with mothers and fathers were significantly associated \( (r(71) = .40, p < .001) \). Within parents, the association between the quality of reminiscing for positive and negative events was positive and significant \( (r(71) = .84, p < .001 \text{ for mothers and } r(71) = .85, p < .001 \text{ for fathers}) \). The associations between mothers’ and fathers’ quality of reminiscing (across both positive and negative events) was significantly positively correlated \( (r(71) = .45, p < .001 \text{ for positive events, } r(71) = .53, p < .001 \text{ for negative events}) \).

**Structural Equation Models Predicting Children’s Mental Representations**

Structural equation models (SEM) were used to examine the unique and joint effects of children’s AQS security to mothers and fathers and parent-child reminiscing quality about positive and negative events on children’s mental representations of attachment. These models also examined the indirect effects of children’s secure base behaviors on their mental representations of attachment via the reminiscing quality. The SEM method is preferred over other methods because it estimates all the parameters for the hypothesized model by specifying the direct and indirect paths. Two structural equation models with maximum likelihood estimates were estimated for children’s mental representations of attachment. A latent variable was created for children’s mental representations (indicated by the doll play coherence and security scores). In both models, children’s AQS security with mothers and fathers, mother-child and father-child
narrative quality, and children’s language ability were included. One model estimated the effects of reminiscing positive event, and the other estimated that of negative event. Error terms were included for all the exogenous variables. Children’s language ability was allowed to covary with children’s AQS security as well as the error variances of parent-child reminiscing, although these covariances were not shown in the figures for the ease of presentation. Indirect paths were drawn from children’s AQS security with parent-child reminiscing quality, and from parent-child reminiscing quality to children’s mental representations. Direct paths from children’s AQS security with children’s mental representations were also included. We tested these direct and indirect paths by bootstrapping to estimate the standard errors as well as bias-corrected confidence intervals (90%). Several researchers (e.g., Preacher & Hayes, 2004; Williams & MacKinnon, 2008) have argued that bootstrapping is a more powerful method for examining intervening variable effects. This method has advantages over other methods as it requires no assumption about the normality of distribution and can be applied to small samples.

For the model estimating children’s mental representations with parent-child reminiscing for positive events, the estimated mediation model had a good fit to the observed data, $\chi^2 (4) = .102, p = .91$, CFI = 1.00, RMSEA = .00 (see Hu & Bentler, 1999 for a discussion of model fit indices). All the standardized estimates are presented in Figure 1. The association between children’s AQS security and parent-child reminiscing quality was significant for fathers, and approached significance for mothers. Fathers-child reminiscing quality was significantly associated with children’s mental representations. The association between children’s language ability and their mental representations approached significance. Results of bootstrapping suggested that none of the direct effects from children’s AQS security to their mental representations were significant. The indirect effect from children’s AQS security with fathers to
mental representations was significant, however, at two-tailed $p = .03$. Unlike a mediated effect, which is a special case of an indirect effect, a significant indirect effect does not require the direct effect to be significant (see Hayes, 2009 for a discussion of testing direct and indirect effects). In this case, our results indicated a significant indirect effect from children’s AQS security with fathers to their mental representations of attachment through the quality of father-child reminiscing about positive events.

For the model estimating children’s mental representations with parent-child reminiscing quality for negative events, the estimated mediation model had a good fit to the observed data, $\chi^2(4) = 1.93, p = .75$, CFI = 1.00, RMSEA = .00. All the standardized estimates are presented in Figure 2. The associations between AQS security and parent-child reminiscing quality were significant for mothers and fathers. Mother-child reminiscing quality was significantly associated with children’s mental representations. Results of bootstrapping suggested that none of the direct effects from children’s AQS security to their mental representations were significant. The indirect effect from children’s AQS security with mothers to children’s mental representations was significant at two-tailed $p = .04$. In other words, there was a significant indirect effect from children’s AQS security with mothers to their mental representations of attachment through the quality of mother-child reminiscing about negative event.

Follow-up Analyses

To explore the joint effects of children’s AQS security with mothers and fathers, an AQS security with mothers X AQS security with fathers interaction term was created and tested in an SEM model. No significant interaction effect was found.

In the preliminary analyses, it was found that mother-child reminiscing quality for positive and negative events was higher for girls than for boys. As such, child gender was
examined as a moderator for the association between parent-child reminiscing quality and children’s mental representations of attachment. Out of the 4 interaction terms (i.e., child gender X mother-child reminiscing about positive event, child gender X father-child reminiscing about positive event, child gender X mother-child reminiscing about negative event, and child gender X father-child reminiscing about negative event), none of them were significant.

Finally, to explore whether predictor-outcome associations differed across mothers and fathers, paths for a given predictor were constrained to be equivalent (e.g., paths from children’s AQS security with mothers to children’s mental representations and children’s AQS security with fathers to children’s mental representations were constrained to be equal). Model fit was examined to see whether it did significantly improve when the paths to mother and father outcomes were free to vary versus constrained. Results indicated that the path coefficients were similar for mothers and fathers. Out of the 6 comparisons made, model fit did not improve in any cases, and $p$-values were all non-significant for the $\chi^2_{\text{diff}}$ statistics. As such, the associations among children’s attachment security, parent-child narrative quality, and mental representations of attachment were similar for mothers and fathers.
Discussion

The present study examined the unique and joint contributions of children’s attachment security with mothers and fathers, and the quality parent-child reminiscing about positive and negative events, to children’s mental representations of attachment. Although there were no significant direct effects from children’s attachment security at 3 years to their mental representations at 5 years, there were significant indirect effects from children’s attachment security to their mental representations via parent-child narrative quality. Specifically, children’s attachment security with mothers exerted an indirect effect on their mental representations through the quality of mother-child narratives for negative events. In contrast, children’s attachment security with fathers exerted an indirect effect on their mental representations through the quality of father-child narratives for positive events. The results of this study did not reveal any significant interactions between children’s attachment security with mothers and fathers. The interactions between child gender and parent-child narrative quality were also non-significant. Finally, comparing the path coefficients, the associations among the attachment security, parent-child narrative quality, and children’s mental representations were similar for mothers and fathers.

According to attachment theory, children develop secure relationships based on the unique history of behavioral and emotional exchanges with their caregivers (Ainsworth et al., 1978). Indeed, research has suggested that attachment security is a product of environmental, but not genetic variations among children (Roisman & Fraley, 2008). Parental sensitivity and responsiveness are particularly important in fostering secure attachment in children (De Wolff & van IJzendoorn, 1997; van IJzendoorn & De Wolff, 1997). Sensitive and responsive caregiving provides children with a sense of predictability and the knowledge that their parents will be
available for comfort when they are distressed (Bretherton, 1990). Predictability of the caregiving environment thus provides children with a foundation to form coherent and secure mental representations of themselves, others, and their relationships. During the preschool and kindergarten years, children’s advances in children’s cognitive and linguistic capacities allow them to talk about their emotions, relationships, and their expectations regarding the behaviors of others. Consequently, researchers are able to access children’s mental representations of attachment using semi-projective story-completion methods, such as ASCT and MSSB.

Although it was expected that children’s attachment security would be associated with their mental representations, this study did not find any significant direct effect. In previous studies, some researchers have documented significant associations (e.g., Bretherton et al., 1990; Smeekens et al., 2009), whereas others did not (e.g., Laible, 2004; Oppenheim, 1997).

The inconsistencies in the findings of these investigations may be due to several factors. First, differences in methodology such as whether mothers or observers completed the AQS may have affected the association between AQS security and children’s mental representations. The studies conducted by Bretherton et al. (1990), Laible (2004), and Oppenheim (1997) all had mothers complete the AQS. Out of these three studies, only Bretherton et al. documented a significant association between AQS security and children’s mental representations. Although both the Smeekens et al. (2009) investigation and the present study had observers complete the AQS, Smeekens et al. documented a significant association, whereas the present study did not. It is thus not clear based on the research to-date whether having the AQS completed by mothers or observers increases or decreases the chance of finding a significant association between these two measures; future research should examine this issue more fully.
A second factor that differs across the studies conducted to-date is the age of the children when their AQS security is assessed. In Laible and Oppenheim, the AQS was assessed in slightly older children than in the other investigations (average age was approximately 4 years) and the age range was a quite large (from 3 to 5 years old). As stated earlier no significant association was found between AQS security and children’s mental representations. In contrast, AQS security was assessed much earlier in the Smeekens et al. (at 15-months) investigation, whereas in the Bretherton et al. study the AQS was used at both 25-months and 37-months. The results of the Bretherton et al. investigation indicated that the association between AQS security and children’s mental representations was weaker at 37-months ($r = .26$) than at 25-months ($r = .61$). As Oppenheim has pointed out, the AQS measure was designed to assess attachment security in 1-year-old to 3-year-old children. Although studies have used the AQS to assess attachment security in children up to 5 years of age, effects may be more robust when attachment security is assessed in younger versus older children.

Another factor that differed across the investigations is that, all of the aforementioned studies used slightly different story stems to assess children’s mental representations. Bretherton et al. used the 5 story stems from ASCT (Spilled juice, Hurt knee, Monster in the bedroom, Departure, and Reunion). Smeekens et al. modified the ASCT story stems (except Monster in the bedroom) and included 4 new stories (Stolen bicycle, Give a present, Saying “I’m sorry”, and Quarrel with another child) from the MSSB. Laible used story stems from MSSB, which included stories tapping onto both prosocial and attachment themes, and Oppenheim used the Attachment Doll Interview and included stories similar to ASCT (e.g., child gets hurt, separations and reunions, etc.). In the current investigation, with our interest in children’s attachment, story stems were selected from both ASCT and MSSB that focused specifically on
attachment related themes (e.g., Hot soup, Monster in the bedroom, Departure, and Reunion), which were highly similar to the story stems that Bretherton and her colleagues had used in their study.

A fourth factor that differed across the studies is that all of the researchers exploring the associations between AQS security and children’s mental representations all used slightly different methods for coding the stories. For example, both Bretherton et al. and Smeekens et al. created security scores for attachment representations, whereas Laible used both coherence scores and content codes (tapping onto children’s prosocial and aggressive themes). Oppenheim created three attachment-related composites: emotional openness, constructive resolution, and emotional tone. The coding in the present study focused on children’s security and coherence scores and was thus most similar to the coding using by Bretherton et al. and Laible. Future research should include a wider range of story stems and coding schemes with attachment, compliance, and conflict themes to examine their associations with attachment security assessed at different time points.

Finally, children’s mental representations were assessed by story completion using both mother and father figures. Similar to other semi-projective measures using separation-reunion pictures, family photos, and child family drawings (see Main, Kaplan, & Cassidy, 1985), the story completion task does not assess children’s mental representations of mothers and fathers separately. In other words, the measure used in the current investigation resulted in only one overall secure representation score, not separate scores assessing representations with mother and father separately. These semi-projective measures, including the story completion, assume that children have one single, integrated attachment representation based on their relationships with mothers and fathers. However, it is possible that at 5 years of age, children have not yet fully
integrated mental representations of mothers and fathers, and having children complete stories with mother and father figures separately might be a better approach. Indeed, some researchers have used story completion to assess children’s representations of mothers and fathers separately and documented significant associations with children’s earlier attachment security (Smeekens et al., 2009) and various social-emotional outcomes (Verschueren & Marcoen, 1999). Perhaps by middle childhood, children’s mental representations of attachment with respect to different caregivers may become more fully integrated, and the use of story completion methods that result in one overall attachment score may be more appropriate. Moreover, the joint or interaction effects of attachment security with mothers and fathers may also become more pronounced in older children. Thus, future research should examine representations of attachment to mothers and fathers separately across the early and middle childhood to see whether similar or different findings emerge with older children. Taken together, all of these differences, including the use of mothers vs. observers as raters, the varying of the subjects, the choices of the stories used, and the methods used in administering and coding the children’s responses may have contributed to the inconsistencies in the findings across investigations.

During the preschool and kindergarten years, the emotions children experience (especially negative ones) may be overwhelming, and parents’ reassurance and support during the discussion of these emotions are particularly important. Indeed, past research has documented significant associations between secure attachment and positive qualities of reminiscing, including parent elaboration (Bost et al., 2006; Fivush & Vasudeva, 2002; Laible, 2004; Laible & Thompson, 2000; Newcombe & Reese; 2004; Reese & Farrant, 2003), flexible and open discussion of event (Bretherton & Munholland, 2008), and coherent (Etzion-Carasso & Oppenheimer, 2000; Pillemer, 1998; Thompson, 2000), mutually-balanced (Gini et al., 2007), and
emotionally matched (Oppenheim et al., 2007) communication styles. These positive qualities may help parents and children co-construct a shared history in which they are “emotionally bonded through time” (Fivush, 2009, p. 349) and therefore further maintain and extend children’s attachment security. Consistent with previous research, significant associations were found between children’s attachment security and parent-child narrative quality, for both mothers and fathers, and across the different types of emotion events. More secure children may benefit from the joint discussion about emotionally salient events with their parents to further revise, reconstruct, and consolidate their understanding of self, others, and relationships (Miller, 1994; Miller & Mangelsdorf, 2005; Nelson, 2003; Stern, 1989; Thompson, 2000).

Interestingly, in the current investigation, children’s attachment security with fathers exerted significant indirect effects on their mental representations through father-child narrative quality during the discussion of positive events, whereas children’s attachment security with mothers similarly exerted significant indirect effects on their mental representations through mother-child narrative quality for negative events. The testing and documentation of the presence of indirect effects are important in developmental research, especially when processes are distal in time (Shrout & Bolger, 2002). Although a mediated effect requires a significant association between the predictor (attachment security) and outcome (children’s mental representations), an indirect effect does not require such path to be significant (see Hayes, 2009). It simply implies that attachment security has an effect on children’s mental representations via parent-child narrative quality (see Kenny, Kashy, & Bolger, 1998). In other words, it is possible to have parent-child narrative quality to be causally between children’s attachment security and mental representations even when the latter two were not associated. Indeed, previous studies have also documented indirect effects without significant direct effects (e.g., McElwain, Booth-
La Force, Lansford, Wu, & Dyer, 2008). Some researchers have argued that the lack of association between predictor and outcome may be due to some confounding and/or interactive effects (MacKinnon, Krull, & Lockwood, 2000). As mentioned before, the absence of direct effect from children’s attachment security to their mental representations in this study might be due to several methodological factors. Nevertheless, the findings regarding the significant indirect effects provided a good starting point for future research to further elucidate the association between attachment security and children’s mental representations and explore possible mediated effects.

One interpretation of these indirect effects draws from the research on parental emotion socialization (e.g., Eisenberg, Cumberland, & Spinard, 1998). Researchers studying emotion socialization have examined the differences in the ways in which parents socialize their children’s emotions, such as through their reactions to children’s emotions (e.g., Eisenberg & Fabes, 1994) and discussion of emotions with children (e.g., Fivush, Brotman, Buckner, & Goodman, 2000). According to this literature, mothers and fathers play different roles in socializing their children’s emotions. Specifically, mothers are thought to carry out the “emotional functions” within the family, such that they are generally more active in socializing their children’s emotions (especially negative ones) than are fathers (Garside & Klimes-Dougan, 2002). Indeed, research has documented that mothers are generally more accepting and supportive of their children’s negative emotions than are fathers (Eisenberg, Fabes, & Murphy, 1996; McElwain, Halberstadt, & Volling, 2007; Wong, McElwain, & Halberstadt, 2009). When children talk about negative events with their mothers, they may be more receptive to their mothers’ influence during the discussion of negative emotions. As such, having a secure attachment relationship earlier may provide a foundation for children to internalize these
conversations with mothers and incorporate aspects of their discussions into their mental representations of attachment. The role that fathers play in socializing children’s emotions is less clear in part because it has been far less studied than the role of mothers. However, according to the fathering literature, fathers are thought to assume the role of “playmate” and fulfill children’s needs for stimulation and exciting play (Bretherton, Lambert, & Golby, 2005; Lewis & Lamb, 2003; Parke, 1996). Similarly, Grossmann and colleagues (2002) have proposed that fathers influence children’s development of attachment through emphasizing rough-and-tumble play, whereas mothers focus on children’s various emotional needs. A recent study found that the observed expressive balance (i.e., proportion of happy vs. other negative displays of emotions) of fathers with preschool-aged children was higher than that of mothers, during a 90-minute home visit (Denham, Bassett, & Wyatt, 2010). In other words, fathers displayed more positive emotions than mothers, which is consistent with their role as playmates. It is possible that the joint experience of positive emotions is particularly salient when children engage in fun and positive activities with their fathers. Children may then be more receptive to their fathers’ influence during the discussion of these positive events, and therefore benefit the most from higher quality of father-child reminiscing. Secure attachment may provide a foundation for children to incorporate aspects of discussions with their fathers into their mental representations.

Children’s attachment security with mothers and fathers were moderately correlated in the present study. In a meta-analysis based on 11 samples using Strange Situations, Fox and colleagues (1991) found modest concordance between infants’ attachment security with mothers and fathers. Similarly, the meta-analysis conducted by van IJzendoorn and De Wolff (1997) have also found concordance in 14 samples using Strange Situations. In the few studies that have examined children’s attachment security with mothers and fathers using the AQS, moderate
associations were documented. Based on parents’ sorts, one study has documented significant association between AQS security with mothers and fathers in infancy, $r = .48$ (Caldera, 2004). In studies with preschool-aged children, the AQS security scores with mothers and fathers are also significantly correlated. For example, having mothers and fathers complete the AQS, Frosch, Mangelsdorf, and McHale (2000) found security scores for the mother-child and father-child relationship were significantly associated, $r = .39$. Similarly, Schneider-Rosen and Burke (1999) and Delcarmen-Wiggins and colleagues (2000) reported $r = .34$ and $.40$ in their samples with 4.5 year-old and 3-year-old children, respectively. Having observers complete the AQS, Monteiro, Verissimo, Vaughn, Santos, and Bost (2008) reported $r = .35$ in their sample of 2.5-year-old children. The strength of these correlations was comparable to the correlation found in the present study, based on observers’ sorts ($r = .40$).

It is not surprising that children’s attachment security with mothers and fathers is associated. Fox et al. (1991) proposed that mothers and fathers may share similar parenting practices, and various studies have supported this claim by documenting correlations between mothers’ and fathers’ parenting (e.g., Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Pelchat, Bisson, Bois, & Saucier, 2003; Russell & Russell, 1994; Winsler, Madigan, & Aquilino, 2005). Moreover, child characteristics such as temperament (e.g., Bost, Choi, & Wong, 2010; Paulussen-Hoogeboom, Stams, Hermanns, & Pettsma, 2007) and family characteristics such as marital quality (e.g., Cummings & Davies, 2002; Frosch, Mangelsdorf, & McHale, 2000; Kaczynski, Lindahl, Malik, & Laurenceau, 2006; Wong, Mangelsdorf, et al., 2009; Wong, McElwain, et al., 2009) and coparenting relationships (e.g., Brown, Schoppe-Sullivan, Mangelsdorf, & Neff, 2010; McHale et al., 2002) may influence the similarity of parenting within families, thus ultimately contributing to the similarity of children’s attachment security.
with mothers and fathers. Future research should explore how similarity and differences in mothers’ and fathers’ parenting behaviors may lead to individual differences in children’s attachment relationships with mothers and fathers.

In the current investigation, children’s mental representations of attachment did not differ as a function of child gender. This is consistent with the work of other investigators examining children’s mental representations (e.g., Laible, 2006; Verschueren & Marcoen, 1999). However, some studies have reported gender differences, such that girls tend to have more secure mental representations than boys (e.g., Laible, 2004; Rydell, Bohlin, & Thorell, 2005; Verschueren, Marcoen, & Schoefs, 1996). Since the assessment of mental representations relies on symbolic play and expressive language, differences between boys’ and girls’ language ability may have contributed to child gender differences in some of these investigations. In this study, although there were no gender differences on children’s language ability (on either the raw or standard scores of the Expressive Vocabulary Test), children’s language ability was related to children’s mental representations and narrative quality. Thus language ability was included in the structural equation models. By controlling for children’s language ability, we were able to examine the associations among children’s mental representations, attachment security, and parent-child narrative quality above and beyond the effects of individual differences in young children’s language abilities.

Past research has documented child gender differences in parent-child narrative quality, such that parents are more elaborative and use more emotional words when reminiscing with daughters than with sons (Fivush et al., 2000; Fivush, Berlin, Sales, Mennuti-Washburn, & Cassidy, 2003; Reese, Haden, & Fivush, 1996). The findings of the current study are also consistent with previous research, as girls tended to have better narrative quality with their
mothers for the discussion of both positive and negative events. However, as described earlier, child gender did not moderate the association between parent-child narrative quality and children’s mental representations. It is possible that the moderating effect of child gender may be more pronounced when specific emotions are examined. For example, past research has found that both mothers and fathers discuss sadness more often with their daughters than with sons (Adams, Kuebli, Boyle, & Fivush, 1995; Fivush et al., 2000), and anxiety and fear are considered to be more acceptable in daughters than in sons (Garner, Robertson, & Smith, 1997). In the current study parent-child dyads were just asked to discuss a negative event, and no specific emotional state was specified. Perhaps during the discussion of events involving the specific emotions of sadness, anxiety, or fear, the association between quality of parent-child reminiscing and children’s mental representations might emerge as significantly different for girls, but not boys. Future research should explore this issue.

Finally, prior studies of both children’s mental representations and parent-child narratives have focused exclusively on mothers. Thus, the inclusion of fathers in this study is a significant contribution to the existing literature. Although the results of this study indicate that the associations among children’s attachment security, parent-child reminiscing, and children’s mental representations of attachment were similar for mothers and fathers, the effect of specific type of reminiscing differed as a function of parent gender. Specifically, children’s attachment security with mothers exerted an indirect effect on their mental representations through the quality of mother-child narratives for negative events. In contrast, children’s attachment security with fathers exerted an indirect effect on their mental representations through the quality of father-child narratives for positive events. This suggests that both mothers and fathers play important and complementary roles in the development of children’s secure mental
representations. Taken together, these results highlight the importance of continuing to include both mothers and fathers in the study of the development of children’s mental representations.

Limitations and Future Directions

The majority of the participants in our sample were middle-class European-American families. As documented in other studies, families of different socio-economic backgrounds and cultures socialize their children differently. For example, Miller et al. (2005) found that working-class parents and children tended to use dramatic language when they talked about negative experiences. These parents were open and honest about the hardship and difficulties in life for their children early on. Through the use of dramatic language, their children were not only prepared, but also given the narrative tools to deal with these difficulties in a light-hearted way. In another study, Miller, Wiley, Fung, and Liang (1997) found that Chinese families tended to use narratives about children’s past transgressions as a didactic resource to socialize moral standards to their children. In contrast, European American families seldom brought up children’s past transgressions, but were more likely to use narratives as opportunities for affirmation. As such, it is important to examine narrative practices in different SES and cultural groups, and further explore how these differences and similarities in narrative practices may contribute to children’s attachment representations.

Out of the 71 families participated in the current investigation, 21 did not participate in the assessment at 3-years. Although it would have been optimal to have had a complete data set, missing data was dealt with using multiple imputation methods. Some statisticians believe that these methods have become the state-of-the-art for dealing with missing data (e.g., Schafer & Graham, 2002). As discussed earlier, multiple imputation has advantages over older methods (e.g., case deletion, mean substitution, and single imputation) for dealing with missing data.
Using multiple imputation, missing data are imputed with high precision by producing different plausible versions of the complete data (Schafer & Graham, 2002). Indeed, the results of this study based on multiple imputation were consistent with previous research and the broader theoretical framework, thus increasing our confidence in the findings.

This study is one of the first to include both mothers and fathers in the examination of how children’ attachment security and parent-child narrative quality are associated with their mental representations. As discussed earlier, children’s mental representations with respect to their relationships with mothers and fathers may have yet been fully integrated during the kindergarten years. As such, future research should assess children’s mental representations separately for mothers and fathers in younger children and explore whether the representations are fully integrated in older children.

In this investigation, parents and children were asked to discuss positive and negative events. However, they were not asked to discuss specific emotions, such as happiness, sadness, anger, and fear. In future research, it will be interesting to examine the discussion of specific emotions. Further, understanding how child (e.g., temperament) and family (e.g., marital quality and coparenting relationships) characteristics may be related to children’s attachment security, parent-child narrative quality, and children’s mental representations of attachment will help us achieve a better understanding of children’s social-emotional development during the preschool and kindergarten years.

The present study is notable for its simultaneous examination of both mother-child and father-child attachment relationships and narrative quality regarding both positive and negative events, the use of a longitudinal design, and observational methods. In addition, this study also examined indirect effects and found that children’s attachment security at 3 years of age was
related to children’s mental representations at 5 years of age through parent-child narrative quality. Taken together, these findings suggest that the development of children’s mental representations of attachment is a process that is co-constructed by both children and their parents (i.e., mothers and fathers). Having secure mental representations gives children better understanding of self, others, and relationships (Verschueren & Marcoen, 1999) and ultimately leads to children’s greater social-emotional competence (Bureau & Moss, 2010; Smeekens et al., 2009; Verschuren & Marcoen, 1999). Thus, further investigations of the processes involved in the development of these representations will contribute to a more complete understanding of children’s social-emotional development.
### Table 1

**Summary of the Story-Stems Used in the Story Completion Task**

<table>
<thead>
<tr>
<th>Story-Stem</th>
<th>Characters involved</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hot soup</td>
<td>Mom, dad, child, sibling</td>
<td>The child is warned by the mother not to touch the hot soup on the stove. The child, however, becomes impatient, touches the pot, and gets burned.</td>
</tr>
<tr>
<td>2. Monster in the bedroom</td>
<td>Mom, dad, child</td>
<td>The parents tell the child to go to bed. After the child goes upstairs, he/she cries out that there is a monster.</td>
</tr>
<tr>
<td>3. Departure</td>
<td>Mom, dad, child, sibling, grandma</td>
<td>The parents go on an overnight trip while the grandmother babysits the children.</td>
</tr>
<tr>
<td>4. Reunion</td>
<td>Mom, dad, child, sibling, grandma</td>
<td>The parents return from their trip.</td>
</tr>
</tbody>
</table>
Table 2

*Intercorrelations Among Parent-Child Reminiscing Variables*

<table>
<thead>
<tr>
<th>Positive Event</th>
<th>Negative Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of interaction</td>
<td>Quality of interaction</td>
</tr>
<tr>
<td>Positive Event</td>
<td>Quality of interaction</td>
</tr>
<tr>
<td>Negative affect</td>
<td>- .40***</td>
</tr>
<tr>
<td>Positive affect</td>
<td>.50***</td>
</tr>
<tr>
<td>Negative Event</td>
<td>Quality of Interaction</td>
</tr>
<tr>
<td>Negative affect</td>
<td>-.42***</td>
</tr>
<tr>
<td>Positive affect</td>
<td>.51***</td>
</tr>
</tbody>
</table>

*Note.* Intercorrelations of mother-child reminiscing are shown above the diagonal. Intercorrelations of father-child reminiscing are shown below the diagonal. Along the diagonal (boldfaced) is mother-child and father-child reminiscing.

\( N = 71 \) for mother-child reminiscing. \( N \) ranged from 69 to 71 for father-child reminiscing because of missing data.

†\( p < .10 \), *\( p < .05 \), **\( p < .01 \), ***\( p < .001 \).
Table 3

*Descriptive Statistics for Study Measures (Before Imputation)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children’s attachment representations (coherence)</td>
<td>4.90</td>
<td>1.01</td>
<td>2.75</td>
<td>7.25</td>
</tr>
<tr>
<td>Children’s attachment representations (security)</td>
<td>4.38</td>
<td>.98</td>
<td>2.50</td>
<td>6.38</td>
</tr>
<tr>
<td>Children’s AQS security with mothers</td>
<td>.38</td>
<td>.23</td>
<td>-.16</td>
<td>.67</td>
</tr>
<tr>
<td>Children’s AQS security with fathers</td>
<td>.31</td>
<td>.29</td>
<td>-.51</td>
<td>.69</td>
</tr>
<tr>
<td>Mother-child quality of reminiscing for positive event</td>
<td>.00</td>
<td>.71</td>
<td>-1.63</td>
<td>1.87</td>
</tr>
<tr>
<td>Father-child quality of reminiscing for positive event</td>
<td>.00</td>
<td>.74</td>
<td>-2.20</td>
<td>1.80</td>
</tr>
<tr>
<td>Mother-child quality of reminiscing for negative event</td>
<td>.00</td>
<td>.71</td>
<td>-1.27</td>
<td>2.10</td>
</tr>
<tr>
<td>Father-child quality of reminiscing for negative event</td>
<td>.00</td>
<td>.74</td>
<td>-1.96</td>
<td>2.17</td>
</tr>
<tr>
<td>Children’s language ability</td>
<td>120.27</td>
<td>13.38</td>
<td>90</td>
<td>149</td>
</tr>
</tbody>
</table>

*Note.* N ranged from 46 to 71 because of missing data.
**Table 4**

*Intercorrelations Among Study Measures (Before Data Imputation)*

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>.94***</td>
<td>.16</td>
<td>.11</td>
<td>.27*</td>
<td>.35**</td>
<td>.25*</td>
<td>.30**</td>
<td>.30**</td>
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<td>.16</td>
<td>.07</td>
<td>.23†</td>
<td>.28*</td>
<td>.15</td>
<td>.22†</td>
<td>.23*</td>
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<tr>
<td>2. Children’s mental representations (security)</td>
<td>---</td>
<td>.43**</td>
<td>.31*</td>
<td>.41**</td>
<td>.43**</td>
<td>.53***</td>
<td>.28†</td>
<td></td>
</tr>
<tr>
<td>3. Children’s AQS security with mothers</td>
<td>---</td>
<td>.46***</td>
<td>.42**</td>
<td>.50***</td>
<td>.44**</td>
<td>.10</td>
<td>---</td>
<td>.32**</td>
</tr>
<tr>
<td>4. Children’s AQS security with fathers</td>
<td>---</td>
<td>.45***</td>
<td>.84***</td>
<td>.45***</td>
<td>.28*</td>
<td>---</td>
<td>.54***</td>
<td>.22†</td>
</tr>
<tr>
<td>5. Mother-child reminiscing quality for positive event</td>
<td>---</td>
<td>.53***</td>
<td>.85***</td>
<td>.32**</td>
<td>---</td>
<td>.40***</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>6. Father-child reminiscing quality for positive event</td>
<td>---</td>
<td>.54***</td>
<td>.22†</td>
<td>---</td>
<td>.40***</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

*Note. N = ranged from 45 to 71 because of missing data.*  
†p < .10, *p < .05, **p < .01, ***p < .001
Table 5

*Descriptive Statistics for Study Measures (With Data Imputation)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children’s attachment representations (coherence)</td>
<td>4.90</td>
<td>1.01</td>
<td>2.75</td>
<td>7.25</td>
</tr>
<tr>
<td>Children’s attachment representations (security)</td>
<td>4.38</td>
<td>.98</td>
<td>2.50</td>
<td>6.38</td>
</tr>
<tr>
<td>Children’s AQS security with mothers</td>
<td>.35</td>
<td>.25</td>
<td>-.32</td>
<td>.72</td>
</tr>
<tr>
<td>Children’s AQS security with fathers</td>
<td>.30</td>
<td>.31</td>
<td>-.58</td>
<td>.95</td>
</tr>
<tr>
<td>Mother-child quality of reminiscing for positive event</td>
<td>.00</td>
<td>.71</td>
<td>-1.63</td>
<td>1.87</td>
</tr>
<tr>
<td>Father-child quality of reminiscing for positive event</td>
<td>.00</td>
<td>.74</td>
<td>-2.20</td>
<td>1.80</td>
</tr>
<tr>
<td>Mother-child quality of reminiscing for negative event</td>
<td>.00</td>
<td>.71</td>
<td>-1.27</td>
<td>2.10</td>
</tr>
<tr>
<td>Father-child quality of reminiscing for negative event</td>
<td>.00</td>
<td>.74</td>
<td>-1.96</td>
<td>2.17</td>
</tr>
<tr>
<td>Children’s language ability</td>
<td>120.27</td>
<td>13.38</td>
<td>90</td>
<td>149</td>
</tr>
</tbody>
</table>

*Note. N = 71.*
Table 6

*Intercorrelations Among Study Measures (With Data Imputation)*

<table>
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<tr>
<th></th>
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<th>3</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Children’s mental representations (coherence)</td>
<td>---</td>
<td>.94***</td>
<td>.08</td>
<td>.01</td>
<td>.27*</td>
<td>.35**</td>
<td>.25*</td>
<td>.30**</td>
<td>.30**</td>
</tr>
<tr>
<td>2. Children’s mental representations (security)</td>
<td>---</td>
<td>.10</td>
<td>.02</td>
<td>.23*</td>
<td>.27*</td>
<td>.15</td>
<td>.22†</td>
<td>.23*</td>
<td>---</td>
</tr>
<tr>
<td>3. Children’s AQS security with mothers</td>
<td>---</td>
<td>.40***</td>
<td>.19</td>
<td>.23*</td>
<td>.30**</td>
<td>.39***</td>
<td>.21†</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4. Children’s AQS security with fathers</td>
<td>---</td>
<td>.37**</td>
<td>.23*</td>
<td>.44***</td>
<td>.29**</td>
<td>.03</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>5. Mother-child reminiscing quality for positive event</td>
<td>---</td>
<td>.45***</td>
<td>.84***</td>
<td>.43***</td>
<td>.28*</td>
<td>---</td>
<td>---</td>
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<td>---</td>
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<tr>
<td>6. Father-child reminiscing quality for positive event</td>
<td>---</td>
<td>.53***</td>
<td>.85***</td>
<td>.32**</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>7. Mother-child reminiscing quality for negative event</td>
<td>---</td>
<td>.53***</td>
<td>.22†</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
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<td>8. Father-child reminiscing quality for negative event</td>
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<td>---</td>
<td>---</td>
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<tr>
<td>9. Children’s language ability</td>
<td>---</td>
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<td>---</td>
<td>---</td>
<td>---</td>
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</tr>
</tbody>
</table>

*Note.* $N = 71$. †$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$
Figures

Figure 1. Structural equation model estimating children’s mental representations of attachment (with parent-child reminiscing about positive events)

Father-child reminiscing quality for positive event

Children’s AQS security with fathers

Mother-child reminiscing quality for positive event

Children’s AQS security with mothers

Children’s mental representations of attachment

Doll play coherence

Doll play security

Children’s language ability

.23*

-.07

.11

.19†

.04

.24*

1.00***

.86***

.17†
Figure 2. Structural equation model estimating children’s mental representations of attachment (with parent-child reminiscing about negative events).
References


Appendix A: Time 1 (3-year) Questionnaire Measures
Mother’s Demographic Questionnaire:

General Questions:

Participant #: ___________________  Today’s date: _____________________
Your birthdate: _________________  Child’s birthdate: _________________
Your race/ethnicity: _______________  Gender of child (circle):   Male    Female
Marriage date (if married): ______________ Birth order of baby: _______________
If living with partner, what was the approximate date you moved in together? _______

<table>
<thead>
<tr>
<th>Siblings Name</th>
<th>Birthdate</th>
<th>Siblings Name</th>
<th>Birthdate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Education:

Which best describes your **current** level of education?

<table>
<thead>
<tr>
<th>Some High School</th>
<th>High School Degree</th>
<th>Some College</th>
<th>College Degree</th>
<th>Masters Degree</th>
<th>Ph.D. Degree</th>
<th>Other</th>
</tr>
</thead>
</table>

If other, please describe: __________________________________________________________
_______________________________________________________________________

If education is not yet completed:

A. Which best describes your **desired** level of education?

<table>
<thead>
<tr>
<th>Some High School</th>
<th>High School Degree</th>
<th>Some College</th>
<th>College Degree</th>
<th>Masters Degree</th>
<th>Ph.D. Degree</th>
<th>Other</th>
</tr>
</thead>
</table>

If other, please describe: __________________________________________________________
_______________________________________________________________________

B. When do you expect to complete your educational goals? _________________
Employment Status:

Are you currently working?  YES  NO

IF YES, please answer the questions in Section I; IF NO, please go to section II.

Section I
A. How many hours per week do you work (please circle)?
   0-10 hrs.  11-20 hrs.  21-30 hrs.  31-40 hrs.  41-50 hrs.  Over 50 hrs.

B. How old was your child when you returned to work? _____ months _____ weeks

C. How do you feel about (returning to) work?  (Please Circle)
   Very Positive  Positive  Mixed  Negative  Very Negative
   Could you briefly describe why you feel this way? ________________
   _________________________________________________________________
   _________________________________________________________________

D. Please indicate your current job title and give a short description of your responsibilities:  TITLE: _______________________________________
   RESPONSIBILITIES:  ____________________________________________
   _________________________________________________________________

E. How does your partner feel about your (returning to) work?
   Very Positive  Positive  Mixed  Negative  Very Negative
   Could you briefly describe why you think your spouse feels this way?
   _________________________________________________________________
   _________________________________________________________________

F. How supportive was your workplace of you taking time off (circle one)?
   Very Supportive  Somewhat Supportive  Neither Supportive  Somewhat Unsupportive  Very Unsupportive
   _________________________________________________________________
   _________________________________________________________________

G. Was this a paid or unpaid leave of absence? ______________________________

NOW GO TO SECTION III
Section II

IF NO, do you plan to return to work? YES NO UNSURE

A. How old will your child be when you plan to return to work?
   ____________ months

B. How many hours per week do you plan to work?
   0-10 hrs  11-20 hrs  21-30 hrs  31-40 hrs  41-50 hrs  Over 50 hrs

C. How do you feel about (not) returning to work?
   Very Positive Mixed Negative Very Positive Negative
   Could you briefly describe why you feel this way? ______________

D. Please indicate your previous job title and give a short description of your responsibilities: TITLE: ___________________________________
   RESPONSIBILITIES: _____________________________________________

E. Please indicate your expected job title (if planning on returning to work) and give a short description of your responsibilities: TITLE: ______________________
   RESPONSIBILITIES: ____________________________________________

F. How does your spouse feel about your plans to (not) return to work?
   Very Positive Mixed Negative Very Positive Negative
   Could you briefly describe why you think your spouse feels this way?
   __________________________________________________________________

G. How supportive is/was your workplace of you taking time off (circle one)?
H. Is this a paid or unpaid leave of absence? ______________________________

NOW GO TO SECTION III

Section III

Financial Information:

Please indicate which best describes your family's total annual income (circle one):

less than $10,000  $11,000- $20,000  $21,000- $30,000  $31,000- $40,000  $41,000- $50,000  $51,000-

$60,000 $70,000 $80,000 $90,000 $100,000 $110,000 $120,000 $130,000 $140,000 $150,000 over $100,000

Is your partner currently employed? YES NO

How do you feel about your partner’s current employment status?

Very Positive Mixed Negative Very Positive

Could you briefly describe why you feel this way? ________________________________

_______________________________________________________________

_______________________________________________________________

Family Background:

When you were growing up:

How involved was your father in raising you (circle one)?

very involved  involved  neutral  uninvolved  very uninvolved

How involved was your mother in raising you (circle one)?

very involved  involved  neutral  uninvolved  very uninvolved

Are your parents separated or divorced (circle one)? YES NO

If so, how old were you when the separation or divorce occurred? ___________________
Childcare:

1. How much time per day do you spend in caregiving activities (dressing, feeding, bathing, etc.) with your child? (Please approximate)
   
   less than 1 hr  1-3 hrs  4-6 hrs  7-10 hrs  11-15 hrs  More than 15 hrs

2. How much time per day does your partner spend in caregiving activities (dressing, feeding, bathing, etc.) with your child?
   
   less than 1 hr  1-3 hrs  4-6 hrs  7-10 hrs  11-15 hrs  More than 15 hrs

3. How much time per day do you spend in play activities with your child?
   
   less than 1 hr  1-3 hrs  4-6 hrs  7-10 hrs  11-15 hrs  More than 15 hrs

4. How much time per day does your partner spend in play activities with your child?
   
   less than 1 hr  1-3 hrs  4-6 hrs  7-10 hrs  11-15 hrs  More than 15 hrs

5. Does your child attend childcare (he/she is cared for regularly by someone other than you or your spouse)?
   
   YES  NO

6. At what age did your child enter this childcare arrangement?
   
   _____months  _____ not applicable

7. How would you best describe these childcare arrangements (check all that apply)?
   
   __ At home with Relative  __________ hrs per week
       What relation? __________________
   __ At home with Sitter/Nanny  __________ hrs per week
   __ Home-based child care center  __________ hrs per week
   __ Commercial child care center  __________ hrs per week
   __ Government/Community child care center  __________ hrs per week
   __ University child care center  __________ hrs per week
   __ University preschool  __________ hrs per week
   __ Church preschool  __________ hrs per week
   __ Other  __________ hrs per week
Please describe: __________________________________________

8. What is the child:caregiver ratio of the care used most often? _________

9. How many other children are present? ________________

10. Who is responsible for transporting your child to and from child care?
    Me       My Spouse       Share Equally

Please describe any other changes in care arrangements since your child was approximately 13 months old. Include information concerning the child's age, the type of care, and the number of hours per week which that arrangement was used:

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Please indicate any other changes in your family since the last time we saw you when your child was 13 months old:
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
Father’s Demographic Questionnaire:

General Questions:

Participant #: _______________  Today’s date: _____________________
Your birthdate: _____________  Your race/ethnicity: __________________

Education:

Which best describes your current level of education?

- Some High School
- High School Degree
- Some College
- College Degree
- Masters Degree
- Ph.D. Degree
- Other

If other, please describe: ________________________________________________
_______________________________________________________________________

If education is not yet completed:

A. Which best describes your desired level of education?

- Some High School
- High School Degree
- Some College
- College Degree
- Masters Degree
- Ph.D. Degree
- Other

If other, please describe: ________________________________________________
_______________________________________________________________________

B. When do you expect to complete your educational goals? ________________

Employment Status:

Are you currently working?   YES   NO

IF YES, please answer the questions in Section I; IF NO, please go to section II.

Section I

A. How many hours per week do you work (please circle)?
0-10 hrs.  11-20 hrs.  21-30 hrs.  31-40 hrs.  41-50 hrs.  Over 50 hrs.
B. How old was your child when you returned to work? _______ months _______ weeks

C. How do you feel about (returning to) work? (Please Circle)

   Very Positive    Mixed    Negative    Very Positive    Negative
   Positive        Mixed    Positive    Negative

Could you briefly describe why you feel this way? ________________

____________________________________________________________________

D. Please indicate your current job title and give a short description of your responsibilities:

   TITLE: __________________________________________
   RESPONSIBILITIES: __________________________________________
   ____________________________________________________________

E. How does your partner feel about your (returning to) work?

   Very Positive    Mixed    Negative    Very Positive    Negative
   Positive        Mixed    Positive    Negative

Could you briefly describe why you think your spouse feels this way?

____________________________________________________________________

H. How supportive was your workplace of you taking time off (circle one)?

   Very Somewhat    Neither Supportive    Somewhat    Very
   Unsupportive    Unsupportive    nor Unsupportive    Supportive    Supportive

G. Was this a paid or unpaid leave of absence? ____________________________

NOW GO TO SECTION III

Section II

IF NO, do you plan to return to work? YES NO UNSURE

A. How old will your child be when you plan to return to work? 
   ____________ months

B. How many hours per week do you plan to work?
   0-10 hrs   11-20 hrs   21-30 hrs   31-40 hrs   41-50 hrs   Over 50 hrs
C. How do you feel about (not) returning to work?

<table>
<thead>
<tr>
<th>Very Positive</th>
<th>Mixed</th>
<th>Very Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Negative</td>
<td></td>
</tr>
</tbody>
</table>

Could you briefly describe why you feel this way?  
______________________________________________________________
______________________________________________________________

D. Please indicate your previous job title and give a short description of your responsibilities:  

TITLE:  ______________________  
RESPONSIBILITIES:  ______________________

F. Please indicate your expected job title (if planning on returning to work) and give a short description of your responsibilities:  

TITLE:  ______________________  
RESPONSIBILITIES:  ______________________

F. How does your spouse feel about your plans to (not) return to work?

<table>
<thead>
<tr>
<th>Very Positive</th>
<th>Mixed</th>
<th>Very Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Negative</td>
<td></td>
</tr>
</tbody>
</table>

Could you briefly describe why you think your spouse feels this way?  
______________________________________________________________
______________________________________________________________

I. How supportive is/was your workplace of you taking time off (circle one)?

<table>
<thead>
<tr>
<th>Very Unsupportive</th>
<th>Somewhat Unsupportive</th>
<th>Neither Supportive nor Unsupportive</th>
<th>Somewhat Supportive</th>
<th>Very Supportive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H. Is this a paid or unpaid leave of absence?  ________________________________

NOW GO TO SECTION III
Section III
Financial Information:

Please indicate which best describes your family's total annual income (circle one):

- less than $10,000
- 20,000
- $30,000
- 40,000
- 50,000
- 60,000
- $61,000
- $71,000
- $81,000
- $91,000
- over $100,000

Is your partner currently employed? YES NO

How do you feel about your partner’s current employment status?

Very Positive Positive Mixed Negative Very Negative

Could you briefly describe why you feel this way?

Family Background:

When you were growing up:

How involved was your father in raising you (circle one)?

very involved involved neutral uninvolved very uninvolved

How involved was your mother in raising you (circle one)?

very involved involved neutral uninvolved very uninvolved

Are your parents separated or divorced (circle one)? YES NO
If so, how old were you when the separation or divorce occurred? ________________

Childcare:

1. How much time per day do you spend in caregiving activities (dressing, feeding, bathing, etc.) with your child? (Please approximate)

- less than 1 hr
- 1-3 hrs
- 4-6 hrs
- 7-10 hrs
- 11-15 hrs
- More than 15 hrs
2. How much time per day does your **partner** spend in **caregiving** activities (dressing, feeding, bathing, etc.) with your child?

   - less than 1 hr
   - 1-3 hrs
   - 4-6 hrs
   - 7-10 hrs
   - 11-15 hrs
   - More than 15 hrs

3. How much time per day do you **spend in play** activities with your child?

   - less than 1 hr
   - 1-3 hrs
   - 4-6 hrs
   - 7-10 hrs
   - 11-15 hrs
   - More than 15 hrs

4. How much time per day does your **partner** spend in **play** activities with your child?

   - less than 1 hr
   - 1-3 hrs
   - 4-6 hrs
   - 7-10 hrs
   - 11-15 hrs
   - More than 15 hrs

5. Has your child attended childcare (been cared for regularly by someone other than you or your spouse)?
   - YES
   - NO

6. At what age did your child enter this childcare arrangement?
   - _____ months
   - ____ not applicable

7. How would you best describe these childcare arrangements (circle all that apply)?

   - __ At home with Relative
     - What relation? ______________
     - _________ hrs per week
   - __ At home with Sitter/Nanny
     - _________ hrs per week
   - __ Home-based child care center
     - _________ hrs per week
   - __ Commercial child care center
     - _________ hrs per week
   - __ Government/Community child care center
     - _________ hrs per week
   - __ University child care center
     - _________ hrs per week
   - __ University preschool
     - _________ hrs per week
   - __ Church preschool
     - _________ hrs per week
   - __ Other
     - _________ hrs per week

   Please describe: ________________________________

8. What is the child:caregiver ratio of the care used most often? _________

9. How many other children are present? _______________
10. Who is responsible for transporting your child to and from child care?

Me  My Spouse  Share Equally

Please describe any other changes in care arrangements since your child was approximately 13 months old. Include information concerning the child's age, the type of care, and the number of hours per week which that arrangement was used:

________________________________________________________________________

________________________________________________________________________

Please indicate any other changes in your family since the last time we saw you when your child was 13 months old:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Appendix B: Time 1 (3-year) Observational Measures
<table>
<thead>
<tr>
<th>Attachment Q-Sort Items</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Child readily shares with father or lets her hold things if she asks to.</td>
<td><strong>6.</strong> When child is near father and sees something he wants to play with, he fusses or tries to drag father over to it.</td>
</tr>
<tr>
<td>Low: Refuses</td>
<td>Low: Goes to what he wants without fussing or dragging father along.</td>
</tr>
<tr>
<td><strong>2.</strong> When child returns to father after playing, he is sometimes fussy for no clear reason.</td>
<td><strong>7.</strong> Child laughs and smiles easily with a lot of different people.</td>
</tr>
<tr>
<td>Low: Child is happy or affectionate when he returns to father between or after play times</td>
<td>Low: Father can get him to smile or laugh more easily than anyone else.</td>
</tr>
<tr>
<td><strong>3.</strong> When he is upset or injured, child will accept comforting from adults other than father.</td>
<td><strong>8.</strong> When child cries, he cries hard.</td>
</tr>
<tr>
<td>Low: Father is the only one he allows to comfort him.</td>
<td>Low: Weeps, sob, doesn’t cry hard, or hard crying never lasts very long.</td>
</tr>
<tr>
<td><strong>4.</strong> Child is careful and gentle with toys and pets.</td>
<td><strong>9.</strong> Child is lighthearted and playful most of the time.</td>
</tr>
<tr>
<td></td>
<td>Low: Child tends to be serious, sad, or annoyed a good deal of the time.</td>
</tr>
<tr>
<td></td>
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<td>---</td>
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</tr>
<tr>
<td>5.</td>
<td>Child is more interested in people than in things.</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>More interested in things than people</td>
</tr>
<tr>
<td>10.</td>
<td>Child often cries or resists when father takes him to bed for naps or at night.</td>
</tr>
<tr>
<td>11.</td>
<td>Child often hugs or cuddles against father without her asking or inviting him to do so.</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>Child doesn’t hug or cuddle much, unless father hugs him first or asks him to give her a hug</td>
</tr>
<tr>
<td>16.</td>
<td>Child prefers toys that are modeled after living things (e.g., dolls, stuffed animals).</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>Prefers balls, blocks, pots and pans, etc.</td>
</tr>
<tr>
<td>12.</td>
<td>Child quickly gets used to people or things that initially made him shy or frightened him.</td>
</tr>
<tr>
<td><strong>Middle if never shy or afraid</strong></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Child quickly loses interest in new adults if they do anything that annoys him.</td>
</tr>
<tr>
<td>13.</td>
<td>When the child is upset by father’s leaving, he continues to cry or even gets angry after she is gone.</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>Cry stops right after mom leaves</td>
</tr>
<tr>
<td><strong>Middle if not upset by mom leaving</strong></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Child follows father’s suggestions readily, even when they are clearly suggestions rather than orders.</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>Ignores or refuses unless ordered</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>14.</td>
<td>When child finds something new to play with, he carries it to father or shows it to her from across the room.</td>
</tr>
<tr>
<td>Low:</td>
<td>Plays with the new object quietly or goes where he won’t be interrupted.</td>
</tr>
<tr>
<td>19.</td>
<td>When father tells child to bring or give her something, he obeys.</td>
</tr>
<tr>
<td>(Do not count refusals that are playful or part of a game unless they clearly become disobedient)</td>
<td></td>
</tr>
<tr>
<td>Low:</td>
<td>Father has to take the object or raise her voice to get it away from him.</td>
</tr>
<tr>
<td>15.</td>
<td>Child is willing to talk to new people, show them toys, or show them what he can do if father asks him to.</td>
</tr>
<tr>
<td>20.</td>
<td>Child ignores most bumps, falls, or startles.</td>
</tr>
<tr>
<td>Low:</td>
<td>Cries after minor bumps, falls, or startles</td>
</tr>
<tr>
<td>21.</td>
<td>Child keeps track of father’s location when he plays around the house.</td>
</tr>
<tr>
<td>Calls to her now and then.</td>
<td></td>
</tr>
<tr>
<td>Notices her go from room to room.</td>
<td></td>
</tr>
<tr>
<td>Notices if she changes activities</td>
<td></td>
</tr>
<tr>
<td>Low:</td>
<td>Doesn’t keep track</td>
</tr>
<tr>
<td><strong>Middle if child isn’t allowed or doesn’t have room to play away from mom</strong></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Child cries when father leaves him at home with babysitter, father, or grandparent.</td>
</tr>
<tr>
<td>Low:</td>
<td>Doesn’t cry with any of these.</td>
</tr>
<tr>
<td>22.</td>
<td>Child acts like an affectionate parent toward dolls, pets, or infants.</td>
</tr>
<tr>
<td>Low:</td>
<td>Plays with them in other ways.</td>
</tr>
<tr>
<td><strong>Middle if child doesn’t play with or have dolls, pets, or infants around</strong></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Child laughs when father teases him.</td>
</tr>
<tr>
<td>Low:</td>
<td>Annoyed when father teases him.</td>
</tr>
<tr>
<td><strong>Middle if father never teases child during play or conversations</strong></td>
<td></td>
</tr>
<tr>
<td>23. When father sits with other family members, or is affectionate with them, child tries to get mom’s affection for himself.</td>
<td>28. Child enjoys relaxing in father’s lap.</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Low: Lets her be affectionate with others. May join in, but not in a jealous way</td>
<td>Low: Prefers to relax on the floor or on furniture.</td>
</tr>
<tr>
<td><strong>Middle if child never sits still</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>24. When father speaks firmly or raises her voice at him, child becomes upset, sorry, or ashamed about displeasing her.</th>
<th>29. At times, child attends so deeply to something that he doesn’t seem to hear when people speak to him.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Do not score high if child is simply upset by the raised voice or afraid of getting punished)</td>
<td>Low: Even when deeply involved in play, child notices when people speak to him.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>25. Child is easy for father to lose track of when he is playing out of her sight.</th>
<th>30. Child easily becomes angry with toys.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low: Talks and calls when out of sight. Easy to find; easy to keep track of what he is playing with.</td>
<td><strong>Middle if never plays out of sight</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>31. Child wants to be the center of father’s attention. If mom is busy or talking to someone, he interrupts.</th>
<th>36. Child clearly shows a pattern of using father as a base from which to explore.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low: Doesn’t notice or doesn’t mind not being the center of father’s attention</td>
<td>Moves out to play; Returns or plays near her; Moves out to play again, etc.</td>
</tr>
<tr>
<td>Low: Always away unless retrieved, or always stays near</td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td><strong>32.</strong> When father says “no” or punishes him, child stops misbehaving (at least at that time). Doesn’t have to be told twice.</td>
<td><strong>37.</strong> Child is very active. Always moving around. Prefers active games to quiet ones</td>
</tr>
<tr>
<td><strong>33.</strong> Child sometimes signals father (or gives the impression) that he wants to be put down, and then fusses or wants to be picked right back up.</td>
<td><strong>38.</strong> Child is demanding and impatient with father. Fusses and persists unless she does what he wants right away.</td>
</tr>
<tr>
<td><em>Low:</em> Always ready to go play by the time he signals father to put him down</td>
<td></td>
</tr>
<tr>
<td><strong>34.</strong> When child is upset about father leaving him, he sits right where he is and cries. Doesn’t go after her.</td>
<td><strong>39.</strong> Child is often serious and businesslike when playing away from father or alone with his toys.</td>
</tr>
<tr>
<td><em>Low:</em> Actively goes after her if he is upset or crying.</td>
<td><em>Low:</em> Often silly or laughing when playing away from father or alone with his toys.</td>
</tr>
<tr>
<td><strong>Middle if never upset by her leaving</strong></td>
<td></td>
</tr>
<tr>
<td><strong>35.</strong> Child is independent with father. Prefers to play on his own; leaves father easily when he wants to play.</td>
<td><strong>40.</strong> Child examines new objects or toys in great detail. Tries to use them in different ways or to take them apart.</td>
</tr>
<tr>
<td><em>Low:</em> Prefers playing with or near father.</td>
<td><em>Low:</em> First look at new objects or toys is usually brief. (May return to them later however.)</td>
</tr>
<tr>
<td><strong>Middle if not allowed or not enough room to play away from father</strong></td>
<td></td>
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<tr>
<td></td>
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</tbody>
</table>
| **41.** When father says to follow her, child does so.  
(Do not count refusals or delays that are playful or part of a game unless they clearly become disobedient.) | **46.** Child walks and runs around without bumping, dropping, or stumbling.  
*Low: Bumps, drops, or stumbles happen throughout the day (even if no injuries result.)* |
| **42.** Child recognizes when father is upset.  
Becomes quiet or upset himself. Tries to comfort her; asks what is wrong, etc.  
*Low: Doesn’t recognize; continues play; behaves toward her as if she were OK* | **47.** Child will accept and enjoy loud sounds or being bounced around in play, if father smiles and shows that it is supposed to be fun.  
*Low: Child gets upset, even if father indicates the sound or activity is safe or fun.* |
| **43.** Child stays closer to father or returns to her more often than the simple task of keeping track of her requires.  
*Low: Doesn’t keep close track of father’s location or activities.* | **48.** Child readily lets new adults hold or share things he has, if they ask to. |
| **44.** Child asks for and enjoys having father hold, hug, and cuddle him.  
*Low: Not especially eager for this. Tolerates it but doesn’t seek it; or wiggles to be put down.* | **49.** Runs to father with a shy smile when new people visit the home.  
*Low: Even if he eventually warms up to visitors, child initially runs to father with a fret or a cry.  
**Middle if child doesn’t run to father at all when visitors arrive.* |
<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>45.</td>
<td>Child enjoys dancing or singing along with music.</td>
</tr>
<tr>
<td></td>
<td>50.</td>
</tr>
<tr>
<td></td>
<td>Low: Neither likes nor dislikes music</td>
</tr>
<tr>
<td>51.</td>
<td>Child enjoys climbing all over visitors when he plays with them.</td>
</tr>
<tr>
<td></td>
<td>56.</td>
</tr>
<tr>
<td></td>
<td>Low: Doesn’t seek close contact with visitors when he plays with them.</td>
</tr>
<tr>
<td></td>
<td><strong>Middle if he won’t play with visitors</strong></td>
</tr>
<tr>
<td>52.</td>
<td>Child has trouble handling small objects or putting small things together.</td>
</tr>
<tr>
<td></td>
<td>57.</td>
</tr>
<tr>
<td></td>
<td>Low: Very skillful with small objects, pencils, etc.</td>
</tr>
<tr>
<td></td>
<td>Low: Child is cautious or fearful.</td>
</tr>
<tr>
<td>53.</td>
<td>Child puts his arms around father or puts his hand on her shoulder when she picks him up.</td>
</tr>
<tr>
<td></td>
<td>58.</td>
</tr>
<tr>
<td></td>
<td>Low: Accepts being picked up but doesn’t especially help or hold on.</td>
</tr>
<tr>
<td></td>
<td>Low: Finds visitors quite interesting, even if he is a bit shy at first.</td>
</tr>
<tr>
<td>54.</td>
<td>Child acts like he expects father to interfere with his activities when she is simply trying to help him with something.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Low</strong>:</td>
<td>Accepts father’s help readily, unless she is in fact interfering.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>59.</th>
<th>When child finishes with an activity or toy, he generally finds something else to do without returning to father between activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong>:</td>
<td>When finished with an activity or toy, he returns to father for play, affection or help finding more to do.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>55.</th>
<th>Child copies a number of behaviors or ways of doing things from watching father’s behavior.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong>:</td>
<td>Doesn’t noticeably copy father’s behavior</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>60.</th>
<th>If father reassures him by saying “It’s OK” or “It won’t hurt you,” child will approach or play with things that initially made him cautious or afraid.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Middle if never cautious or afraid.</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>61.</th>
<th>Plays roughly with father. Bumps, scratches, or bites during active play. (Does not necessarily mean to hurt mom.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong>:</td>
<td>Plays active games without injuring father.</td>
</tr>
<tr>
<td><strong>Middle if play is never very active</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>66.</th>
<th>Child easily grows fond of adults who visit his home and are friendly to him.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong>:</td>
<td>Doesn’t grow fond of new people very easily</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>62.</th>
<th>When child is in a happy mood, he is likely to stay that way all day.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong>:</td>
<td>Happy moods are very changeable.</td>
</tr>
</tbody>
</table>

<p>| 67. | When the family has visitors, child wants them to pay a lot of attention to him. |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>63.</td>
<td>Even before trying things himself, child tries to get someone to help him.</td>
</tr>
<tr>
<td>68.</td>
<td>On the average, child is a more active type person than father.</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>On the average, child is less active type person than father.</td>
</tr>
<tr>
<td>64.</td>
<td>Child enjoys climbing all over father when they play.</td>
</tr>
<tr>
<td>69.</td>
<td>Rarely asks father for help.</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>Doesn’t especially want a lot of close contact when they play.</td>
</tr>
<tr>
<td><strong>Middle if child is too young to ask.</strong></td>
<td></td>
</tr>
<tr>
<td>65.</td>
<td>Child is easily upset when father makes him change from one activity to another.</td>
</tr>
<tr>
<td>70.</td>
<td>Child quickly greets his father with a big smile when she enters the room.</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>Doesn’t greet father unless she greets him first.</td>
</tr>
<tr>
<td>(Even if the new activity is something child often enjoys.)</td>
<td>(Shows her a toy, gestures, or says “Hi, Mommy”)</td>
</tr>
<tr>
<td>71.</td>
<td>If held in father’s arms, child stops crying and quickly recovers after being frightened or upset.</td>
</tr>
<tr>
<td>76.</td>
<td>When given a choice, child would rather play with toys than with adults.</td>
</tr>
<tr>
<td><strong>Low:</strong></td>
<td>Not easily comforted.</td>
</tr>
<tr>
<td></td>
<td>Would rather play with adults than toys.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>72.</td>
<td>If visitors laugh at or approve of something the child does, he repeats it again and again.</td>
</tr>
<tr>
<td></td>
<td>Low: Visitors’ reactions don’t influence child this way.</td>
</tr>
<tr>
<td>77.</td>
<td>When father asks child to do something, he readily understands what she wants. (May or may not obey.)</td>
</tr>
<tr>
<td></td>
<td>Low: Sometimes puzzled or slow to understand what father wants. <strong>Middle if child is too young to understand.</strong></td>
</tr>
<tr>
<td>73.</td>
<td>Child has a cuddly toy or security blanket that he carries around, takes to bed, or holds when upset. (Do not include bottle or pacifier if child is under two years old.)</td>
</tr>
<tr>
<td></td>
<td>Low: Can take such things or leave them, or has none at all.</td>
</tr>
<tr>
<td>78.</td>
<td>Child enjoys being hugged or held by people other than his parents and/or grandparents.</td>
</tr>
<tr>
<td>74.</td>
<td>When father doesn’t do what child wants right away, he behaves as if mom were not going to do it at all. (Fusses, gets angry, walks off to other activities, etc.)</td>
</tr>
<tr>
<td></td>
<td>Low: Waits a reasonable time, as if he expects father will shortly do what he asked.</td>
</tr>
<tr>
<td>79.</td>
<td>Child easily becomes angry at father.</td>
</tr>
<tr>
<td></td>
<td>Low: Doesn’t become angry at father unless she is very intrusive or he is very tired.</td>
</tr>
<tr>
<td>75.</td>
<td>At home, child gets upset or cries when father walks out of the room. (May or may not follow her.)</td>
</tr>
<tr>
<td></td>
<td>Low: Notices her leaving; may follow but doesn’t get upset</td>
</tr>
<tr>
<td>80.</td>
<td>Child uses father’s facial expressions as a good source of information when something looks risky or threatening.</td>
</tr>
<tr>
<td></td>
<td>Low: Makes up his own mind without checking father’s expressions first</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>81.</strong> Child cries as a way of getting father to do what he wants.</td>
<td><strong>86.</strong> Child tries to get father to imitate him, or quickly notices and enjoys it when mom imitates him on her own.</td>
</tr>
<tr>
<td><em>Low:</em> Mainly cries because of genuine discomfort (tired, sad, afraid, etc.)</td>
<td></td>
</tr>
<tr>
<td><strong>82.</strong> Child spends most of his play time with just a few favorite toys or activities.</td>
<td><strong>87.</strong> If father laughs at or approves of something the child has done, he repeats it again and again.</td>
</tr>
<tr>
<td></td>
<td><em>Low:</em> Child is not particularly influenced this way.</td>
</tr>
<tr>
<td><strong>83.</strong> When child is bored, he goes to father looking for something to do.</td>
<td><strong>88.</strong> When something upsets the child, he stays where he is and cries.</td>
</tr>
<tr>
<td><em>Low:</em> Wanders around or just does nothing for a while, until something comes up.</td>
<td><em>Low:</em> Goes to father when he cries. Doesn’t wait for mom to come to him.</td>
</tr>
<tr>
<td><strong>84.</strong> Child makes at least some effort to be clean and tidy around the house.</td>
<td><strong>89.</strong> Child’s facial expressions are strong and clear when he is playing with something.</td>
</tr>
<tr>
<td><em>Low:</em> Spills and smears things on himself and on floors all the time</td>
<td></td>
</tr>
<tr>
<td>85. Child is strongly attracted to new activities and new toys.</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><em>Low: New things do not attract him away from familiar toys or activities.</em></td>
<td></td>
</tr>
<tr>
<td>90. If father moves very far, child follows along and continues play in the area she has moved to.</td>
<td></td>
</tr>
<tr>
<td><em>(Doesn’t have to be called or carried along; doesn’t stop play or get upset.)</em></td>
<td></td>
</tr>
<tr>
<td><strong>Middle if child isn’t allowed or doesn’t have room to be very far away</strong></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C: Time 2 (5-year) Questionnaire Measures
Mother’s Demographic Questionnaire:

General Questions:
Participant #: _______________  Today’s date: _____________________
Your birthdate: _____________  Child’s birthdate: __________________
Your race/ethnicity: __________________ Gender of child (circle):   Male    Female
Marriage date (if married): _____________ Birth order of child: ________________
If living with partner, what was the approximate date you moved in together? _______

<table>
<thead>
<tr>
<th>Siblings Name</th>
<th>Birthdate</th>
<th>Siblings Name</th>
<th>Birthdate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Family dinner time
How many days a week do you have dinner with all family members present? _____day(s)
How many days a week do you think are ideal to have dinner together as a family? _____day(s)
Does everybody eat the same dinner?     YES      NO
   If NO, whom do you prepare a different dinner for? __________(age(s) of the child(ren))

What is the most challenging thing(s) about family dinner time?
_____________________________________________________________________________
_____________________________________________________________________________

What is the most enjoyable thing(s) about family dinner time?
_____________________________________________________________________________
_____________________________________________________________________________

Education:
Which best describes your current level of education?

<table>
<thead>
<tr>
<th>Some High School</th>
<th>High School Degree</th>
<th>Some College</th>
<th>College Degree</th>
<th>Masters Degree</th>
<th>Ph.D. Degree</th>
<th>Other</th>
</tr>
</thead>
</table>

If other, please describe: _______________________________________________________
_____________________________________________________________________________
If education is not yet completed:

A. Which best describes your desired level of education?

<table>
<thead>
<tr>
<th>Some High School</th>
<th>High School Degree</th>
<th>Some College Degree</th>
<th>College Degree</th>
<th>Masters Degree</th>
<th>Ph.D. Degree</th>
<th>Other</th>
</tr>
</thead>
</table>

If other, please describe:_____________________________________________
_________________________________________________________________

B. When do you expect to complete your educational goals? ________________

Employment Status:
Are you currently working outside the home? YES NO

IF YES, please answer the questions in Section I; IF NO, please go to section II.

Section I

A. How many hours per week do you work outside the home?
   0-10 hrs. 11-20 hrs. 21-30 hrs. 31-40 hrs. 41-50 hrs. Over 50 hrs.

B. How old was your child when you returned to work? ____years ____months ____weeks

C. How do you feel about your work outside the home?

<table>
<thead>
<tr>
<th>Very Positive</th>
<th>Positive</th>
<th>Mixed</th>
<th>Negative</th>
<th>Very Negative</th>
</tr>
</thead>
</table>

Could you briefly describe why you feel this way?______________
_________________________________________________________________

D. How does your partner feel about your work outside the home?

<table>
<thead>
<tr>
<th>Very Positive</th>
<th>Positive</th>
<th>Mixed</th>
<th>Negative</th>
<th>Very Negative</th>
</tr>
</thead>
</table>

Could you briefly describe why you think your spouse feels this way?
_________________________________________________________________
Section II

IF NO, do you plan to return to work?  YES  NO  UNSURE

A. How old will your child be when you plan to return to work outside the home?
   ______ years ______ months

B. How many hours per week do you plan to work outside the home?
   0-10 hrs  11-20 hrs  21-30 hrs  31-40 hrs  41-50 hrs  Over 50 hrs

C. How do you feel about (not) returning to work outside the home?
   Very Positive  Mixed  Negative  Very Negative
   Could you briefly describe why you feel this way?_______________________

D. How does your spouse feel about your plans to (not) return to work outside the home?
   Very Positive  Mixed  Negative  Very Negative
   Could you briefly describe why you think your spouse feels this way?

Section III

Financial Information:

Please indicate which best describes your family’s total annual income (circle one):

less than $10,000  $11,000-20,000  $21,000-30,000  $31,000-40,000  $41,000-50,000  $51,000-60,000

$61,000  $71,000  $81,000  $91,000  over $100,000

70,000  80,000  90,000  100,000

Is your partner currently employed?  YES  NO

How do you feel about your partner’s current employment status?
   Very Positive  Mixed  Negative  Very Negative
   Could you briefly describe why you feel this way?_______________________

_______________________________________________________________

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Childcare:

Is your child currently attending preschool, kindergarten, or other child care arrangements on a regular basis? Please circle one.

a. Preschool  

b. Kindergarten  

c. Other regular childcare arrangements  

d. Combinations of a/b and c  

e. not applicable  

A. If your child currently attends PRESCHOOL/KINDERGARTEN:

• At what age did your child start attending school? _______years_______ months
• How many days per week does your child attend school? _________ days
• How many hours per day (on average if it varies daily)? _________ hours
• How many children are in your child’s class? ____________
• How many teachers are in your child’s class? ____________

How old will your child be when starting kindergarten? _______years______ months

If your child also has other childcare arrangements, please go to B and answer the questions.

B. If your child currently has OTHER REGULAR CHILDCARE ARRANGEMENTS:
(Please check all that apply)

__ At home with relative ________days per week _______ hrs per week

   What relation? ________________

__ At home with sitter/nanny ________days per week _______ hrs per week

__ Home-based child care center ________days per week _______ hrs per week

__ Commercial child care center ________days per week _______ hrs per week

__ Government/community child care center ________days per week _______ hrs per week

__ University child care center ________days per week _______ hrs per week

__ Other ________days per week _______ hrs per week

   Please describe: __________________________________________

• At what age did your child enroll in the childcare used most often? _______ years______ months
• How many children are present in the childcare used most often? ____________
• How many teachers or caregivers are present in the childcare used most often? ____________
Father’s Demographic Questionnaire:

General Questions:
Participant #: ___________________  Today’s date: _____________________
Your birthdate: _________________  Your race/ethnicity: __________________

Family dinner time
How many days a week do you have dinner with all family members present? ______days

How many days a week do you think are ideal to have dinner together as a family? _____days

Does everybody eat the same dinner?  YES  NO
If NO, whom do you prepare a different dinner for? __________(age(s) of the child(ren))

What is the most challenging thing(s) about family dinner time?
_____________________________________________________________________________
_____________________________________________________________________________

What is the most enjoyable thing(s) about family dinner time?
_____________________________________________________________________________
_____________________________________________________________________________

Education:
Which best describes your current level of education?

- Some High School
- High School Degree
- Some College
- College Degree
- Masters Degree
- Ph.D. Degree
- Other

If other, please describe: ______________________________________________________
_____________________________________________________________________________

If education is not yet completed:
A. Which best describes your desired level of education?

- Some High School
- High School Degree
- Some College
- College Degree
- Masters Degree
- Ph.D. Degree
- Other
If other, please describe:_____________________________________________
_________________________________________________________________

B. When do you expect to complete your educational goals? _____________

Employment Status:
Are you currently working outside the home? YES NO

IF YES, please answer the questions in Section I; IF NO, please go to section II.

Section I
A. How many hours per week do you work outside the home?
   0-10 hrs. 11-20 hrs. 21-30 hrs. 31-40 hrs. 41-50 hrs. Over 50 hrs.

B. How do you feel about your work outside the home?
   Very Positive Mixed Negative Very Negative
   Could you briefly describe why you feel this way?_______________
   _____________________________________________________________

C. How does your partner feel about your work outside the home?
   Very Positive Mixed Negative Very Negative
   Could you briefly describe why you think your spouse feels this way?
   _____________________________________________________________

Section II
IF NO, do you plan to return to work? YES NO UNSURE

A. How old will your child be when you plan to return to work outside the home?
   _______years _______months
B. How many hours per week do you plan to work outside the home?
0-10 hrs 11-20 hrs 21-30 hrs 31-40 hrs 41-50 hrs Over 50 hrs

C. How do you feel about (not) returning to work outside the home?
Very Positive Mixed Negative Very Positive Mixed Negative

Could you briefly describe why you feel this way?____________________

_______________________________________________________________

_______________________________________________________________

_______________________________________________________________

F. How does your spouse feel about your plans to (not) return to work outside the home?

Very Positive Mixed Negative Very Positive Mixed Negative

Could you briefly describe why you think your spouse feels this way?

_______________________________________________________________

_______________________________________________________________

Section III

Financial Information:

Please indicate which best describes your family’s total annual income (circle one):

less than $10,000 $11,000- $20,000 $21,000- $30,000 $31,000- $40,000 $41,000- $50,000 $51,000-

$10,000 $20,000 $30,000 $40,000 $50,000 $60,000

$61,000 $71,000 $81,000 $91,000 over $100,000

$70,000 $80,000 $90,000 $100,000

Is your partner currently employed? YES NO

How do you feel about your partner’s current employment status?

Very Positive Mixed Negative Very Positive Mixed Negative

Could you briefly describe why you feel this way?____________________

_______________________________________________________________

_______________________________________________________________

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Appendix D: Time 2 (5-year) Observational Measures
STORY COMPLETION TASK

NARRATIVE COHERENCE (1-8)

Do NOT use a, b, or c ratings.

1) EXTREMELY INCOHERENT: There is no unified story, no plot, just series of severely disjointed events. Story is not logical. Frequent unexplained shifts, unconnected action. There is very little in the jumble of events that is related to the stem. Story is very difficult to understand. There may be odd stylized movements.

2) VERY INCOHERENT: The subject presents a very incoherent narrative. The incoherent category has 2 subcategories:
   2a) Severe avoidance: No response or several “I don’t knows” or “no” (nothing happens). No resolution. There is no story. The presentation may consist mainly of silent apparently meaningless movement of figures.
   2b) No logical story or resolution. Simply sequence of severe negative or bizarre events.

3) MORE INCOHERENT: This category may be subdivided onto 3 divisions:
   3a) The subject shows an understanding of the story stem but does not offer any resolution when the resolution is expected (perhaps in spite of specific or repeated general prompting). The subject may simply repeat the story stem. Or the subject may briefly start to deal with the problem then suddenly stop. This category would include unresolved that are not severely avoidant.
   3b) There is no resolution, nor any attempt to deal with the problem. Instead the story is bizarre disjointed, or aimless aggression or rambling action or escalation of loss or hurt. No real unified plot, rather series of disconnected actions. Fragments and not to the point.
   3c) Appropriate story resolution that show some coherence but with negative, bizarre digression or pervasive aggression or lack of clarity. This category is related to “incoherent/a” but more severe. Sequence of aggressive, bizarre actions, lack of clarity, connection, logic. Or very negative, bizarre, aggressive story that is unresolved but has some connection to action.

4) INCOHERENT: The subject does not provide a coherent story. There may be occasional positive aspects of coherence but overall the story does not provide an appropriate resolution to the problem in a flowing, consistent, relevant, understandable manner. There may be several sources of incoherence.
   4a) The subject presents a story having a resolution with a twist. The child begins a story fairly coherently, providing a resolution but then the story digresses to negative/aggressive/slightly bizarre material but not severe bizarre/pervasively negative. Or there may be an undoing of the resolution (ex: dog gets lost again at the end). Or resolution is embedded in incoherent action. Or incoherent material is presented before a brief simple resolution. This category is related to “somewhat incoherent/a” but is more severe.
   4b) The story is unresolved. The subject appears to be trying to deal with the story problem but is not able to get it together. Story does not form a unified whole or provide even a minimal resolution.
4c) The subject may offer a solution to the secondary but not primary problem. In contrast to “Somewhat incoherent/c” the story is disjointed, and/or bizarre, very difficult to understand and/or unclear with little aspects of coherence. Or deal with previous story or modification of stem but there is no resolution.

5) SOMEWHAT INCOHERENT: The subject provides a story having some coherence with a resolution. The story may be partly consistent, relevant, reasonable and understandable. However, the story resolution is intermingled with limitations such as: a mild twist to the resolution, initial hesitation to respond along with repeated need for general and specific prompts, a resolution to the secondary but not primary problem, a modification of the story or a story embedded in testing of the interviewer. This category is subdivided into:

   5a) The subject presents a story having a resolution with a mild twist. The child may begin the story coherently, but then make one or two disconnected shifts in the story line or may digress from the story line to neutral or slightly negative/aggressive or disjointed material. The story seems to unwind or fall apart after as appropriate start. Or there may be an appropriate beginning & end but fall apart in the middle. The digression does not follow from the story, is not related to the stem. There may be a sudden shift in action and often a sudden emotional shift. Sometimes shift to aggression or strange meaningless action rather than coherent story.

   5b) The subject’s initial response may be several “I don’t know”, “no” or a shrug of the shoulder. This initial hesitation to respond may be continued with a need for repeated general and specific prompts and requests for clarification of action. However the story provided addresses the story conflict in a relatively consistent, relevant, reasonable manner, producing a benign resolution. The story is generally very short. The avoidant cases in this category is related to the above “somewhat coherent/b category” but the avoidance is more severe.

   5c) The subject may offer a resolution to the secondary problem but not the primary problem (ex. soup, monster), however the story may otherwise be quite coherent. Or the subject may change the story significantly to deal with the problem. These changed stories may be connected and consistent with a resolution. Or there may be strong contradiction of monster/no monster.

   5d) An appropriate resolved story is embedded in testing, controlling, frustration or anger with the interviewer. There may be a request to return to class.

   5e) The subject shows an understanding of the story stem. There may or may not be a minimal resolution of the stem as presented. Instead the majority of the story is coherent but concerned with a modification of the stem. Or the stem itself may not be modified but the coherent story that is provided is related to the stem but does not directly address the stem’s core problem. Or there is a coherent, resolved story that is a continuation of a previous story.

6) SOMEWHAT COHERENT: The subject offers a minimal or complete resolution that is for the most part reasonable and benign. However there may be several possible limitations. The somewhat coherent category is subdivided into categories.

   6a) The subject demonstrates an understanding of the conflict or problem and offers a minimal but not a complete resolution. The story may have some embellishments or be very short and offer only the minimal amount necessary to tell the story. In either case, the story is in general connected, consistent, and reasonable. There are no digressions or contradictions. There may be several general prompts, specific prompts and requests for clarification of action.
6b) The story may have a minimal or complete resolution with/without embellishments but only with repeated general prompting or repeated request for clarification of action or narration or specific prompting (ex: hurt, spill, monster prompt).

6c) The subject may provide a complete resolution but there may be considerable but not severe digression to somewhat relevant material, mild contradictions or shifts, gaps in action, or unclear speech. The digression generally (but not always) occurs at the end of the story. The digressions are neutral, positive or mildly negative. They generally are related in some way to the stem. They do not create a twist to the resolution to the story. The subject may have a difficult time ending the story and may return to telling the story after the feeling prompt.

7) COHERENT: The subject addresses the story conflict and offers a reasonable, complete resolution. However there may be some relatively minor elements of incoherence: The story may be quite short. There may be the need for some specific or general prompts to encourage narration and drama. Or the story may be coherent but a specific hurt, spill or monster prompt is needed for the subject to provide a complete resolution. Or the action may lack in consistency, unity or connection. There may be some digressions or mild contradictions (however no bizarre or disjointed events). Some effort of interpretation may be required now and then. Or the subject may have minor difficulty ending the story.

8) VERY COHERENT: The subject addresses the story conflict without resistance, relates story completions to the story stem and avoids sharp contradictions in the story line and affective tone. The subject presents a plausible sequence of events related to the story stem and does not go off on tangents. The action is connected, consistent, and unified. The subject spontaneously provides a complete, positive resolution (little or no need for prompts) and perhaps a statement indicating the end (such as “all done” or “the end”, or sitting back in the chair or taking hands form the figures after presenting drama). The story is neither minimally short nor rambling and lengthy. The plot is to the point. Sufficiently clear information is given to enable the coder to follow the story line without clarifications. The subject may add to the story line, indeed there may be a lot of embellishment, but the subject does not change the original story stem. There are no incoherent shifts or bizarre events in the story. Thoughtful, reflective presentation. The subject may included collaborate comments (“let me think”, “well, two things could happen...”). The subject might indicate a distinction between illusion & reality (“no, there wasn’t really a monster, it was just...”, “he was really scared.. but it was just a nightmare.” “she thought her mom & dad didn’t like her any more but they really just wanted some time alone”). Lastly the subject may share relevant real life experiences that are emotionally consistent with the story being presented.
SECURITY RATINGS (1-8)

1) DISORGANIZED: Extremely incoherent. Generally the story is unresolved. The story contains bizarre, disjointed events. The story is not logical so that it is very difficult to understand. The presentation may be strange with odd stylized movements, brief frozen, staring moments in the midst of action. Odd personal references. The subject may display intense emotions in face, voice and action. There may be emotional incoherence - sudden unexplained shifts in emotional tone. Inappropriate emotions. There is generally mid- to high investment in performance. The presentation is characterized by dysfluency. The nonverbal state is generally anxious or agitated or disoriented. The interaction with the interviewer may be interactive and assertive or uncooperative and provocative. The representation of the parents is generally (not always) negative.

2) SEVERELY INSECURE
   2a. SEVERE AVOIDANCE: Very incoherent. Severe avoidance - little or no response. No resolution, indeed no story. Very low investment in performance. Low fluency. Restricted emotion, no knowledge of emotions, may have inappropriate affect. The nonverbal state is tense. The interaction with the interviewer is generally withdrawn. There is usually no representation of the parents.
   2b. SEVERE AMBIVALENCE: Very incoherent. Unresolved story that is not logical or understandable. There is a series of negative, disjointed or bizarre events. There may be high investment in performance but low fluency. The interaction with the interviewer may be cooperative, interactive/assertive or uncooperative. The nonverbal state is generally agitated. There is intense emotional expression, often inappropriate emotions and emotional shifts. The representation of the parents is usually neutral or negative or mixed.

3) MORE INSECURE
   3a. MORE AVOIDANCE: More incoherent. The story is unresolved. There is severe avoidance of the problem of the story. There is low investment in performance, and low fluency. The subject is restrained or withdrawn with the interviewer. The subject displays restricted emotions, perhaps some inappropriate emotion, and sometimes no knowledge of emotion. The representation of the parents is generally either absent, neutral or mixed.
   3b. MORE AMBIVALENCE: More incoherent. The story may be unresolved or have a very minimal resolution with a twist. There are bizarre, violent themes, disconnected, unreasonable action. The story lacks unity and clarity making it difficult to understand. There may be mid to high investment in performance but low fluency. The subject appears agitated or anxious. The interaction with the interviewer could be assertive and interactive/cooperative or uncooperative. The subject generally displays intense emotions, and often inappropriate emotions. Representation of parents is likely to negative, mixed or neutral.

4) INSECURE
   4a. AVOIDANT: Incoherent. No resolution either because the subject seems to deal with the central problem to some degree but is not able to provide a resolution. Or the subject provides a resolution to the secondary problem but not the primary problem. The resolution given for the secondary problem is disconnected, unreasonable and difficult to understand,
perhaps with a sequence of aggression or some bizarre events. The investment is performance is likely to be low to moderate and the fluency is low. The subject generally appears anxious or tense. The interaction with the interviewer may be reluctant, restrained, and uncooperative. There are usually restricted emotions, perhaps some inappropriate emotions and perhaps no knowledge of emotions. Severe avoidance. There may be negative, neutral or mixed representation of parents.

4b. AMBIVALENT: Incoherent. Resolution with a twist. There may be a minimal resolution followed with (or embedded in) a bizarre, disjointed or aggressive digression. However the degree of bizarre or disjointed or aggression is not severe. There is generally a high investment in performance but low fluency. The interaction with the interviewer is generally interactive or cooperative and perhaps assertive. The subject displays intense emotions, often inappropriate emotions and no not have knowledge of emotions. The representation of parents is generally negative or mixed.

5) SECURE

5a. SECURE/AVOIDANT: Minimal resolution provided but with initial hesitation, need for several general and/or specific prompts and/or requests for clarification, or coherent resolution to only the secondary problem or coherent modification of the problem. Generally low to mid investment in performance with low to mid fluency. The subject may appear tense or relaxed. The subject may be reluctant or cooperative with interviewer. There may be moderate or restricted expression of emotion (distress may not be expressed), generally has some knowledge of emotions and may display inappropriate emotions. Moderate avoidance. No representation of parents or neutral, mixed.

5b. SECURE/AMBIVALENT: Subject provides a minimal resolution to the story but with a twist that is disjointed or slightly negative or embedded in testing of the interviewer. There is usually mid to high investment in performance with low to mid fluency. The subject generally appears somewhat anxious. The interaction with the interviewer is usually cooperative (sometimes assertive or uncooperative). The subject displays restricted or full range of emotions with full knowledge of emotions and perhaps inappropriate affect. The representation of parents is likely to be mixed.

6) MORE SECURE

6a. MORE SECURE (AVOIDANT): The story has a minimal resolution that may be very short or presented only with several general, specific prompts or requests for clarification. The investment in performance may be low to mid while the fluency may be low, moderate or high. The subject is likely to appear tense (or relaxed or anxious). The interaction with the interviewer is generally reluctant or cooperative (perhaps assertive or uncooperative). The subject displays restricted or moderate (or perhaps full range of) emotions (may show little distress), generally has knowledge of emotions and little or no inappropriate emotions. Mild avoidance. Positive, mixed, neutral or absent representation of parents.

6b. MORE SECURE (AMBIVALENT): Complete or minimal resolution but with digression to relevant material or mild contradictions, shifts, or gaps. There is mid-high investment in performance and generally mid fluency. The subject appears relaxed or anxious. The interaction with the interviewer is likely to be cooperative (perhaps interactive or assertive or controlling). The subject may display full range of emotions, full knowledge of emotions, and
perhaps some inappropriate emotions. The representation of parents is likely to be mixed or positive.

7) SECURE: Coherent. Complete resolution that may have some embellishment or be very simple. There is likely to be mid to high investment in performance and mid-high fluency. The subject generally appears relaxed, at ease with the task and enjoying the presentation. However, there may be some anxiety. The subject is cooperative or interactive, perhaps also assertive with the interviewer. The subject is generally emotionally expressive of a full range of affect, (but could be moderate) with full knowledge of emotions and little or no inappropriate emotions. Representation of parents is likely to be positive or neutral (could be mixed or absent).

8) VERY SECURE: Very coherent, logical, connected, relevant. Complete, positive resolution with some embellishment. Subject acknowledges problem and deals with it in constructive, imaginative way. There is generally high investment in performance and high fluency. The subject appears relaxed and at ease with the issues and enjoying the task. The interaction with the interviewer is generally interactive but sometimes cooperative, and often assertive. The subject is expressive of a range of emotions, has full knowledge of emotion and little or no inappropriate emotional expression. The representation of the parents is likely to be positive or neutral.
MEMORY TALK CODES

Note: Some of these codes have previously used on mother-child dyads. In the present study, they are used on both mother-child and father-child dyads.

Maternal elaboration coding

1-5 scale

1 = Mothers discuss little or no background material for the event discussed. In addition, once the initial idea/topic is discussed (and this idea is typically brief), there are only a few new ideas or pieces of information introduced. The initial topic/information is repeated or the same or a similar question is asked, regardless of the child’s response (i.e., the child may respond affirmatively or negatively, but the mother still repeats the question). Thus, repetition dominates the transcript. In addition, there are no or very few open-ended questions. In general, mothers ask a lot of yes/no questions.

2 = Mothers discuss small amounts of background material for the event discussed. In addition, mothers may introduce or request several new pieces of information about the event in question (e.g., in about 20-30% of her conversational turns). These new pieces of information, however, are repeated frequently. Thus, the level of repetition is high and the repetition does not seem warranted (i.e., the child answered the question). The bulk of the mother’s questions are not open-ended. However, there may be a small proportion of questions that are open-ended.

3 = Mothers discuss moderate amounts of background material for the event discussed. For example, mothers may introduce (or request) new ideas or pieces of information about the event discussed on approximately half of her conversational turns (40-60% of the time). The amount of repetition, however, is still moderate and there are clear instances where the repetition is not warranted (e.g., the child attended to the question). Mothers ask a balance of open-ended questions and yes/no questions to the child.

4 = Mothers discuss high amounts of background material. Thus, mothers may introduce (or request) new pieces of information about the event discussed on the majority of her conversational turns. There may be several incidences of repetition, but for the most part, those instances are justified, because the child doesn’t respond or is distracted. There may be several cases, however, where repetition is not warranted (but not more than a couple). The majority of the questions asked of the child are open-ended, although there may be a small handful of questions that are not open-ended.

5 = Mothers discuss high amounts of background material. Thus, mothers introduce new information or requests for information on most conversational turns. All episodes of repetition that exist in the conversation are justified—e.g., the child is distracted, doesn’t answer the question, or gets off-topic. Almost all of the questions that the mother asks of the child are open-ended. There are few yes/no questions.
Validation/Acceptance vs. Dismissing/Negating

The set of codes is reflective of the following types of discourse:

- Mother’s repetition of the child’s perspective, which indicates validation
- Expressions of empathy for the child’s feelings
- Mother’s willingness to accept the child’s statement about how they felt or perspective on what happened, even when it is contrary to the mother’s
- Mother’s expansion and building upon what the child has contributed to the conversation

Validating transcripts also present children with the opportunity to describe how they were feeling, through mothers’ use of open-ended questions.

1: Mother is dismissing of child’s perspective, evident by manner in which mother negates child’s emotional reaction (for example, telling child that he/she did not feel a certain way). Mother may argue with child about how the child was feeling or question the validity of the child’s emotional response (for example, “But why were you upset when we are having fun”). Overall, these transcripts leave one with the sensation that the mother and the child may not agree about what the child was feeling and why.

3: Mother provides some validation of the child’s perspective, by repeating what the child says and providing some limited expansion on what the child contributes to the conversation. Mother may miss opportunities to follow child’s lead within the conversation, and there also may be a few instances in which the child’s emotional reactions are explicitly questioned by the mother. Overall, transcript provides some indication that the mother is accepting of the child’s point of view, but there are still sections where the mother could have been more validating by following the child’s lead and giving the child an opportunity to describe how she was feeling.

5: Mother validates child’s perspective, feelings, and actions in the situation described. Mother may express empathy for child’s emotional reaction, even in situations where the mother and the child were in conflict with one another. Mother repeats what the child says and adds information, indicating that she is accepting the child’s version of the story. Children’s responses are given greater weight in the discussion than mothers’ versions, and mothers are quick to accept their children’s points of view when the child corrects the mother.
Parental warmth/positive affect

5. Continuous High Warmth and Positive Affect.
Parent displays high amount of warmth and positive affect during the memory talk, including excitement and enthusiasm. Parent may smile, laugh, cuddle, hug, or kiss the child. Parent continues to display positive and pleasurable countenance paired with excitement during the memory talk.

4. High Warmth and Positive Affect.
Parent displays a lot of warmth and positive affect during the memory talk, however, less enthusiastic than a score of 5. They use a pleasant and positive tone of voice and may smile, laugh, and encourage the child.

3. Some Warmth and Positive Affect.
Parent has a pleasant facial expression and use a pleasant tone of voice. Parent displays 2-3 discrete positive affect including smile and laugh.

2. Low Warmth and Positive Affect.
Parent expresses low-keyed expression of warmth and positive affect. Parent may smile/laugh once during the memory talk. Parent appears to be cool.

1. No Warmth and Positive Affect.
Parent does not show signs of warmth or positive affect towards the child.
Parental interest

5. High and Genuine Interest in the Child: Engaged and Enthusiastic.
Mother is focused on her child, showing high interest and curiosity in what s/he says and does throughout the entire episode. She is not only listening and being attentive to the child's ideas, but in addition there is an authentic, genuine and positive interest in trying to understand the child's perspective or point of view. She is very attentive and responsive to what the child says and does, and follows his/her ideas and thoughts; there is a feeling that mother is trying to "get to know" her child. She may ask open-ended questions regarding ideas the child raises, elaborating questions that further the narrative, or facilitating questions that help the child make important connections between different parts or aspects of the story. She is responsive to the child's initiations and invitations for cooperation in the task, or takes a more active participating role if it is required. Assigning this score to the mother implies that there were no signs of boredom or disengagement in her interaction with the child. Also note that if there is one instance in which the mother flattens an idea proposed by the child, her score should be lowered to 4.

Generally, the mother is focused and concentrated in the child, and attentive to what s/he has to say, however the intensity of the interest and curiosity she displays to the child's contributions to the story and the positive/enthusiastic quality are lower compared to the score of 5. Although she is engaged and interested in the child, following and responsive to him/her, she might flatten a little from time to time an idea raised by the child.

3. Flat Interest in the Child: Attentive.
Mother is attentive to the child and displays some interest in the child, but the positive quality is clearly lacking here. She does not show an authentic interest in the child's contributions to the story (she doesn't really show that she is trying to get to know her child). Nevertheless, she is not altogether indifferent, or detached, or bored, or non-attentive to the child's contributions. Some mothers may show low to moderate levels of rejection, or anger, or dissatisfaction.

2. Low Interest in the Child: Distracted.
Mother is not really following the child's ideas, and there may be long periods of time, or many incidents of shorter duration, in which she seems detached from the child OR occupied/busy with other things (checking the book or the room, looking into her bag, etc.), OR bored, OR indifferent, OR asking the child stereotypic questions, apparently asking questions as if in order to fulfill her obligation. When the child replies, she does not pay attention to him/her, and may also move to her next question. She may respond saying "very good!" but it seems that she was not really listening to her child's reply.

1. Lack of Interest in the Child: Disengaged.
The mother is not interested in the child and in what he has to say, and she does not follow his/her contributions to the story. She is withdrawn and looks detached and disengaged from the child. She hardly ever asks the child any questions, or at times she may ask stereotypic questions (e.g., "so what is happening in this picture?", "tell the story"), or may ask repetitive questions, as if to fulfill her obligation. Generally, her lack of interest in the child is clear, she may seem withdrawn, distracted, disengaged, detached and bored.
Parental rejection/hostility

7. Marked Hostility toward the Child.
Mother explicitly and directly humiliates or insults the child - behaviorally or verbally. She may use humiliating or degrading expressions, and/or mock the child when s/he is mistaken. A hostile maternal expression is considered especially severe if it is expressed in the context of a child exhibiting vulnerability (such as asking for mother's help), or if it follows a direct request from the child to stop the hostile expressions. This score is also given when a moderately hostile expression is repeated many times during the dialogue, or when there are several (at least 2-3) instances of especially marked hostility. In addition, this score is assigned when mother continually expresses rejection, disbelief, dissatisfaction, or mistrust toward the child throughout the task.

6. High Hostility toward the Child.
This is an intermediate score between a "7" and a "5".

5. Intermittent Hostility toward the Child.
The interaction includes several/repetitive hostile expressions from the mother toward the child, alternating with a few instances when she is not hostile. It is very clear that the mother's hostility is disturbing or upsetting to the child. It is possible, however, that this general atmosphere of hostility will be covered or disguised by exaggerated and non-authentic giggles and laughter from either or both partners. This score is also assigned when there is a single severe instance of hostility toward the child or when there are several moderately hostile expressions.

4. Hostility toward the Child.
This score is assigned to mothers who clearly express hostility towards the child, but with lower levels of intensity compared to a score of "5".

As a whole, the interaction is not characterized as hostile or rejecting, although there are a few (2-3) instances of maternal hostility or teasing of low to moderate intensity. OR there are 3 expressions of dissatisfaction and/or rejection during the episode; these can be either obvious or subtle (i.e., at the background). The child can be observed to react to these incidents in a somewhat competent way, overcoming them. Alternatively, the child may ask mother to stop making hostile remarks and mother complies, so that eventually the tense atmosphere between them dissipates. This score is also assigned in situations in which the mother expresses 1 or 2 instances of dissatisfaction toward the child. Warm teasing by the mother is also scored at this level but only if the child handles it with a good spirit; otherwise warm teasing is scored as "4". Warm teasing reflects a situation in which mother's negative intentions are covered/disguised with apparently overt positive behavior. The child's reaction to such incidents are the best indicators to use in deciding between a score of "3" and a score of "4".

2. Little Rejection of the Child.
This score is assigned when there is one incident of rejection/teasing/dissatisfaction from the mother towards the child, of low intensity.
1. No Rejection of or Hostility toward the Child.
There are no instances of maternal hostile or rejecting expressions toward the child.
**Child Avoidance/Evasions**  
*adapted from McCabe & Peterson (1991)*

Highlight or bracket instances where the C resists continuation of the conversation with M.  Stop coding if M indicates that C should open the door.

Consider only child conversation turns *in response* to mothers’ questions or statements attempting to engage the child in conversation regarding some aspect of the on-topic conversation, or continuing conversation about the child’s answers.

**DO NOT** consider any segment in the child’s turn as counting toward an evasion if the child contingently responded before the evasion.

- M: But today you were mad, I didn’t see that, you were mad again when Daddy told you?  
  C: Yeah…Look it, look it!  
  \[**DO NOT** CODE THIS AS AN EVASION – if child respond’s contingently to mother do not code the conversation that follows as an evasion.\]

**DO** count mother’s turns that are only a repetition of the child’s preceding statement in this category.

- C: I was sad.  
  M: Sad. (DO CONSIDER CHILD’S RESPONSE TO THIS)

**DO** count mothers directives aimed at engaging the child in conversation in this category.

- C: Hi Mom.  
  M: Hi. I have some questions to ask you. *or* Sit down and let’s talk for a minute. (DO CONSIDER CHILD’S RESPONSE TO THESE)

**ONLY** consider child’s response if mom clearly engages child in task, i.e.mom asks child a specific question or refers to talking together. DO NOT CODE these if mom says, “Come here”, “Come sit for a minute”, or call’s child’s name.

If mothers’ preceding turn has nothing to do with the on-topic conversation (e.g., mother makes a comment about the child’s shoes), then don’t count the child’s response as an evasion.

- C: Look at my feet!  
  M: Yes, you need new shoes (DO NOT CONSIDER CHILD’S RESPONSE TO THIS)
BUT, if mother follows up the off topic statement with an on topic statement, do code child’s response. Consider the LAST thing that mothers say to determine if they are trying to engage the child in conversation about the on-topic conversation.

   C: Look at my feet!
   M: Yes, you need new shoes. Now, did you say scared a lot or a little? (DO CONSIDER CHILD’S RESPONSE TO THIS)

If the child’s response includes MUMBLING or LOST WORDS: DO COUNT as an evasion if there is enough information

   EX: M: You like to play with friends.
       C: I don’t want to talk about it [lost words] / [mumbling]
           EE

   OR
   EX: M: You like to play with friends.
       C: [Mumbles] Look at this picture.

HOWEVER: Do not code as an evasion if not enough info.

   EX: Mom: Just don’t remind you?
       Child: [mumbles]
       \rightarrow DO NOT count as an evasion because not enough info.

1. **Changing the topic (CT):** In response to mother’s question or statement, child ACTIVELY TRIES TO SHIFT the topic or focus of attention (i.e., child’s response is unrelated to the mother’s question or statement). These responses may be statements or questions about something completely unrelated to the situation or the discussion, or they may be statements or questions about the situation or something the child is observing. You’ll have to read carefully for the content of the mother’s questions/statements. If child gives silly responses, but seems to be engaging in the conversation, don’t count it as an evasion.

   Examples:
   M: Really? What kind of sad? Why did you feel sad about it?
   C: There’s red right here and now I can see it! [Referring to color inside panels on the table]

   M: You were mad at mommy, huh?
   C: Mommy, you want to see something?

   M: You were mad?
   C: I have to go to the bathroom.
2. **“Don’t know” or “Don’t remember” (DK):** In response to mother’s question or statement, child says that they don’t know or don’t remember as the answer to mother’s question. Also, if child shrugs shoulders, this counts as “don’t know”. IF child says, “Don’t know. I don’t know” count as only 1 DK.

   **Examples**
   M: What happens when you feel sad?
   C: I don’t know.

   M: Do you remember when we took [inaudible] to the airport?
   C: [Shakes head] I don’t remember that.

   M: Do you remember that?
   C: [Shakes head] nu uh

3. **Explicit Evasions/Refusals (EE):** In response to mother’s question or statement, the child verbally indicates that he or she does not want to continue the conversation. This indication could be a statement that the child does not want to talk anymore, or could be a statement requesting that the mom discontinue the conversation. **Also count as EE if M requests that C continue the conversation, and C responds “No”.**

   **Examples**
   M: You need to sit down and talk to me.
   C: No I want…

   M: Would you please tell me why you were so mad?
   C: No I don’t wanna--

   M: Let’s talk about this.
   C: No or [N]

   M: Child remember when…
   C: Don’t talk to me!

   M: How did you feel after he took that from you?
   C: (Laughs). Plays with toy.

**Behavioral Evasions (BE):** In response to mother’s question or statement, the child behaviorally indicates that he or she does not want to continue the conversation. These are behaviors that are in response to the mother’s questions or statements about the conversation. HOWEVER, do not count less conspicuous movements as BE. Behavioral evasions could be displayed by the child opening the door in response to the mother’s question related to the conversation, or it could be that the child runs around the room away from the mother. In some instances the child will hit or kick the mother when the mother asks about the on-topic conversation. **Also count BE if M requests that C continue with the conversation, and C runs away or displays behavior that communicates disengagement/avoidance.**
Count screaming, i.e. (scream) or “Ahhh” as BE
Also count “squirms” as BE
CODE NOISES such as “Rawr” or “oolaalaa” as BE if not on topic

M: Do you want her to buy another ice cream and not share it with you?
C: (child opens the door)

M: Remember when you were SO MAD because <name> didn’t give you a cap, but <name> said <name> wouldn’t give kids a cap if they didn’t walk across the stage remember?
C: [Kicks mother’s hands].

M: Remember when you were in your room on your bed and [person] took [object] away from you? And you started crying, you were mad?
C: [putting on lip gloss, puts some on mom]

M: How did that make you feel?
C: Umm (pause 7)
C: [mumbles, squirms around on lap]. Just don’t remind me.

**GENERAL CODING NOTES**

- If child responds to mom with responses that fall under two separate codes (i.e. BE and EE, CT and EE, EE and BE, etc.) code both.

  EX: Mom: One more. What helped you feel better.
  Child: [goes off mother’s lap] No!
  BE                          EE

*Note that different from before – if child says the same thing that they are indicating with their body, then code as one code.

  EX: Mom: You don’t want to talk about yesterday?
  Child: [Shakes head no]. I don’t want to.
  EE

- If child responds and then displays an evasion, DO NOT CODE.

  EX: Mom: Did you hear my question?
  Child: Yeah, see. [Throws toy across the room].

- HOWEVER: If child responds with “umm”, “laugh”, “mumbles” DO CODE what follows as an evasion.

  EX: Mom: Sad. What did we try to do and feel better after he was sick?
  Child: Umm. [shrugs shoulders]
  DK
• If child responds with a growl, grimace, pretend crying, etc. DO NOT CODE as an evasion if in response to the question.
  EX: M: And then were you still mad at Mommy?
      C: grr (softly)
  → DO NOT CODE as an evasion because it is a non-verbal response to mother’s question.

• Count evasion If child responds with “Umm” or “laugh” and then there is an evasion.
**Child cooperation/responsiveness**

**5. High Cooperation**
Child is very responsive to parents’ initiatives. The child contributes significantly to the memory talk by initiating and contributing to new ideas. The child is very attentive during the memory talk.

**4. Moderately High Cooperation**
Child is responsive to parents’ initiative. The child contributes to the memory talk, but not to the extent of a score of 5. The child may look away or get distracted briefly (e.g., 1 to 2 mild instances) during the memory talk, but re-engages right away.

**3. Moderate Cooperation**
Child’s responsiveness to parents’ initiative is mixed. The child is only occasionally cooperative (about half of the time). He/she may be distracted, or avoid and/or ignore the parent.

**2. Low Cooperation**
Most of the time the child is distracted, or is actively avoiding or ignoring the parent. The child contributes little to the memory talk.

**1. No Cooperation**
Child’s responsiveness to parents’ initiative is very low. For the most part the child appears to be distracted, or is avoiding and/or ignoring the parent. Score 1 if the child insists on not talking to the parent during the memory talk.
**Child warmth/positive affect**

5. **Continuous High Warmth and Positive Affect**
The child displays high amount of warmth and positive affect during the memory talk, including excitement and enthusiasm. The child may smile, laugh, cuddle, hug, or kiss the parent. The child continues to display positive and pleasurable countenance paired with excitement during the memory talk.

4. **High Warmth and Positive Affect**
The child displays a lot of warmth and positive affect during the memory talk, however less enthusiastic than a score of 5. He/she uses a pleasant and positive tone of voice and may smile and laugh with the parent.

3. **Some Warmth and Positive Affect**
The child has a pleasant facial expression and uses a pleasant tone of voice. The child displays 2-3 discrete positive affect including smile and laugh.

2. **Low Warmth and Positive Affect**
The child expresses low-keyed expression of warmth and positive affect. The child may smile/laugh once during the memory talk. The child appears to be cool.

1. **No Warmth and Positive Affect**
The child does not show signs of warmth or positive affect.
**Child anger/hostility**

**7. Marked Hostility**
The child frequently exhibits high levels of overt hostility and anger toward the mother throughout the task. The child uses physical means, such as pushing the mother, hitting her, or using a hostile tone of voice to reject/oppose her. OR A score of "7" is given whenever a clear overt and strong act of hostility is done intentionally to the mother.

**6. High Hostility**
Intermediate score between a "5" and a "7".

**5. Intermittent Anger and Hostility**
The interaction includes recurring expressions of anger and hostility directed toward the mother, interspersed with periods without anger/hostility. It is very clear that the child's hostility toward mother is hurting or disturbing her. Either or both mother and child may disguise this generally hostile atmosphere with exaggerated non-authentic giggles and smiles. A child is also assigned this score, if there is one expression of severe hostility, or several expressions of moderate hostility directed to mother.

**4. Occasional Anger and Hostility**
The child displays several moderately intense expressions of anger and/or hostility toward the mother (e.g., verbal protest, ignoring, etc). OR: there are more than 2 instances of covert hostility (e.g., deliberate ignoring mother, "accidentally" pulling the picture-book from the mother's hands, etc). OR: there are 1-2 instances of high intensity anger (e.g., child shouts at mother and talks to her in a hostile/menacing tone, or there is a clear verbal rejection). A score of "4" is used for an interaction in which the child's hostility/anger toward mother is clearly evident, but less intense than the score of "5".

**3. Some Anger or Hostility**
Although the interaction is not characterized by hostility, there are 2-3 low-level instances of it directed toward mother, or several minor instances of anger or ignoring. OR: there may be an instance of contained moderate hostility, which does not adversely impact the rest of the interaction.

**2. Low anger or hostility**
There is one minor expression of hostility or several minor instances of ignoring mother.

**1. No Anger or Hostility**
The child displays no signs of anger or hostility toward the mother.
Levels of intersubjectivity

5. Very High Intersubjectivity.
Mothers and children experience frequent well matched moments of shared emotions, ideas, and meanings in the context of shared positive affect, harmony, and excitement. In general, there is a sense that mothers and children are "on the same page" with regards to sharing story; both enjoying the contributions that each bring to the task. Overall, there is an appreciation of the sharing of ideas on both sides. If the child becomes off task, mothers quickly re-engage the child with the task and both seem dedicated to completing the task, sharing ideas, and discussing the ideas openly. In addition, the level of enthusiasm between the dyad is high.

4. High Intersubjectivity.
Both members of the dyad seem emotionally invested in task and for the majority of the time, mothers and children seem to be “on the same page.” There may several brief lapses in the “shared agenda” and the level of positive affect is less than those dyads who receive a score of “4”. There also may be a few instances where the mother and child are not able to reach an understanding on some aspect of the story (e.g., there may be disagreement or confusion on an idea raised by the mother or child).

3. Moderate Intersubjectivity.
Overall, the dyad is somewhat emotionally invested in the task, but there are several marked instances where the dyad disengages from the task (e.g., where the child is off task and the mother fails to immediately re-engage the child). In addition, there are also several times in which the mother and child do not clearly share understandings, because either one member of the dyad is dominating the task or because there are clear disagreements (without resolution) on story content. The dyad’s level of enthusiasm is moderate.

2. Low Intersubjectivity.
The dyad may share several instances of focus, attention, and engagement. Overall, there are more instances when the dyad is not engaged together in the task than engaged together. Thus, in general, when one member of the dyad is engaged in the task, the other is not. There are not a lot of instances in which the dyad creates meaning from their interaction, typically because either one member of the dyad dominates the task (and the other disengages), or the child is off task and mothers do not re-engage them.

1. No Intersubjectivity.
There is little shared attention, affect, and focus. One partner does not contribute to the task and there is little sense that dyad has cocreated a story from the task. Overall, there is no indication that the mother and child share a sense of togetherness, shared positive affect, or engagement in the task.
Quality of dyadic communication

5. Mutual and Fluent Dyadic Communication.
The communication between the dyad is fluent, smooth, and open. Both members of the dyad contribute enthusiastically to the task, resulting in open, coherent, and free-flowing communication. Although mothers may provide the structure to the task (though the use of scaffolding questions), children willingly contribute to the story by answering the mothers’ open-ended questions. Both partners seem comfortable in sharing their thoughts and feelings with regards to the story and the communication is clearly “ping-pong” or “back and forth” in nature.

For most of the time, the communication between the dyad is smooth, open, and free-flowing. However, there may be several brief instances in which the dyad lapses in communication (e.g., the child does not respond to the mother or responds in way that is off task). When there is a clear lapse in communication, the mother recognizes the lapse and repairs the communication (e.g., brings the child back on task or re-phrases a question). Nevertheless, there is a lot of back and forth between the child.

3. Moderate Dyadic Communication.
At times communication between the dyad is open and free flowing. However, there are as many instances where the communication between the dyad is not fluid, coherent, or open. The child or mother may occasionally ignore the other’s contributions or questions or may respond inappropriately to the other. Overall, the communication between the mother and child alternates between periods of “back and forth” and more strained or one-sided communication.

2. Low-moderate Dyadic Communication.
Most of the dialogue between the dyad is not fluent or flowing, although there may be periods of brief open communication. In general, communication between the dyad is dominated by one member or is disrupted and not repaired (e.g., the child gets off task and the mother is not able to bring them back to the storybook co-construction). In general, there is not much “back and forth” between the dyad and the discourse is often incoherent or involves one partner ignoring the other or disengaging.

1. Poor Dyadic Communication.
The dyad’s communication is not open, free flowing, or coherent. One member of the dyad dominates the task and allows for few contributions from the other or the other member withdraws from the task. Thus, overall, dialogue is absent, one-sided, and lacks mutuality.
Level of dyadic collaboration

3. High Collaboration.
Both partners provide meaningful contributions to the narrative co-construction.

2. Some Collaboration.
Either mother (2) or child (4) provides most of the meaningful contributions for the story, and the other partner provides only a few contributions.

1. Low Collaboration.
Meaningful contributions to the narrative originate mainly from the mother or child.

0. No Collaboration.
This score is assigned whenever no story was told, that is, no one contributed to the story.
Coherence

1. Conversations assigned a code of one do not have a clear focus. When looking at the transcript, there is little understanding about the event or background material discussed. Much of the conversation seems irrelevant or off topic. In the end, the coder walks away from the transcript with little idea about the positive/negative experience that was discussed by the mother to the child. Important details (who, what, when, where, why) are missing.

2. Conversations assigned a code of two may lack a clear focus for much of the conversation. There are small glimpses of clarity and on topic conversation throughout the transcript. These moments, however, are relatively brief.

3. Conversations assigned a code of three have moderate amounts of clarity and on topic conversation. Throughout the transcript, there is a relative mixture of both clear and non clear sections. Mothers may start to discuss the event and then become distracted by the child and loose focus. In the end, the coder should have some idea about the event[s] discussed, but feel that the event[s] was/were not well explained by the mother. Some details (who, what, where, when) are discussed, but not fully.

4. Conversations assigned a code of four have a clear focus to them. Most of the conversation is relevant, on-topic, and easily understandable. In a couple of small instances, however, there are lapses of clarity or off topic conversation. Overall, the coder should feel like they understood most aspects of the event discussed (who, what, where, when, why, e.g.).

5. Conversations assigned a code of five are extremely clear. From the transcripts, the event discussed and the background details have been clearly explained. In general, the mother laid the groundwork for the child and experimenter to understand exactly what happened during the positive/negative event discussed (including who, what, when, where, and why). There are no unclear sections to the transcripts and off topic discussion in minimized by the mother (who refocuses the child should the child stray off topic).
Appendix E: Additional Information on Parent-Child Narrative Scales
**Mean (SD) for the parent-child reminiscing scales**

<table>
<thead>
<tr>
<th></th>
<th>Positive Event</th>
<th></th>
<th>Negative Event</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mothers</td>
<td>Fathers</td>
<td>Mothers</td>
<td>Fathers</td>
</tr>
<tr>
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<td>3.21 (.79)</td>
<td>3.06 (.94)</td>
<td>3.07 (.74)</td>
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<td>Parental emotion validation</td>
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<td>4.32 (.84)</td>
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<td>Parental warmth</td>
<td>3.15 (.59)</td>
<td>3.00 (.73)</td>
<td>3.94 (.67)</td>
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<td>Parental interest</td>
<td>3.35 (.58)</td>
<td>3.32 (.65)</td>
<td>3.27 (.56)</td>
<td>3.29 (.65)</td>
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<tr>
<td>Parental rejection/hostility</td>
<td>1.56 (.73)</td>
<td>1.31 (.66)</td>
<td>1.65 (.92)</td>
<td>1.47 (.68)</td>
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<tr>
<td>Child cooperation/responsiveness</td>
<td>3.35 (.77)</td>
<td>3.38 (.91)</td>
<td>3.15 (.88)</td>
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<td>Child warmth/positive affect</td>
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<td>2.88 (.86)</td>
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<tr>
<td>Child anger/hostility</td>
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<td>1.35 (.86)</td>
<td>1.57 (.98)</td>
<td>1.57 (.97)</td>
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<tr>
<td>Levels of intersubjectivity</td>
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<td>Mutuality of communication</td>
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<td>1.73 (.65)</td>
<td>1.64 (.60)</td>
<td>1.60 (.66)</td>
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<td>Coherence</td>
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<td>3.17 (.73)</td>
<td>3.04 (.78)</td>
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</tbody>
</table>

*Note.* N ranged from 69 to 71 because of missing data.
**Mean (SD) for the parent-child reminiscing scales (By child gender)**

<table>
<thead>
<tr>
<th></th>
<th>Girls</th>
<th></th>
<th>Boys</th>
<th></th>
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<tr>
<td></td>
<td>Positive Event</td>
<td>Negative Event</td>
<td>Positive Event</td>
<td>Negative Event</td>
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<tr>
<td></td>
<td>Mothers</td>
<td>Fathers</td>
<td>Mothers</td>
<td>Fathers</td>
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<td>Parental elaboration</td>
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<td>3.18 (.96)</td>
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<td>3.16 (.76)</td>
<td>3.03 (.83)</td>
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<tr>
<td>Parental interest</td>
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<td>3.35 (.70)</td>
<td>3.43 (.66)</td>
<td>3.35 (.72)</td>
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<td>Parental rejection/hostility</td>
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<td>1.22 (.50)</td>
<td>1.47 (.78)</td>
<td>1.35 (.53)</td>
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<tr>
<td>Child cooperation/respon.</td>
<td>3.63 (.70)</td>
<td>3.31 (.98)</td>
<td>3.38 (.89)</td>
<td>3.29 (.85)</td>
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<tr>
<td>Child warmth/pos.</td>
<td>3.19 (.67)</td>
<td>3.06 (.84)</td>
<td>2.81 (.73)</td>
<td>2.71 (.87)</td>
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<tr>
<td>Child anger/hostility</td>
<td>1.37 (.86)</td>
<td>1.19 (.51)</td>
<td>1.41 (.93)</td>
<td>1.41 (.70)</td>
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<td>Levels of intersubjectivity</td>
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<td>3.03 (.93)</td>
<td>3.21 (1.0)</td>
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<td>Communication</td>
<td>3.57 (.79)</td>
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<td>1.75 (.67)</td>
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<tr>
<td>Coherence</td>
<td>3.46 (.69)</td>
<td>3.22 (.74)</td>
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</tr>
</tbody>
</table>

*Note. N = 34 for girls and 37 for boys.*