INFLUENCES ON YOUNG ADULTS' EARLIEST MEMORY AND MEMORY FLUENCY

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by

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Abstract

Parent-child relationships have a marked impact on child development that continues into adulthood, such as the development of identity. Identity formation is based upon one's life story, consisting of past memories, perceived present, and predictive future, collectively providing a sense of purpose and unity (McAdams, 1985; 2006). Thus, the recall of autobiographical memories is necessary in the construction of identity. Currently, there is no study that has examined the importance of parent-child relationships and frequency and function of reminiscing on adults' earliest memory and memory fluency. Therefore this study examines this issue by interviewing 149 young adults regarding memory, and measuring parent-child relationships and reminiscing. Results show that the quality of parent-child relationships, the amount of parental involvement, and reminiscing are associated with early autobiographical memory, though they account for only a modest proportion of the variance.

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Influences on Earliest Memories and Memory Fluency of Young Adults

Autobiographical memory may be defined as information, events, or experiences regarding the self (Wang, 2003), and these memories may be viewed as a form of personal narratives. Independent lines of research have investigated the recall of early memories in adults (e.g., Davis, 1999; Pillemer, Wink, DiDonato, & Sanborn, 2003), and the importance of parent-child relationships on children's memory recall (e.g., Fivush, Haden, & Reese, 1996; Fivush & Reese, 1992; Mullen & Yi, 1995; Reese & Newcombe, 2007; Wang, 2003, 2006a). Yet few studies have merged these concepts and examined the association between parent-child relationships and the recall of early autobiographical memories in adults. Potential parent-child relationship variables influencing memory include the amount of time spent together and the quality of the relationship. Other variables that warrant further examination are the frequency and function of reminiscing, and gender.

Early memory recall has important functions for adult self-concept. Specifically, early memory recall allows people to integrate their life stories and to formulate a unique identity (McAdams, 2006), and provides a personal perspective "...of who we are and our place in our family and our community" (MacDonald, Uesiliana, & Hayne, 2000, p. 374). Thus, understanding influences that affect the recall of adults' autobiographical memories can have important implications for enhancing psychological well-being. Mullen (1994) stresses that an important sense of individuality is experienced when one

is able to recall personal life stories; some autobiographical memories may have a sense of significance attached, and some may be more vivid than others.

Since one may accumulate many memories over a lifetime, not all personal memories are transformed into vivid autobiographical memories, and the clarity of past experiences is highly variable between individuals (Nelson & Fivush, 2004). Past events may be divided into scripts or episodic memories. Scripts are memories of generalized, routine events. For example, a script memory may be going to church every Sunday with the family as a child. Each individual event of attending church may not be remembered, but the memories may be meshed together as a general script of getting dressed for church on Sunday, driving to church with the family, attending mass, and driving home from church. In contrast, an episodic memory is a unique past event that stands out from other events because it is different. For example, losing your first tooth may be a memorable experience for some, and thus specific details of such an event may be remembered more vividly than a script memory.

One typical adult characteristic relating to autobiographical memories is the phenomenon of infantile amnesia, which Harley and Reese (1999) describe as the difficulty of recalling events occurring prior to three years of age, resulting in a lack of memory recall occurring during one's first few years of life. Empirical studies have frequently found that adults have great difficulty recalling events before a very early age. In a review of 30 published studies (and data from researchers themselves) that included a total of more than 11,000 autobiographical memories, Rubin (2000) reported

that when participants were asked to recall memories before the age of 11, only 1.1% of those earliest memories occurred before the age of three.

Early memories may be measured in various ways. One method to mark the end of infantile amnesia is to ask a person to indicate the age of their earliest memory (MacDonald et al., 2000). Other means of obtaining the distribution of early memories include an exhaustive-search method (e.g., spending extended hours over a series of weeks listing past memories), word-cued method (e.g., using words to cue general memory recall), focused method (e.g., similar to word-cued method, but memories are targeted from a specific time period), and intensive personal interviews (e.g., one-on-one interviews eliciting memory recall; as cited by Rubin, 2000). Finally, one can measure one's memory fluency, which Peterson, Noel, Kippenchuck, Harmundal, and Vincent (2008) describe as, going "...beyond assessing a single earliest memory and tap[ping] into the accessibility of a range of earliest memories" (p. 4). To measure memory fluency, a person is asked to recall as many memories as they can within a specified amount of time (e.g., within four minutes).

The purpose of the current study is to investigate if adults' perceptions[1] of their parent-child relationships (including the quality of relationship and amount of parental involvement) and the frequency and functions of reminiscing have an effect on adults' age of earliest memory and early autobiographical memory fluency. Another factor that

[1] Past parent-child relationships could not be measured directly for adult participants in this study, due to economic and time constraints. Thus, data measuring parent-child relationships were gathered via retrospective evaluations of adult's perceptions of their earlier parent-child relationships.

has been found to be independently associated with memory abilities is gender (cf. Nelson & Fivush, 2004); this variable will also be investigated.

Theories

Several theories have been postulated to account for differences in the recall of early autobiographical memory. One theory regarding the ontology of early memories is the social interaction theory, which is based on early childhood and focuses on social interactions. In particular, the social interaction theory stresses the importance of parent-child relationships and focuses on reminiscing (memory talk) between the parent and child (Nelson & Fivush, 2004). This approach proposes that increasing children's narrative skills via parent-child reminiscing will assist in the reduction of infantile amnesia by having more or younger early autobiographical memories (Peterson, Grant, & Boland, 2005). In other words, reminiscing may facilitate and bolster children's developing memory skills (Wang, 2007). Social-interaction theorists posit that children achieve autobiographical memory by developing skills on *how* to share their personal experiences with others (Wang, 2003), rather than learning the exact details of *what* to recall (Fivush et al., 1996). Fivush et al. contend that children may learn how to skillfully recall past events in decorated detail via parent-child reminiscing. The details recalled will be mainly dependent on the child's experience, and will not necessarily be the same details discussed with their parent in previous conversations.

Learning to converse about past experiences begins at an early age, and "…an important part of the development of autobiographical memory is learning the culturally

appropriate narrative forms for recounting the past" (Fivush et al., 1996, p. 344). To date, many studies have found differences in parent-child social interactions between Western and non-Western cultures, and in turn, differences in age of earliest memory and memory fluency have been reported; this will be discussed further in a later section.

Another theory is the social cultural developmental theory (SCDT); this theory is an extension of the social interaction theory and surmises that many factors influence autobiographical memories (Nelson & Fivush, 2004). As its name describes, the SCDT includes social, cultural, and developmental concepts and skills such as language ability, self-concepts, narrative understanding, culture, temporal sequencing skills, and gender (Nelson & Fivush). Similar to the social interaction theory, the SCDT also argues that the formation of autobiographical memories develops across early childhood and that language and parent-child interactions are fundamental components.

The SCDT begins looking at the emergence of autobiographical memories as early as the first two years of life, the time when language comprehension and expressions regarding the self and others occur. As toddlers learn more complex language skills and learn the concept of time, parents are able to engage in conversations about past events with them. As conversations progress, toddlers form a more complex sense of the self and others, and they begin to reach a higher level of consciousness. The SCDT fuses together a large variety of developing skills and processes, taking into account multiple predictors of autobiographical memories. Nelson and Fivush (2004) assert that the number of events remembered throughout development by children and adults vary, and

not all individuals will create memories in the same manner. This theory postulates that variability in memory fluency and recall of earliest memory may be attributed to the differences in timing and quality of the aforementioned skills, concepts, and influences. And these authors contend that any view simpler than the SCDT will not be able to account for the memory differences found in the empirical literature (Nelson & Fivush, 2004).

The final theory that deserves attention is McAdams' (1985, 1996, 2004, 2006) life story theory of identity, which focuses on describing the way people organize their life narratives (whereas the social interaction theory and the SCDT describe the ontology of early memories). According to McAdams' (2004) theory, during late adolescence and early adulthood people begin to develop their own sense of identity via life stories. These life stories are defined as "an internalized and evolving narrative of the self that integrates the reconstructed past, perceived present, and anticipated future in order to provide a life with a sense of purpose and unity" (McAdams, 2006, p. 11). Past memories may be linked together and integrated to form a story of one's life – a concept that provides personal meaning and structure, with each event containing different levels of importance and meaning to an individual (Bluck & Habermas, 2000; McLean & Pratt, 2006; Polkinghorne, 1991). As such, one's autobiographical memory system holds personal and social values, and it contributes to defining the present self (Nelson, 1993).

At the developmental stage of identity formation, people may construct their identities based on life stories and according to specific cultural gender roles (Peterson,

Noel, et al., 2008). For example, cultural gender roles in North America depict women as being emotional, thoughtful, and remembering many past events; however, men are viewed as being more in-tune with current situations and placing less emphasis on the past. Davis (1999) posits that Western societies fulfill this depiction by socializing females to become warm, expressive, and interpersonal, while males are socialized into people who are self-confident, dominant, and independent. Empirical studies have shown that women tend to exhibit greater memory fluency of autobiographical events than men (Nelson & Fivush, 2004; Wang, Conway, & Hou, 2004). Analogous to the social interaction theory (Fivush et al., 1996), McAdams' life story theory of identity suggests that one of the main purposes of autobiographical memories is to be able to express oneself by sharing past experiences with others. Discussing and reflecting on past events, including their significance and personal meaning, allows for more intricate understanding of the memory, and is thus a motivation and a cause for recalling autobiographical memories (Nelson & Fivush).

Based on the preceding theories regarding the ontology and organization of early autobiographical memory, several overlapping factors influence the differences found in memory recall. One of these influences is the importance of parent-child relationships and the frequency and functions of reminiscing (Fivush et al., 1996; Nelson & Fivush, 2004). Additional influences that play a vital role in autobiographical memory recall include gender (Davis, 1999; Wang et al., 2004) and culture (Wang, 2003; Wang & Conway, 2004). These social factors are omnipresent throughout a person's lifetime and

may continually impact memory recall. These factors will be further discussed in relation to memories of children and adults.

Parental Influences on Children's Memory

Currently, there is a large body of research reporting that parent-child reminiscing styles have an impact on children's memory recall (cf. Fivush, Haden, & Reese, 2006; Nelson & Fivush, 2004; Peterson, 2002; Wang, 2003, 2006a). Early parent-child reminiscing talk provides opportunities to teach children the forms and functions of reminiscing (Fivush et al., 2006), including what they are supposed to remember, how to remember, and why they should remember (Wang, 2006a). Parents vary in the way that they talk to their children, and subsequently this may result in children exhibiting individual differences in the way they discuss their past with others (Harley & Reese, 1999).

Researchers have delineated two types of parent-child reminiscing talk that impact autobiographical memory recall, namely high elaborative (topic-extending) and low elaborative (repetitive) styles (Farrant & Reese, 2000; Fivush et al., 2006; Harley & Reese, 1999; McCabe & Peterson, 1991; Reese & Fivush, 1993). High elaborative parents typically talk to their child at length about past events in rich detail. These parents tend to scaffold their children's conversations, initially by verbally supplying and modeling proper content and structure, and then assisting in the gradual co-construction of past events in comprehensive narratives (Nelson & Fivush, 2004; Wang, 2003). As language abilities develop in time and with practice, elaborative parents will increase

their complexity of reminiscing talk, while their children internalize their social interactions and produce more skillful ways of organizing their representations of past events. During high elaborative talks, parents probe their children with open-ended questions, allowing children to expand on their replies with elaborative details (Fivush et al., 2006). In addition, high elaborative mothers encourage child participation in conversations, praise their children's responses, and provide evaluative feedback on their replies. Fivush et al. describe repeating children's responses as one common way that mothers provide positive evaluation, and in doing so they validate and reinforce their children's memory. In contrast, low elaborative parents engage their children in fewer, and more repetitive conversations. When speaking to their children, low elaborative parents tend to arrange their questions with aims of a particular response, and normally do not seek additional details (Fivush et al., 2006). Questions tend to be short and directive, thus providing fewer opportunities for children to embellish upon events (Nelson & Fivush, 2004; Wang, 2003, 2007). Any additional questions that low elaborative parents ask tend not to spur new information to the conversation, contrary to high elaborative mothers whose questions build the conversation to a fuller narrative (Fivush et al.).

Not surprisingly, research has shown that children of high elaborative parents often recall more autobiographical memories, containing more inclusive details than children of low elaborative parents (Fivush et al., 2006). Several studies have shown that high maternal elaboration is related to the accuracy and the amount of details recalled

from a past event (Haden, Ornstein, Eckerman, & Didow, 2001; Leichtman, Pillemer, Wang, Koreishi, & Han, 2000; Peterson, Sales, Reese, & Fivush, 2007). For example, studies have shown that children of elaborative parents recall more about living room 'camping trips' (Haden et al., 2001), a classroom visit by a former teacher (Leichtman et al., 2000), and highly stressful personal injuries (Peterson et al., 2007). More convincingly, a 13-month longitudinal study by Harley and Reese (1999) showed that maternal reminiscing styles had a significant main effect on children's memory elaborations, and children's memory elaborations increased over time when interacting with highly elaborative mothers. It was concluded that maternal reminiscing style was a strong predictor of children's early memories across time.

While most research has been correlational (e.g., Harley & Reese, 1999; Leichtman et al., 2000; Peterson et al., 2007), experimental studies have demonstrated strong evidence that maternal reminiscing styles have a direct causal effect on children's memory. A study by Boland, Haden, and Ornstein (2003) examined the effects of maternal reminiscing styles and children's language skills on children's memory. Children were initially pre-tested for their language skills and mothers were randomly assigned to a training or control group. In the training group mothers were instructed on how to engage and socialize with their children, while mothers in the control group were only asked to socialize with their children as they normally do. All mother-child dyads then experienced a "specially constructed novel camping event" (Boland et al., 2003, p. 46). Following the event one day later and three weeks later, researchers tested the

children's memories. Results showed that maternal reminiscing styles and children's language skills had independent effects on children's memories. Specifically, more elaborate details regarding the camping event were recalled by children with trained mothers than untrained mothers. And children with high language skills recalled more additional information regarding the camping event than children with low language skills (Boland et al.).

In a more recent study, Reese and Newcombe (2007) directly investigated the relationship between mother's reminiscing styles and their children's autobiographical memories and narratives, in the first large-scale, longitudinal intervention. When toddlers were 19 months of age, pre-testing began for maternal reminiscing style and child's language and self-awareness. Mother-child dyads were then matched on a series of factors, such as maternal education and child gender, self-awareness, and total vocabulary. Similar to Boland et al. (2003), mothers were randomly assigned to a control or intervention group. Thereafter, the child's language and nonverbal memory were assessed every two months until 29 months of age. In the experimental group, mothers were trained when their child was 21, 25, and 29 months old. Short-term and long-term post-tests occurred at 31.5 and 44 months, respectively. It was found that children of trained mothers reported more detailed and accurate memories than children of untrained mothers. For instance, children of trained mothers showed greater memory elaborations in both follow-up assessments; as well, these children participated more often during

social interactions and provided more narrative descriptions and evaluations (Reese & Newcombe).

As exhibited, the degree of elaboration used to interact with children varies along a continuum, from low to high elaboration. Between different cultures, there appear to be consistent differences in reminiscing styles and memory recall; these differences are substantial. Multiple studies have replicated cultural difference in reminiscing styles, indicating that Western cultures are more highly elaborative compared to other cultures, such as Korean (e.g., Mullen & Yi, 1995) and Chinese (e.g., Wang, 2006a; Wang, Leichtman, & Davies, 2000). These differences in reminiscing styles among mother-child dyads have been related to differences in children's autobiographical memory. Non-Caucasian (e.g., Asian) populations have been consistently found to recall fewer early autobiographical memories and have a later age of earliest memories compared to Caucasian populations (e.g., Western-European, North American).

An early study by Mullen and Yi (1995) matched, tape-recorded, and compared eight Caucasian and eight Korean mother-child interactions for one entire day. In their study the authors reported many interesting cultural differences regarding their conversations. On average, it was found that Caucasian dyads had longer social interactions than Korean dyads (7.4 hours and 5.9 hours, respectively), and Caucasians discussed past events almost 3 times more often than Koreans (5.46 per hour and 1.99 per hour, respectively). Furthermore, significant differences were found in the content of conversations that occurred between Caucasian and Korean mothers and their children.

Specifically, Caucasian mothers referred to their children's thoughts and feelings more often, while Korean mothers referred to social norms far more frequently during social interactions. Collectively, these results identify a different emphasis during social interactions between Caucasian and Korean mother-child dyads. In addition to cultural differences in content found by Mullen and Yi (1995), Wang (2007) reported that Euro-American mothers exhibited higher levels of elaborative reminiscing styles with their child in comparison to Chinese and Chinese immigrant mothers. In turn, Euro-American children provided more details during memory recall than Chinese descent participants over an 18-month period.

Based on these findings, it is not surprising that several studies have also reported cultural differences in the number of early memories recalled and the age of earliest memories. For example, Peterson, Wang, and Hou (2008) reported that European Canadian children recall nearly twice as many early memories as Chinese children, and that these differences in the frequency of early memories increased with age. A greater proportion of Canadian children's memories were individualistic and centered on themselves, while more of Chinese children's memories focused on social events such as family interactions. As well, European Canadian children reported their earliest memories nearly one year earlier than Chinese children, with the greatest difference in age among the oldest age groups (e.g., 14-year-olds). Memory differences in cultures may be explained in terms of cultural values. Generally, western cultures such as Canada and the United States tend to favor individualism, and consequently mother-child dyads from

these cultures commonly reminisce about experiences regarding their child's own thoughts, feelings, and actions. This is in sharp contrast to collectivistic cultures, whose mother-child dyads tend to focus their reminiscing of the child in relation to others, with the purpose of instilling moral lessons and communal values (Fivush et al., 2006).

Another parental factor that has received recent attention is attachment security. Several studies have investigated the role of parent-child attachment in relation to children's narratives (McCabe, Peterson, & Connors, 2006; Newcombe & Reese, 2004), emotions related to children's autobiographical memories (Farrar, Fasig, & Welch-Ross, 1997), and children's memories of stressful events (Alexander, Goodman, Schaaf, Edelstein, Quas, & Shaver, 2002; Goodman, Quas, Batterman-Faunce, Riddlesberger, & Kuhn, 1997). Together, these studies demonstrate a relationship between attachment and memory. McCabe et al. (2006) found that attachment security was associated with longer and more elaborate narratives about past events, and children with secure attachments exhibited more informative and descriptive narratives. However, narratives described by children of insecure attachments tended to be short and were sparse in elaborations. Another study by Farrar et al. (1997) reported that attachment security was associated with the emotional content of autobiographical memories described by children. And daughters with insecure attachments tend to report more negative memories than daughters with secure attachments to their mothers. As well, daughters with secure attachments elaborated more to their parents when discussing past experiences (Farrar et al.).

Researchers posit that attachment status is associated with parent-child reminiscing talk and, in turn, children's autobiographical memories (Alexander, Quas, & Goodman, 2002; Farrar et al., 1997; Goodman et al., 1997; Reese, 2002). For instance, Goodman et al. investigated children's memory of a stressful event (i.e., undergoing the invasive medical procedure voiding cystourethrogram fluoroscopy (VCUG)), and they reported that parents who were self-rated as having a secure attachment with their child tended to talk about the VCUG test with their child, answer any of their child's concerns, and ask their child questions about what he/she knew about the procedure. Meanwhile, parents with insecure attachments with their child often avoided discussing the VCUG with their children (Goodman et al., 1997). Fivush and Vasudeva (2002) also reported that mothers with secure attachments with their child were more elaborative during reminiscing. And in a 32-month longitudinal study examining the relationship between mother-child narratives and attachment security, Newcombe and Reese (2004) demonstrated that securely attached mother-child dyads increased their level of evaluations over time, discussing their child's subjective perspective and emotional tone of past events, whereas no increase was shown by insecure mother-child dyads.

Empirical studies have collectively provided evidence that reminiscing styles and attachment security are associated with memory recall. Results from both correlational and experimental studies provide convincing evidence that language skills learned through mother-child verbal interactions are a critical factor for autobiographical memory (Nelson & Fivush, 2004). And specific reminiscing styles tend to be prominent over the

other, depending on culture and societal values. Through each social encounter, children are given the opportunity to practice their memory skills, and bring greater awareness to past events. Over time, mothers have been shown to be consistent with their reminiscing style (Reese, Haden, & Fivush, 1993), and these learned interaction styles eventually become a part of a child's individual repertoire (Fivush et al., 2006), potentially continuing into adulthood.

Features of Parent-Child Relationships and their Influence on Adults' Memories

As discussed in the previous section, there is an abundant literature regarding the association between children's memories and parent-child relationships, but there are few empirical studies regarding this relationship in the adult population. Little is understood regarding features of parent-child relationships that may also be important to adults' autobiographical memories, although recently there has been growing research in this area. For instance, Wang et al. (2004) reported significant cultural differences in memory recall between college students from three different countries. Specifically, it was found that participants from the United States displayed the greatest memory fluency for early memories, followed by England, then China. Moreover, it was reported that the average age of earliest memory for English participants was 31.0 months, followed closely by U.S. participants at 32.4 months; however, Chinese participants reported their earliest memories on average 6 months later than English and American participants (37.6 months). Comparable results were reported in a later study by Wang (2006b), where

cultural differences were reported between Taiwanese and European American adults, and European Americans recalled younger ages for their earliest memory.

Few researchers have investigated the relationship of attachment and memory among adults (Fraley, Garner, & Shaver, 2000; Gentzler & Kerns, 2006). However, those that have been conducted have shown that, similar to children's studies, attachment has been associated with adult memory. In the study of Gentzler and Kerns, adult attachment levels were measured via the Experiences in Close Relationships Questionnaire (Brennan et al., as cited in Gentzler & Kerns, 2006), a tool that assessed anxiety and avoidance in close relationships, which are conceptualized as two underlying factors of attachment. Gentzler and Kerns reported that adults with high attachment levels of anxiety and avoidance often reported greater underestimations in their level of emotions regarding positive interpersonal memories. Those who had attachments with high levels of anxiety and low levels of avoidance often made underestimations of their emotions regarding negative interpersonal memories (Gentzler & Kerns, 2006). As well, Fraley et al. (2000) reported that adults with highly avoidant attachments recalled fewer details regarding an emotional interview compared to adults with low levels of avoidant attachments, with the adult organization of attachment measured via the Relationship Style Questionnaire (Griffi & Bartholomew, as cited in Fraley et al.).

Two other features of parent-child relationships that may be associated with memory recall, but seldom have been examined, are the quality of parent-child relationships (Burger & Miller, 1999; Farrar et al., 1997; Hodges, Finnegan, & Perry,

1999) and the amount of parental involvement (Stattin & Kerr, 2000). Though there is a paucity of research in this area, these two characteristics of parent-child relationships are generally seen as valuable characteristics of a healthy family – important for both parent and child (Russell, Mize, & Bissaker, 2002). Family satisfaction has been found to be significantly associated with positive family communication (Jackson, Bijstra, Oostra, & Bosma, 1998). Thus, from greater communication between parent and child comes greater parental knowledge and involvement (Stattin & Kerr). As previously discussed, it has been frequently shown that parent-child talk increases children's communication skills and autobiographical memory recall; therefore, independent lines of research suggest that the quality of parent-child relationships and the amount of parental involvement may be associated with adult memory recall.

Only one study has specifically investigated the relationship between the quality of parent-child relationships and the amount of parental involvement on adults' early autobiographical memories, including memory fluency and age of earliest memory – where memory fluency is described as the amount of memories recalled within a specified time period (e.g. within four minutes; Peterson, Noel, et al., in press). Peterson, Smorti, and Tani (2008) examined 101 university students residing in Florence, Italy (18-28 years of age). She and her colleagues asked participants to write down as many preschool memories involving their parents as they could within a three-minute period, and also asked them to identify the earliest memory of their life. Participants were asked to only recall early memories involving their parents. To measure the adults' perceptions

of the quality of their parent-child relationships and parental involvement, the Network Relationship Inventory and the Adolescent Parental Monitoring scale were administered, respectively. Results show that positive parent-son relationships with both mother and father, and greater parental involvement, were significantly associated with greater early memory fluency in males. As well, warmer father-son relationships and greater parental involvement were correlated with greater recall of positive memories. And warmer mother-child relationships and parental involvement were associated with greater episodic memory recall (Peterson et al., 2008). For females, far fewer associations were found. Those who self-reported more involved parents recalled earlier autobiographical memories. And females who reported warm mother-daughter relationships also reported greater recall in memories with a neutral affect attached. These preliminary results suggest that parent-child reminiscing style is not the only parental influence on memory, and that the quality of the relationship and the amount of parental involvement warrant further investigation.

To provide more empirical knowledge regarding the relationship of early childhood memories and the influence of parent-child relationships, this study aimed to replicate several aspects of Peterson et al's (2008) study. The current study will examine parent-child relationships and record adults' early childhood memory fluency during a timed session. But it will differ from Peterson et al.'s study in several respects. First, this study will examine *all* early childhood memories before entering kindergarten, and will not be limited to memories that only include parents. As well, memories will be recorded

during a 4-minute timed session, and it will be the interviewer's responsibility to write down the participant's recall of early memory instead of the participant; this will allow participants to focus on the task of memory recall. Furthermore, in addition to parent-child relationships, this study will also examine the relationship between the functions of reminiscing and early memory recall. Though this study differs in several respects to Peterson et al.'s (2008) study, its objective is provide more evidence regarding the importance (or lack thereof) of parent-child relationships and early memory of adults and to provide more breadth.

To date, most research regarding influences of parent-child relationships and memory have targeted child populations, and only recently have researchers redirected their focus to adults' memories. Parallel to children's studies, research has shown that attachment and culture are associated with adults' memories. It is evident that there is a paucity of information regarding parental influences on adults' early autobiographical memories, and more research is needed in this area. Although culture has been shown to be an important influence in autobiographical memories, this factor is beyond the scope of the current investigation because the sample drawn for this study will be from a population containing 97% Caucasians of European descent (as cited in Peterson, Wang, et al., 2008).

Functions of Reminiscing and Gender Influences on Memory

In addition to parent-child relationships, two variables that have been found to influence memory are the frequency and functions of reminiscing and gender. The

strongest relationship children may have is with their parents, and from their parents children are taught many values, such as the importance and functions of reminiscing (Mullen & Yi, 1995). Reminiscing is a naturally occurring process where one recalls personal experiences that have taken place in the past; this may be conducted autonomously or shared with others (Webster & MCall, 1999). Three broad functions of reminiscing that have been identified by previous autobiographical research include the self, social, and directive (Webster & Gould, 2007). Functions of the self aid individuals in developing, clarifying, and maintaining a sense of identity, while social functions assist in connecting with others, and directive functions are seen as assisting in analyzing and solving current problems and organizing future goals. Currently, the most commonly used scale to measure the purpose of reminiscing is the Reminiscence Functions Scale (RFS; Webster, 1993, 1997) (Webster & Gould, 2007). The RFS measures the three broad functions of reminiscing in addition to others, which are listed under eight specific categories: 1) boredom reduction, 2) identity, 3) problem-solving, 4) conversation, 5) intimacy maintenance, 6) bitterness revival, 7) teach/inform, and 8) death preparation. The total score of the RFS measures the person's total frequency of reminiscing, and the score for each subscale measures the frequency of each respective function of reminiscing (Webster, 1997).

During development, reminiscing uses may be modeled to children by their parents, such that parents choose the topic of conversation and add structure to the content being shared (Pillemer, 2003). For instance, mothers may elaborate parent-child

reminiscing in order to maintain an intimate relationship with their child, thus motivating their child to reciprocate memories in order to maintain an intimate bond. Or parents may encourage discussion of events in which the child excelled, to build their self-esteem. Or parents may talk about past misbehaviour of the child in order to reinforce their socialization goals and teach appropriate behaviour.

Some researchers posit that gender differences in memory may be attributed to parent-child socialization during development. Davis (1999) suggests that differences in parent-child interaction lead females to engage in more elaborate memory talk later in life. These differences in levels of elaboration between sons and daughters may be a function of parental gender expectations (Reese, Haden & Fivush, 1996). Subsequently, it has been found that females are more likely to engage in greater frequencies of emotional reminiscing, leading to stronger, more detailed accounts of autobiographical memories (Nelson & Fivush, 2004), while males are more likely to discuss personal events with less reference to emotions and details (Fivush & Buckner, 2003). Studies show that during social interactions between parent-child dyads, parents engage in more highly elaborative talk regarding past events with their daughters than their sons (Lewis, 1999; Reese & Fivush, 1993; Reese et al., 1996). Similarly, Fivush and her colleagues (Buckner & Fivush, 2000; Fivush & Buckner; Nelson & Fivush) reported that parents tend to refer more to their daughters when recalling past events, and more social events and emotions are discussed with daughters than sons. Collectively, it was found that daughters recall more memory information than sons (Reese & Fivush; Reese et al.), and daughters tend

to discuss topics regarding the self and regarding others more often (Buckner & Fivush; Nelson & Fivush).

Adult studies have also shown gender differences in memory, such that women often have earlier or more numerous memories regarding their early life. For example, Davis (1999) found gender differences in an adult population and she reported that females recalled more early memories and accessed memories faster than did males. In addition, Mullen (1994) found adult females reported younger ages of earliest memories. These gender differences appear to be robust across various countries as well. Wang et al. (2004) conducted a cross-cultural study regarding early memories occurring before the age of five. It was found that females had significantly greater memory fluency than males, and this was exhibited across all cultures, including the United States, England, and China. Similar to Wang et al.'s findings, MacDonald et al. (2000) also found gender differences between genders from different cultures. When examining people with cultural backgrounds in New Zealand, specifically Europeans, Maoris, and Asians, it was reported that females recalled more elaborate memories than did males.

Studies such as Pillemer et al. (2003) have also demonstrated that adult females place a stronger emphasis on the purpose of reminiscing than adult males, thus providing more motivation for females to discuss and share autobiographical memories more often. Consequently, it was reported that females recall more specific memories than males (Pillemer et al.). These results suggest that people's perceptions regarding the frequency and functions of reminiscing may at least partly account for gender differences in

memory fluency. Unfortunately Pillemer and his colleagues did not directly examine this connection. But a later study by Webster and Gould (2007) did examine the associations between patterns of reminiscing behaviours and the content of detailed memories. In this study, these authors examined 198 adults (18-95 years of age). It was found that those who reported a higher total frequency of reminiscing tended to also report younger early memories, had more negative vivid memories, and rated their detailed memories as having a stronger impact on their lives.

Together, studies have found gender differences in memory, including both qualitative and quantitative differences in memory recall (Reese et al., 1996). In general, adult studies show females recall more detailed and emotion-filled autobiographical memories than males (Davis, 1999; MacDonald et al., 2000; Nelson & Fivush, 2004; Wang et al., 2004). These gender differences may be influenced by differences in parent-child interaction, where parents inadvertently teach more forms and functions of reminiscing to their daughters than to their sons based on gender expectations and values (Farrar et al., 1997; Reese et al., 1996). Limited studies have examined both the frequency and functions of reminiscing and autobiographical memories (Webster & Gould, 2007). This study directly examines these two lines of research.

The Present Study

To date, there is ample evidence supporting the influence of parent-child relationships on children's recall of early memories (e.g., Fivush, Haden, & Reese, 1996; Fivush & Reese, 1992; Mullen & Yi, 1995; Reese & Newcombe, 2007; Wang, 2003,

2006a), but there lacks supporting evidence regarding the association with adult's recall of their early autobiographical memories (e.g. Peterson et al., 2008). Thus, the current study will examine the interplay of adults' perceptions of their parent-child relationships (i.e., quality of relationships and amount of parental involvement) and the frequency and function of reminiscing to both autobiographical memory fluency and the age of earliest memory of young adults. To measure memory fluency and the age of earliest memories, this study asked participants to list as many memories as they could recall within a specified period of time (i.e., four minutes) and to state their earliest memory, respectively. The selection of a four-minute period for the memory fluency task was chosen because this time frame was used in previous research studies used with children, and thus data collected for the present study may be used for comparison. Participants were asked only to recall memories that occurred before they entered formal schooling (i.e., before primary/kindergarten). In this study, 'before primary/kindergarten' was operationally defined as any experience that occurred up to and including walking to your first day of formal schooling. Valid early autobiographical memories were any events that occurred prior to participants setting foot on their school grounds on their first day of primary/kindergarten.

Similar to procedures followed in MacDonald et al. (2000) and Mullen (1994), no verification was made on the accuracy of each participant's memory due to the contention that accuracy is not as important as the significance of the memory and its role

in the individual's life story (Reese, 2002). In other words, "[m]emories do not need to be true or correct [in order] to be part of ...[their memory] system" (Nelson, 1993, p. 8).

Hypotheses

It is hypothesized that women will generate more early autobiographical memories than men. As well, females will recall younger ages of first memory. Furthermore, it is hypothesized that participants who perceived themselves to have greater positive relationships with their parents will exhibit greater memory fluency and will have earlier childhood memories. Similarly, those who perceived themselves to have parents who are actively involved in their lives will display greater memory fluency and an earlier onset of memories. Finally it is hypothesized that the total frequency of reminiscing will be associated with greater memory fluency and younger age of earliest memory.

Method

Participants

A total of 151 young adults (mainly students from Memorial University, St. John's, Newfoundland) were recruited for this study (68 males and 83 females). Two female participants were later omitted from this study due to incomplete data. Of the remaining 149 participants, ages ranged from 17 to 35 years, with a mean age of 21.1 years (S.D. = 2.5).

Measures

Demographic Questionnaire. A demographic questionnaire was administered to collect descriptive information of interest, including gender, date of birth, number of parents living with while growing-up, primary caregiver while growing-up, list of siblings (including their dates of birth), and parent's highest level of education completed (see Appendix A).

Memory Fluency. To obtain early autobiographical memories before entering kindergarten, each participant was interviewed separately for four minutes (see Appendix B) by one of five female interviewers. The event of school entry was chosen as a cut-off time point because it is considered an important landmark during childhood (Mullen, 1994), and thus this study did not want such an event to assist participants in the recall of their early memories. Once participants began to list their memories, the interviewer began her stopwatch and recorded each memory for the participants for four minutes. Following the timed recall session, the interviewer reviewed each memory with the participant, asking about the age at which each memory occurred and the emotion the participant felt at the time of the event (see Appendix C).

Age of Earliest Memory. Participants were then asked to report the earliest memory that they could recall during an untimed session (see Appendix D). As well, participants were asked to provide as much description as possible regarding their earliest memory, including the age of the memory occurrence as well as the emotion attached to the memory.

Questionnaires on Parent-Child Relationships. Two measures were administered to examine close relationships (i.e., parent-child), including a revised version of the Network of Relationships Inventory (NRI; Furman & Buhrmester, 1985) and the Adolescents' Report of Parental Monitoring (Capaldi & Patterson, 1989). The original NRI (see Appendix E) was designed to measure the participant's quality of relationships with their parents, sibling, and several important people in their life. This measure contains 39 items, the first eight items asked to identify the participant's mother, father, sibling, relative, same-sexed friend, other-sex friend, and one extra person, and one question asked for the specific identity of the persons who were referenced in the questionnaire. The remaining 30 items evaluated 10 relationship qualities of the eight people previously listed, including: 1) antagonism, 2) nurturance, 3) admiration, 4) reliable alliance, 5) instrumental aid, 6) companionship, 7) affection, 8) intimacy, 9) conflict, and 10) relative power. The current study was only concerned with relationships pertaining to the mother, father, sibling, and important friend; thus the final, revised version of the NRI included 34 items regarding the participant's relationships with each of these four people (see Appendix F).

Scores calculated from the original NRI include two global scores and 10 subscale scores. Each subscale score was calculated by taking the average value of all its items

(see Appendix G for scoring of the original NRI[2]; see Appendix H for scoring of the revised NRI). Two global scores may be derived from the NRI – Social Support and Negative Interchanges. The social support global score represents the positive aspect of the parent-child relationships, and it is the average of scores from the subscales companionship, instrumental aid, intimacy, nurturance, affection, admiration, and reliable alliance. The negative interchanges global score represents the negative aspect of parent-child relationships, and it is the average of scores from the subscales conflict and antagonism. The subscale 'relative power' was not required for the calculation of either global scores. Separate scores were calculated for the relationships with the mother, father, sibling, and important friend. The NRI has satisfactory internal consistency for the scale scores; Furman and Buhrmester (1985) reported Cronbach's Alpha = .80. As well, Tani and Guarnieri (as cited in Peterson et al., in press) reported very good internal consistency scores for both parents (Social Support, Cronbach's Alpha = .90 – .92; Negative Interchanges, Cronbach's Alpha = .81 – .82).

The final scale evaluating parent-child relationships is the Adolescent's Report of Parental Monitoring (ARPM; Capaldi & Patterson, 1989; see Appendix I); which measures the amount of parental involvement, specifically the degree to which adolescents kept their parents informed regarding their activities and social relationships with others (Caprara, Pastorelli, Regalia, Scabini, & Bandura, 2005). This measure

[2] The scoring sheet obtained for the original NRI indicates that the most recent version of the NRI includes five extra scales: Support, Criticism, Dominance, Satisfaction, and Punishment. These recent scales are not included in the original scale, and are therefore not part of the revised version of the NRI that was administered in this study.

consists of seven items placed on a five-point Likert scale, ranging from 1(Never) to 5 (Always). Examples of items include: "Did you inform your parents about activities you were doing or intended to do?" and "Did your parents know how to contact you if they needed to reach you?" The total score of the ARPM is the sum of the seven items, ranging from 7 to 35. Alpha reliability was reported to be very good at .84 (Caprara et al., 2005).

Functions of Reminiscing. The Reminiscence Functions Scale (RFS; Webster, 1993, 1997; see Appendix J) consists of 43 items placed on a six-point Likert scale ranging from 1 (Never) to 6 (Very frequently). The RFS measures different purposes of reminiscing, and the scale is composed of eight factors, those being: 1) boredom reduction, 2) identity, 3) problem-solving, 4) conversation, 5) intimacy maintenance, 6) bitterness revival, 7) teach/inform, and 8) death preparation. Death preparation has been operationally defined as assessing the past when thinking of your own mortality. Due to the young age of the participants in the current study, it is postulated that the subscale death preparation would not be relevant to this age group, and has thus been eliminated from the RFS. Therefore the final revised version of the RFS included 37 items (see Appendix K).

Items are arranged as sentence completions to the stem, "When I reminisce it is:" Example of items from the RFS include: "to help me plan for the future"; "because it brings me closer to newer friends and acquaintances"; and "to see how my past fits in with my journey through life." The overall total frequency of reminiscing was calculated

by summing all items of the RFS, such that a higher total score on the RFS indicates that a person frequently reminisces, while a lower total score indicates that a person rarely reminisces (Cappeliez & O'Rourke, 2002; Webster, 1997). Frequency subscale scores were computed by averaging the scores of all items contributing to its respective factor (Pillemer et al., 2003). The RFS is a reliable and valid measure, internal consistency for factors range from .74 to .89 (Webster, 1993, 1997; Webster & Gould, 2007).

Procedure

University undergraduate participants were recruited at the beginning of their university class. They were given a short synopsis of the research project regarding autobiographical memories that occurred before starting kindergarten. Students were also made aware that parent-child relationships and the frequency and function of reminiscing were also being examined in relation to memory.

Prior to participation, participants were asked to read and sign an informed consent form (see Appendix L), at which time they were given the option to enter their name in a draw to win $100. Once participants signed the consent form, participation would begin. Participants were first interviewed individually by one of five female researchers, in order to measure their memory fluency and earliest memory. During the interview process, participants were asked to recall as many early memories as possible within a four-minute timed period. The interviewer timed the four minutes with a stopwatch and recorded each memory for the participant. At the beginning of each interview, participants were instructed verbatim:

> I want you to think back, way back, from before you went to school. I want to know as many memories as you can tell me from when you were a little (girl/boy). As many memories as you can think of. It can be anything at all. These are memories that you remember, not of memories that other people have told you or what you have seen in photographs.
>
> For each memory that you recall, tell me a brief sentence or phase about the memory to remind you of it later, and I will write it down for you. You will have exactly 4 minutes to recall as many memories as you can. Let's start now.

Once participants began to list their memories, the interviewer began her stopwatch and recorded each memory for the participant. If participants elaborated too much on one memory, could not recall any memories, or became side-tracked, the interviewer encouraged the participant with open ended responses, such as "Think way back"; "What else can you remember from before you went to school?"; "Remember, it is from before you began school".

Following the four-minute memory recall session, the interviewer reviewed each memory with the participant, asking about the age at which each memory occurred and the emotion the participant felt at the time of the event (see Appendix C). Each participant was instructed as follows:

> For each of the memories you recalled, please tell me your age in years and months as accurately as possible. Here are a few things that can help you figure out how old you were at the time of your recalled memory. That is, you can use them to help you locate your memory in time.
>
> - Where did you live? Did you move at some point? Can a particular location or house help you locate your memory in time?
> - Was it around a holiday or season? Is your memory linked to a holiday like Christmas, Halloween, a birthday? Was there snow? Was it summertime?
> - What people or pets were in your life at that time? If you have siblings, are they a part of your memory? How old were they or were they yet born?

Also, for each of the memories you recalled, was there any emotion attached to the memory at that time? If so, what was it?

Thereafter, participants were asked about their earliest memory in detail during an untimed session. Participants were asked to provide as much description as possible regarding their earliest memory, including the age of the memory occurrence as well as the emotion attached to the memory.

Following the interview, participants were asked to complete a series of questionnaires, including a demographic questionnaire and measures regarding the quality of parent-child relationships, the amount of parental involvement, and frequency and functions of reminiscing. Questionnaires were presented in random order, and participants were requested to complete both the revised NRI and the APRM in the past situation as if they were in high school. Participants were asked to think in the context of when they were in high school when completing the parent-child questionnaires due to the fact that the majority of participants (i.e., university students) were not living at home because they were currently attending university, and therefore had less contact with their parents than when they were last living together (i.e., in high school). Thus, the researcher wanted participants to use the most recent timeframe when they spent the most time with their parents.

The researcher was present throughout the study so that participants could ask any questions they had regarding the questionnaires. Participation took approximately 45 minutes. Following completion of the questionnaires, participants were given a copy of the information form (see Appendix M) to take home. All aspects of the research were

approved by the Interdisciplinary Committee on Ethics in Human Research at Memorial University.

Coding

Memory fluency and the age of earliest memory were recorded for each participant. If one of the memories provided during the memory fluency task was earlier than the memory identified by the participant as their earliest memory, then it was selected for analysis instead. Subsequently, the age of earliest memory was changed for 13 participants. Each memory was classified into the following categories:

Specificity. Memories were classified as episodic or script. Episodic memories were about events that were unique and one-time occurrences, whereas script memories were generic-like, repetitive events (Peterson, Wang et al., 2008).

Social Orientation. Memories were classified as individual or group. Individual orientation involved memories of the self with little or no mentioning of others, whereas group orientation involved memories with other people.

Content. Memories were classified as pertaining to one of 10 types of content: 1) injuries/accidents (i.e., any degree of injury or accident), 2) property damage (i.e., intentional or accidental property destruction), 3) medical concerns (i.e., medical procedures that were not incurred by injuries or accidents), 4) transitional events (i.e., an event marking the transition from one stage of life to another), 5) gifts (i.e., presents received or given to others), 6) play (i.e., events during play sessions), 7) pet related (i.e., events related to their own pets or other people's pets), 8) death (i.e., death of a person or

animal), 9) birth (i.e., birth of a sibling), and 10) other (i.e., miscellaneous events that do not meet the criteria of the preceding types of content).

Emotion. Memories were classified as positive, negative, mixed (i.e., contained both positive and negative emotions), or neutral. If participants did not state an emotion attached to their memory, or responded "I don't know", then the memory was classified as "neutral".

Reliability

For each memory provided in the memory fluency task, two raters independently coded each memory for all four categories, including specificity, social orientation, content, and emotion. One coder rated the memories of all participants, and a second coder randomly selected 20% (30) of the participants and rated the memories for all four categories for the earliest memory and the first two memories listed in the memory fluency task[3]. Cohen's Kappa for specificity of a participant's earliest memory, memory one, and memory two were .67, .78, and .93, respectively. For orientation, inter-rater reliability for the earliest memory, memory one, and memory two were .80, .80, and .93, respectively. In regards to content, Cohen's Kappa for the earliest memory and memory two were .84 and .93, respectively; inter-rater reliability could not be calculated for memory one because both raters did not use all of the same category ratings for content, and thus Cohen's Kappa could not be calculated by the statistical program SPSS (version

[3] Due to the variability of memory fluency among participants, Cohen's Kappa was performed with the lowest memory fluency of the 30 randomly selected participants. The lowest memory fluency was two; thus Cohen's Kappa was analyzed using the first two memories listed in each participant's memory fluency and their earliest memory.

15). Finally, inter-rater reliability for emotion in the earliest memory, memory one, and memory two were .71, .95, and .86, respectively. Overall, inter-rater reliability using Cohen's Kappa ranged from .67 to .95, with an average inter-reliability of .82.

Results

Analysis

Missing responses made by any participants were replaced by the mean response for the respective missing item. If an emotion was not listed with its respective memory, the emotion was labeled 'neutral'. In regards to twin participants, if they used their twin sibling as a comparison in the NRI, but did not indicate who was older or younger, the missing data was labeled as 'older'; this was completed for two participants. Finally, for participants who were an only child, their ratings for the sibling section of the NRI were replaced with the mean value of each item; this was completed for 14 participants.

Four sets of analyses were conducted in this study. First, descriptive statistics, including means and variability, were calculated on all variables of interest. Second, age of earliest memories and memory fluency between genders were compared via one-way ANOVAs. As well, separate ANOVAs were conducted to compare gender differences in parent-child relationships and reminiscing. Third, correlation analyses among the outcome variables of memory fluency and earliest memory and the predictor variables of parent-child relationship (quality of parent-child relationships and amount of parental involvement) and the frequency and functions of reminiscing were performed.

Correlations were also computed to examine the association between the memory measures and demographic variables. Lastly, hierarchical step-wise regressions were conducted on each of the memory measures, using the predictor variables quality of relationships, amount of parental involvement, frequency and function of reminiscing, and several demographic variables.

Descriptives

On average participants recalled 9.2 early memories (see Table 1), but variability was high (S.D. = 4.6); participants recalled as few as one early memory and as many as 22 early memories. Of these memories, more than half were episodic (55.9%), with an individual (54.6%) orientation, and the most frequent emotion attached to the memories recalled was positive (48.4%) affect. The average age of earliest memory was 32.8 months (S.D. = 10.2 months), with ages ranging from 6 to 64 months.

One-way Analyses of Variance

To examine whether there was a gender difference in the age of earliest memory or in memory fluency, a series of separate one-way ANOVAs were conducted. Analyses regarding memory fluency were calculated for the total number of memories recalled, as well as the proportion of memories that were episodic rather than script, and the proportion of memories whose social orientation was individual rather than group. As well, the proportion of memories that were positive, negative, mixed, or neutral were analyzed separately. (The category 'content' was not included in this analysis because the majority of the memories were labeled as 'other'). Furthermore, a series of ANOVAs

were conducted to examine the gender differences in the quality of parent-child relationships, amount of parental involvement, and the total frequency of reminiscing. The qualities of parent-child relationships were measured via the Network Relationship Inventory, which yielded two global scores for each parent, Social Support and Negative Interchanges. The amount of parental involvement and the total frequency of reminiscing (i.e., total sum of the RFS) were measured via the Adolescent's Report on Parental Monitoring and the Reminiscence Functions Scale, respectively.

There was no gender difference in the age of earliest memory, F (1,147) = .33, $p > .05$. However, females ($M = 9.89$) did have a slight tendency to recall more memories than males ($M = 8.46$), F (1,147) = 3.69, $p = .057$. There was no difference in the proportion of memories that were episodic (vs. script), F (1,147) = .40, $p > .05$, or in the proportion that had an individual social orientation (vs. group), F (1,147) = 1.84, $p > .05$. In terms of the emotion attached to the memories, there were no gender differences in the proportion of memories that were positive, F (1,147) = .01, $p > .05$, negative, F (1,148) = 2.02, $p > .05$, or mixed, F (1,147) = .09, $p > .05$. However, males did recall significantly more memories that contained a neutral affect compared to females, F (1,147) = 5.61, p = .019 (Ms = 11.00 and 6.12 for males and females, respectively).

When analyzing the scores of the primary predictor variables – quality of parent-child relationships, amount of parental involvement, and the total frequency of reminiscing – several significant gender differences were revealed. In terms of the quality of parent-child relationships, results showed that males and females differed in the level

of maternal social support, F (1,147) = 5.35, $p < .05$; females reported greater levels of maternal social support (M = 3.48) than males (M = 3.21). But there were no gender differences in the level of maternal negative interchanges, F (1,147) = .30, $p > .05$, paternal social support, F (1,147) = .84, $p > .05$, or paternal negative interchanges, F (1,147) = .24, $p > .05$. There was however, a significant difference in the amount of parental involvement, F (1,147) = 4.23, $p < .05$, where females reported experiencing greater parental involvement than males (Ms = 27.69 and 26.16, respectively). As for the total frequency of reminiscing, there were no gender differences, F (1,147) = 1.31, $p >$ .05.

Correlation Analyses

Correlations (Pearson) were computed to examine the relationships between the memory measures and the primary predictor variables, including the quality of parent-child relationships (both the degree of social support and negative interchanges), amount of parental involvement, and the total frequency of reminiscing (see Table 2). Memory measures included the age of earliest memory, memory fluency, and the categories specificity, social orientation, and emotion. Secondly, the age of earliest memory and memory fluency were correlated with the subscales of the Network Relationships Inventory (see Table 3) and the subscales of the Reminiscence Functions Scale (see Table 4) for each gender. Thirdly, correlations were conducted to examine the relationships between the memory measures and the demographic variables (age, number of parents living with while growing-up, primary caregiver while growing-up, siblings (including

their dates of birth), father's highest level of education completed, and mother's highest level of education completed).

Results showed that males tended to report younger ages of earliest memory when they had greater paternal social support (see Table 2). When one looks at the specific components that are combined to create the global variable of social support, analyses show that younger ages of earliest memory were significantly associated with greater levels of positive father-son relations, including companionship and instrumental aid (see Table 3). When examining mother-son relationships and earliest memory, results showed that greater levels of negative interchanges, including both the subscales of conflict and antagonism contributing to this global score (see Table 3), were significantly associated with younger ages of first memory for males. Greater amounts of parental involvement tended to be associated with the age of earliest memory for males. In terms of reminiscing, there was no association with total frequency of reminiscing and earlier ages of first memory. But the subscale of the reminiscing measure (see Table 4) showed that greater frequencies of reminiscing for the purpose of problem-solving was significantly associated with having a younger age of earliest memory for males.

The quality of father-son relationships had a much stronger association with male memory fluency than did the quality of mother-son relationships; males with high levels of paternal global social support had greater memory recall. Memory recall was also moderately correlated with low levels of negative paternal interchanges (see Table 2). The father-son subscales of greater companionship, instrumental aid, intimacy, affection,

and admiration were all significantly associated with having greater memory fluency, while greater levels of paternal conflict was significantly associated with males recalling fewer memories (see Table 3). In terms of the mother-son relationships, there were no significant relationship between the global measure of maternal social support or negative interchanges and memory fluency. The mother-son subscale of affection was, however, significantly associated with recalling more memories, and maternal relative power was significantly associated with males recalling fewer memories. In addition, males who reported greater parental involvement tended to recall greater memory fluency. The total frequency of reminiscing was not associated with male memory fluency.

In regards to the specificity and social orientation of the memory of males, no significant associations were revealed. In terms of emotions, greater proportions of negative memories were significantly correlated with greater frequencies of total reminiscing, and males with greater proportions of mixed memories tended to have lower total frequencies of reminiscing.

When analyzing the female sample, there were no associations found between the primary predictor variables and age of earliest memory. Analysis of the subscales of the NRI showed that paternal companionship was significantly correlated with a younger age of first memory. No other associations were found between female age of earliest memory and the subscales of mother-child relationships or the functions of reminiscing.

Concerning female memory fluency, the only association shown with any of the primary predictor variables was a modest correlation with maternal social support.

Analysis of the quality of father-daughter relationship subscales showed that females with high levels of paternal nurturance tended to recall more memories. In regards to the mother-daughter subscales, instrumental aid nurturance, and maternal relative power were significantly associated with greater memory recall. And greater levels of maternal admiration were modestly correlated with greater memory fluency. In terms of the reminiscing scale, although the global scale measuring the total frequency of reminiscing was not significantly associated with memory fluency, the subscale of reminiscing for the purpose of identity was modestly associated with recalling more memories (see Table 4).

The analysis of the categories specificity, social orientation, and emotion showed that females with greater proportions of memories that were episodic rather than script tended to report lower levels of parental involvement. As well, correlation analyses showed that higher amounts of parental involvement were significantly associated with a greater proportion of positive memories and a smaller proportion of negative memories (see Table 2). Finally, greater proportions of neutral memories in females were modestly associated with lower levels of maternal social support. Father-child relationships and the subscales of reminiscing were not associated with any of the categories of female memory.

The third and final set of correlations were computed to examine the relationships among memory fluency, age of earliest memory, and the demographic variables age, number of parents living with while growing-up, primary caregiver while growing-up, number of siblings, birth order, father's level of education, and mother's level of

education (see Table 5). This was completed for each gender. In this analysis, only one significant correlation was found for either gender. Birth order was shown to be significantly correlated to male memory fluency, such that males who were first born had greater memory fluency that males who were a middle-child or youngest in the family. As well, there was a moderate tendency for greater male memory fluency to be associated with high paternal education, and earlier first memory in females was also associated with birth order. Lastly, there was a modest negative correlation between female memory fluency and age. All other correlations were non-significant, and thus will not be included in the following regression analyses.

Regression Analyses

Lastly, to examine the relative contribution of the demographic variables and predictor variables on age of earliest memory and memory fluency, a hierarchical step-wise regression was computed. Separate analyses were completed for each gender. Primary predictor variables that were entered include the global scores of the quality of parent-child relationships (i.e., social support and negative interchanges), the amount of parental involvement and the total score of the RFS – which indicates the total frequency of reminiscing. The demographic variable birth order was included in the regression analyses because this was the only variable found significantly associated with memory in the previous correlation analyses.

To follow a conservative approach, in the first analyses the demographic variable was entered in the first block, followed by the primary predictor variables in the second

block. It was necessary to enter the variables in the order of causal priority so that the later variables entered may account for the criterion variance beyond what was accounted for by the 'more permanent' demographic variables (Cohen & Cohen, 1983). The variables were entered simultaneously within each respective block, because there was no theoretical reason to enter the scores in any particular order. The regression analysis provides an *F*-value, which indicates the relation between the criterion variable and predictor variables, and it assesses the significance of the predictor variable(s) after all other variables have been accounted for. Separate stepwise regression analyses were also used to examine the relative contribution of the subscales of parent-child relationships and functions of reminiscing on the age of earliest memory and memory fluency.

In the regression analyses examining the age of earliest memory for males and the demographic and primary predictor variables, the demographic variable was not found to be predictive. The only significant predictor variable was maternal negative interchanges, $F\,(1,66) = 4.04$, $p < .05$, $R^2 = .058$, Standardized $\beta = -.240$. That is, greater negative maternal interchanges were predictive of younger ages of earliest memories for males. A separate regression analyses of the subscales of parent-child relationships showed that maternal antagonism, $F\,(1,66) = 4.75$, $p < .05$, $R^2 = .067$, Standardized $\beta = -.259$, and paternal companionship, $F\,(1,66) = 6.65$, $p < .05$, $R^2 = .092$, Standardized $\beta = -.303$ were significant predictors of age of first memory for males. Thus, having greater maternal antagonism as well as greater paternal companionship were predictive of males recalling

earlier first memories. There were no significant predictors among the seven functions of reminiscing.

For the regression analyses on male memory fluency and the demographic and primary predictor variables, the first model showed that birth order was a significant predictor, F (1,66) = 5.00, $p < .05$, $R^2 = .070$, Standardized $\beta = -.265$, and in the second regression model birth order (Standardized $\beta = -.286$) and paternal social support, F (2,65) = 6.23, $p < .005$, $R^2 = .161$, Standardized $\beta = .301$ were significant predictors, which together accounted for 23.1% of the variance. In regards to the parent-child subscales, additional regression analyses showed that maternal affection, F (1,66) = 6.24, $p < .05$, $R^2 = .086$, Standardized $\beta = .294$ and paternal affection, F (1,66) = 10.29, $p < .005$, $R^2 = .135$, Standardized $\beta = .367$ were strong predictors of male memory fluency. Again, no significant predictors were revealed among the seven functions of reminiscing.

In the female sample, there were no significant predictors among the demographic variables and primary predictor variables for age of earliest memory or memory fluency. When examining the quality of relationships and reminiscing further, parent-child subscales and reminiscing subscales were still not predictive of age of earliest memory. In terms of female memory fluency, the only significant predictor found was maternal relative power, F (1,79) = 6.53, $p < .05$, Standardized $\beta = .276$, which accounted for 7.6% of the fluency variance. Collectively, there were far fewer predictive variables for the memory of females compared to the memory of males, though this was not surprising, given the limited number of significant correlations revealed in the earlier analyses.

Summary

There were no significant gender differences in the age of earliest memory or memory fluency, but males did recall more neutral early memories than females. The quality of parent-child relationships, paternal involvement, and functions of reminiscing show an association with various aspects of early memory, with associations being much stronger for males than females. Birth order and the quality of parent-child relationships were predictive of earliest memory and memory fluency, though the amount of variance accounted for were modest.

Discussion

In the present study females had a tendency to report greater memory fluency than males, but these results did not reach significance, and thus did not support this study's hypotheses. The current findings are in contrast to some findings in the literature that females recall significantly earlier memories (Davis, 1999; Mullen, 1994) and more early memories than males (Davis; Wang et al., 2004). Not all studies, however, have found these gender differences.

MacDonald et al. (2000) conducted a cross-cultural study among New Zealand Europeans, New Zealand Maoris, and Asians, and found female New Zealanders had earlier first memories than males of the same descent, except for Asian females, who reported significantly older ages of first memories than Asian males. However, other studies have not found significant gender differences at all (Hayne & MacDonald, 2003;

Peterson et al., in press). Hence, memory differences between genders are not always observed in empirical memory studies, but when they do arise, they typically reveal females reporting younger ages of earliest memory as well as more memories (Hayne & MacDonald; Mullen, 1994).

Parent-Child Relationships

The primary purpose of this research was to investigate the association between adult's perceptions of their parent-child relationships and the frequency of reminiscing on adult early memory recall. In regards to parental rapport, the results provide partial support for the prediction that positive parent-child relationships yield greater memory fluency and earlier ages for first memory. In contrast, there was little support for the hypothesis that those whose parents were actively involved in their lives would display greater overall memory fluency and/or an earlier onset of first memory. The findings also demonstrate that various aspects of parental relationships are associated differently with male and female memory, with aspects of parent-child relationships having far more associations with male memory than female memory.

For males, a greater global score of negative maternal interchanges was associated with the ability to recall younger ages of earliest memory, and a greater global score of paternal social support was positively associated with memory fluency. After looking further into the specific qualities of parent-son relationships, it was found that males with greater levels of paternal companionship and instrumental aid reported younger ages for their earliest memory, and other positive relationship qualities such as paternal

companionship, instrumental aid, intimacy, affection, and admiration were all associated with greater memory fluency. The only negative quality that was significantly associated with male memory fluency was paternal conflict, which showed that greater paternal conflict was correlated with lower memory fluency. In contrast to these paternal qualities, greater maternal conflict and antagonism were negatively associated with males' earliest memory, and maternal affection was associated with greater male memory fluency, while maternal relative power was negatively associated with the number of memories recalled. Interestingly, the correlation between negative mother-son relations and reports of younger ages of earliest memory are in complete contrast to the current study's hypothesis.

With so many associations found between parent-son relationships and memory, one would expect similar results within the female sample. Unexpectedly, no global scores of parent-child relationships or parental involvement were correlated with earliest memory or memory fluency for females. It was not until the subscales of the Network of Relationships Inventory were examined that it was found that paternal companionship was linked to earlier ages of females' first memory, and maternal relative power was correlated with greater memory fluency. Given the numerous associations in the male sample, and the lack of associations in the female sample, two questions arise. Why do the opposite qualities of positive father-son relationships and negative mother-son relationships yield better memory recall in males? And why does the quality of parent-child relationship have a stronger link to male memory than female memory?

To address the former question, several studies have found differences in the way children respond to their parents. Children have been found to be more evaluative and elaborative when reminiscing with their fathers than with their mothers (as cited in Buckner & Fivush, 2000), and they tend to recall more memories when reminiscing with their fathers than with their mothers or an experimenter (Reese et al., 1996). So why would children, particularly sons, have better memory recall when interacting with their father than with their mother? Perhaps sons reminisce better with their fathers due to their father's specific reminiscing approach. While studies such as Reese and Fivush (1993) have not found differences in parent-child talk between mothers and fathers, other studies such as Reese et al. (1996) have.

In a 30-month longitudinal study measuring gender differences in autobiographical reminiscing, Reese et al. (1996) compared parental elaborations, evaluations, repetitions, and total utterances made when reminiscing with their children. In regards to elaborations, it was found that both mothers and fathers of daughters tended to elaborate more than parents of sons when their child was 3 years and 6 months of age, but at 5 years and 10 months, there was no difference in parental elaborations between children. The reason was that fathers had increased their level of elaborations with their sons over time. With respect to evaluations, over time fathers were more evaluative when replying to their son's memory responses than were mothers. Fathers confirmed or corrected their son's memory recall by repeating what the child had said and by providing an explicit evaluation (Reese et al.). In addition, fathers used significantly more

repetitions than mothers, more so with their sons than with their daughters. Finally, it was reported that parents did not differ in the length of their conversations with their children over time. However, fathers did increase their total utterances with their sons, but not with their daughters over time, while mothers did not show any increase at all. Overall, it was found that reminiscing among same-sex parent-child dyads was particularly strong. Reese et al. (1996) documented that during reminiscing, sons received more praise from their fathers, and likewise, daughters received more praise from their mothers. Based on these findings, positive father-son relationships may have greater importance on male memory recall due to the specific quality of reminiscing shared between father-son dyads. This positive relationship may potentially facilitate a welcoming environment for shared reminiscing, and subsequently fortify male memory recall.

A positive mother-son relationship may not be as important for males' memory as a positive father-son relationship, and a negative mother-son relationship may still be able to influence males' memory due to the amount of exposure males have to their mothers. More than one-third of the male sample in this study indicated that their mother was their primary caregiver while growing-up, and another 62% of males indicated that both their mother and father were their primary caregivers. Because almost all of the males in this study had constant exposure to their mother leading to adulthood, they may have had ample opportunities to reminisce with their mothers, regardless of the quality of the relationship. In contrast, they may have spent less time with their fathers compared to

mothers, which made most father-son reminiscing more special for the son, and perhaps more influential (Reese et al., 1996).

In a study by Buckner and Fivush (2000), fathers tended to refer to themselves more often than did mothers when reminiscing with their children. Thus, perhaps during times of father-son bonding when fathers modeled reminiscing by making references to the self, sons may have been implicitly encouraged to follow suit and share their memories as well. Furthermore, fathers who felt that they were not devoting enough time to their child, may have experienced greater pressure to ensure that the time they were spending with their child was of high quality (Buckner & Fivush), and consequently invested more effort to talk to their child.

Regarding the differential association in genders between parent-child relationships and memory, similar results were found in an earlier study by Peterson et al. (in press), where it was reported that positive parent-child relationships were associated with greater memory fluency in males, but not in females. Peterson et al. suggest that certain qualities of parent-child relationships may be more important to males than to females. Because most interactions with boys occur during physical interactions (as cited by Peterson et al., in press), fathers more commonly take on the role of playing with their children (Reese et al., 1996). During physical interactions, more playful behavior occurs, which may only strengthen a positive relationship. During these times of play, fathers and sons have opportunities to engage in more elaborative parent-child talk– a type of talk that has been known to increase memory recall (Peterson et al.).

Another reason why the quality of parent-child relationships may not be as important for female memory recall as it is for males is because of the level of comfort that one may require in order to reminisce. Females may be more comfortable when engaging in memory talk with a variety of people in different contexts and regarding multiple personal issues, whereas males may only be apt to engage in memory talk with people they are close to, such as their parents (Buckner & Fivush, 2000). Hence, even though it was found that female memory recall was not significantly associated with positive parent-child relationships, females may have been engaging in memory talk with other people besides their parents, thus decreasing their dependency on the quality of the parent-child relationship, and creating other means to strengthen their memory recall.

Functions of Reminiscing

Contrary to the current study's hypothesis, the total frequency of reminiscing was not associated with memory fluency or age of earliest memory for either gender. But after examination of the specific functions of reminiscing, it was found that the frequency of reminiscing for the purpose of problem-solving was associated with younger ages of males' first memory, and the frequency of reminiscing for the purpose of identity was modestly associated with greater female memory fluency.

These results are interesting, but not unexpected. When reminiscing for the purpose of identity, one recalls autobiographical memories in order to provide oneself with a sense of purpose and to clarify whom one is (Webster, 1997; Webster & McCall, 1999). Therefore, when females reminisce for the purpose of identity, they attach

meaning and emotions to past events. It has been found that females have enhanced memory recall when they are asked to list memories associated to specific emotions (Davis, 1999). This may be related to early parent-child talk, where it has been documented that parents tend to reference emotions more often to their daughters than to their sons during reminiscing (Fivush & Buckner, 2003; Reese et al., 1996). With regular evaluations of past memories and attached emotion, this may increase the personal value of the recalled event (Peterson et al., in press).

Reminiscing for the purpose of identity leads us to McAdams' (2001) life story theory of identity, where he contends that people provide their life with a sense of purpose and unity by internally revamping, organizing, and examining narratives of the self into a coherent story. In doing so, people are required to review past events and to provide meaning. Thus, when females reminisce for the purpose of identity, they continually rehearse their early autobiographical memories in order to develop a better self-understanding (Reese & Fivush, 1993), and in doing so they may develop greater memory fluency. McAdams (2003) argues that people generally begin to formulate their life story during late adolescence or early adulthood. In addition, he contends that life stories are influenced by both culture and society (McAdams, 2006). In Western society, females are typically depicted as being emotional and remembering many past events, whereas men are viewed as being more involved in the present (Peterson, Noel, et al., 2008)

Thus, it was not surprising when results showed that the reminiscing function of problem-solving was associated with males recalling earlier ages for their first memory. When reminiscing for the purpose of problem-solving, one taps into memory of past strategies as a coping mechanism to solve current situations (Webster, 1997; Webster & McCall, 1999). This adaptive function encourages the utilization of self-knowledge by managing problems and concerns; one must recall past successes of prior related situations when faced with life obstacles (Hyland & Ackerman, 1988; Webster & Cappeliez, 1993; Webster & Gould, 2007). In other words, by remembering past circumstances that resemble the current situation, reminiscing for the purpose of problem-solving may serve as a guide towards a successful solution (Pillemer et al., 2003). These results are consistent with Western societal expectations that males tend to be focused on current situations, and reminiscing about autobiographical memories for the purpose of problem-solving can be put to everyday use (Webster & Gould, 2007).

Demographics

Finally, we cannot neglect the link between birth order and memory. In the correlation analyses, birth order showed only a moderate association with the age of earliest memory in females. Interestingly in the regression analyses, birth order was proven to be a significant predictor for male memory fluency, such that adult males who were first-born were likely to have greater memory fluency than male adults who were born later than their siblings.

Earlier studies have shown birth order has an association with children's intelligence and memory (i.e., Belmont & Marolla, 1973; Zajonc & Markus, 1975). Similar to the study of parent-child relationships and adult memory, researchers have only recently shifted their focus on birth order and adult memory. One notable study regarding birth order was conducted by Holmgren, Molander, and Nilsson (2007), which was the first study to examine the longitudinal effects of birth order and episodic memory in adults. These authors examined 1,141 healthy adults (age 35-80 years) and tested recall and recognition; these series of measures were taken at two time points, five years apart. Tests of recall included free recall and cued recall, and participants were also tested on recognition of faces, names, and nouns. Results showed that birth order had a significant effect on both recall and recognition. Specifically, adults who were born earlier than their siblings exhibited greater memory performance (Holmgren et al., 2007). Further analyses did not yield any significant interactions between age and birth order or sex and birth order. Based on these findings, Holmgren et al. contend the effects of birth order on memory are robust over the adult life span.

Holmgren et al. (2007) posit several explanations regarding the link between birth order and memory. One explanation is that first-born children receive the most adult exposure when their siblings are not yet born, and the amount of interaction first-borns receive from their parents bolsters their linguistic and memory skills. Second, as more children are born, there is less adult attention because it must be divided, and thus later-born children receive less time to reminisce and interact with their parents. Furthermore,

being first-born has the benefit of being able to tutor younger siblings in many facets (Holmgren et al.). By teaching others, first-borns are able to consolidate their intellectual skills and enhance their memory recall.

Limitations / Future Directions

One limitation in this study is in regards to the memory measures. With reference to the age of earliest memory, there is no level of certainty in the accuracy of the age quoted by participants, and for most adults it is difficult to provide an exact date (Nelson & Fivush, 2004). Some participants may have under- or overestimated their age of first memory. Moreover, there was no way for this study to validate the accuracy of memories recalled during the memory fluency task. Thus, participants may have testified to false memory events; as well, experiences recorded may have occurred after the desired age of interest (i.e., events after entering kindergarten). Despite the various precautions taken in this study to ensure valid memory measures, there is no guarantee in their accuracy.

Another limitation is with respect to the parent-child relationship data. Participants were asked to answer the parent-child questionnaires retrospectively, as when they were in high school. It was postulated that during high school years, in contrast to university years, the majority of participants would have lived at home with their parents and would have spent the most time with their parents. It is acknowledged that relationships are constantly evolving, and the type of relationships that participants had with their parents during high school may not be representative of the present situation. Jackson et al. (1998) found that reports of positive communication between

parent and child decrease with age to a certain point, such that younger adolescents tend to report more positive communication with their parents than do older adolescents. It was found that communication problems increased with age, according to both the parent and the child. Jackson et al. suggest that the quality of communication between parents and their child may be bimodal, such that following the adolescent stage, communication may become positive again due to an increase in communication skills of the budding young adult. Taken together, using retrospective scores for the Network of Relationships Inventory and Adolescents' Report of Parental Monitoring may have been less than ideal, and may have potentially weakened the associations between parent-child relationships and the memory measures. It would be best if future studies measured the quality of parent-child relationships and the amount of parental involvement at its current stage. Results may then yield stronger associations than those found in the current study.

Lastly, analyses of sibling relationships and friendships were beyond the scope of the current study. Future studies regarding other close relationships may shed more light on other dyads that potentially strengthen early memory recall. Due to the lack of associations in the current study, perhaps females may report stronger associations with relationships outside of parent-daughter relationships.

Conclusion

Autobiographical memories are an important means of helping us understand ourselves (Reese & Fivush, 1993) and they help provide a sense of meaning and purpose in our lives (Nelson & Fivush, 2004). Fivush and Buckner (2003) argue that we are the

authors of our life story, we have the power to create and revamp our story accordingly, and the body of our story is composed of our autobiographical memories. "Unlike other forms of episodic memory, autobiographical memory is considered to be a social construction, originating through experience but elaborated and maintained through social interactions with others" (Hayne & MacDonald, 2003, p. 410). Thus, our ability to recall these memories is of great value and therefore it is important for us to know what variables may influence our capability of recalling autobiographical memories. Due to overwhelming data indicating that parent-child reminiscing influences children's memory recall (i.e., Fivush et al., 1996; Peterson et al., 2005; Wang, 2007), this study set out to examine whether parent-child relationships also influenced adults' early memory recall. As well, it sought to investigate if the frequency and functions of reminiscing were associated with adults' memory recall.

This study showed that global paternal social support had an association with male memory fluency. Interestingly, greater maternal negative interchanges were significantly associated with younger ages of earliest memory for males, along with problem-solving as a function of reminiscing. Global scores of parent-child relationship, the amount of parental involvement, and the total frequency of reminiscing were all unrelated to female memory recall. However, several qualities of parent-child relationships were associated with female memory recall, and reminiscing for the function of identity was associated with female memory fluency. Collectively, the data indicate that the quality of parent-child relationships and the functions of reminiscing

have a stronger association with the memory of males than females. It is clear that there is no single variable that can account for all of the variability regarding adult early memory fluency or age of earliest memory. But it is evident that further research is warranted in order to investigate the significance of parent-child relationships to early autobiographical memory recall, especially the contrasting parent-child relationships and its influence on adult early autobiographical memory.

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Table 1

Descriptive Statistics for the Age of Earliest Memory and Memory Fluency, including the categories Specificity (Episodic vs. Script), Social Orientation (Individual vs. Group), and Emotions (Positive, Negative, Mixed, or Neutral).

	Males (n=68)		Females (n=81)		Total (n=149)	
	M	*SD*				
Age of Earliest Memory (in months)	33.32	11.53	32.36	8.99	32.80	10.20
Memory Fluency	8.46	4.28	9.89	4.74	9.23	4.58
% Episodic (Specificity)	54.46	27.46	57.14	24.47	55.91	25.82
% Script (Specificity)	45.54	27.46	42.86	24.47	44.09	25.82
% Individual (Orientation)	57.43	24.31	52.21	22.57	54.59	23.44
% Group (Orientation)	42.57	24.31	47.79	22.57	45.41	23.44
% Positive (Emotion)	48.16	22.96	48.51	19.72	48.35	21.19
% Negative (Emotion)	26.29	17.44	30.44	18.02	28.55	17.81
% Mixed (Emotion)	14.50	13.26	13.86	12.14	14.15	12.62
% Neutral (Emotion)	11.00	16.04	6.12	8.51	8.35	12.71

Table 2

Correlations between Memory Measures and Quality of Parent-Child Relationships, Amount of Parental Involvement, and Functions of Reminiscing

Memory Measures	Parent-Child Relationship Measures & Reminiscing					
	S.S. Mother	S.S. Father	N.I. Mother	N.I. Father	Involve.	Reminis.
	Males (n=68)					
Earliest Memory	-.040	-.177†	-.240*	.037	-.165†	-.122
Memory Fluency	.118	.282**	.124	-.195†	.086	.083
% Episodic	-.064	-.024	.154	.185†	-.074	.040
% Individual	.098	-.104	.017	-.033	-.023	.080
% Positive	.033	.110	-.088	-.178†	.194†	-.184†
% Negative	.038	.016	.099	.090	-.046	.320**
% Mixed	.019	-.091	.099	.177†	-.035	-.220*
% Neutral	-.107	-.098	-.061	.011	-.197†	.094
	Females (n=81)					
Earliest Memory	-.055	-.142	.048	.023	-.045	-.068
Memory Fluency	.158†	.077	.104	.056	-.022	.017
% Episodic	.073	-.028	-.115	.116	-.173†	.117
% Individual	.045	-.074	-.003	.107	-.011	-.045
% Positive	-.013	-.044	-.046	-.089	.221*	-.032
% Negative	.092	-.002	-.081	.033	-.198*	-.066
% Mixed	-.011	.080	.093	.047	-.053	.135
% Neutral	-.162†	-.055	.112	.065	-.079	-.039

(1-tailed) † ($p < .10$) * ($p < .05$) ** ($p < .01$)

Note: S.S. = Social Support (Positive Relationship)
N.I. = Negative Interchanges (Negative Relationship)
Involve. = Amount of Parental Involvement
Reminis. = Total frequency of Reminiscing

Table 3

Correlations between the Age of Earliest Memory, Memory Fluency, and the subscales of the Network Relationships Inventory of each parent.

Network Relationship Inventory		Memory			
		Earliest Memory	Memory Fluency	Earliest Memory	Memory Fluency
		Males (n=68)		Females (n=81)	
Father	Compan.	-.303**	.291**	-.192*	.069
	Inst. Aid	-.212*	.315**	-.065	.118
	Intimacy	-.188†	.219*	-.107	.051
	Nurtur.	.039	-.027	-.092	.151†
	Affection	-.166†	.367**	-.112	.008
	Admir.	-.088	.204*	-.147†	.018
	Re. Alli.	-.063	.174†	-.114	.018
	Conflict	.073	-.205*	-.004	.075
	Antag.	.000	-.170†	.050	.033
	Re. Pow.	-.087	.045	.021	-.003
Mother	Compan.	-.062	.114	-.031	.065
	Inst. Aid	-.022	.157†	-.108	.207*
	Intimacy	-.075	.040	-.049	.119
	Nurtur.	.045	-.078	-.046	.219*
	Affection	-.125	.294**	-.072	.041
	Admir.	.017	-.059	-.022	.151†
	Re. Alli.	.001	.193†	.019	.053
	Conflict	-.205*	.108	-.006	.131
	Antag.	-.259*	.132	.097	.067
	Re. Pow.	.014	-.226*	.128	.276**

(1-tailed) † ($p < .10$) * ($p < .05$) ** ($p < .01$)

Note: Compan. = Companionship; Inst. Ad = Instrumental Aid; Nurtur. = Nurturance; Admir. = Admiration; Re. Alli. = Reliable Alliance; Antag. = Antagonism; Re. Pow. = Relative Power

Table 4

Correlations between the Age of Earliest Memory, Memory Fluency, and the subscales of the Reminiscence Functions Scale.

Memory Measures	Reminiscence Functions Scale						
	Bore.	Ident.	Prob.	Conv.	Inti.	Bitter.	Teach
	Males (n=68)						
Earliest Memory	-.026	-.121	-.210*	-.145	-.036	.053	-.054
Memory Fluency	-.013	.134	.086	.129	.041	-.018	.005
	Females (n=81)						
Earliest Memory	.022	-.102	.109	-.052	-.110	-.062	-.112
Memory Fluency	.007	.144†	-.053	-.048	-.075	.086	.010

(1-tailed) † ($p < .10$) * ($p < .05$) ** ($p < .01$)

Note: Bore. = Boredom Reduction
Ident. = Identity
Prob. = Problem-Solving
Conv. = Conversation
Inti. = Intimacy Maintenance
Bitter. = Bitterness Revival
Teach = Teach / Inform

Table 5

Correlations between the Age of Earliest Memory, Memory Fluency, and Demographic Variables

Memory Measures	Demographic Variables						
	Age	Parents	Care.	Sibling	Birth	Father	Mother
	Males (n=68)						
Earliest Memory	.056	.025	-.024	.042	.018	-.124	.012
Memory Fluency	-.119	.151	.182	-.040	-.265*	.210†	.109
	Females (n=81)						
Earliest Memory	.143	.033	-.107	-.011	.187†	-.021	.058
Memory Fluency	-.187†	.032	.098	.157	-.027	.053	.161

(2-tailed) † ($p < .10$) * ($p < .05$) ** ($p < .01$)

Note: Parents = Number of parents living in the household
Care. = Primary caregiver while growing-up
Sibling = Number of siblings
Birth = Birth order
Father = Father's education
Mother = Mother's education

Appendix A:

Demographic Questionnaire

Demographic Questionnaire

Gender:_____ **D.O.B. (yyyy/mm/dd): _____**

Parents you were living with while growing up:

Mother
Father
Mother and Father

Primary caregiver while growing up:

Mother
Father
Mother and Father

List of your siblings:

Brother/Sister_____ D.O.B. (yyyy/mm/dd): _____

Brother/Sister_____ D.O.B. (yyyy/mm/dd): _____

Brother/Sister_____ D.O.B. (yyyy/mm/dd): _____

Brother/Sister_____ D.O.B. (yyyy/mm/dd): _____

Brother/Sister_____ D.O.B. (yyyy/mm/dd): _____

Mother's highest level of education completed:

Some High School
High School Graduate
Some college or trade school
College Graduate

Father's highest level of education completed:

Some High School
High School Graduate
Some college or trade school
College Graduate

Appendix B:

Memory Fluency Sheet used by the Interviewer

Gender: ___ **M** **or** ___ **F** **Birth date:** ____/____/____
yy / mm / dd

Memory for Early Experiences

For each memory that you recall during the 4-minute recall period, please tell me a brief sentence or phase about the memory to remind you of it later, when you provide more information about it. Try to recall as many memories as you can.

Memory 1: _____

Memory 2: _____

Memory 3: _____

Memory 4: _____

Memory 5: _____

Memory 6: _____

Memory 7: _____

Memory 8: _____

Memory 9: _____

Memory 10: _____

Memory 11: _____

Memory 12: _____

(Turn over for more space)

Appendix C:

Age and Emotion (Memory Fluency) Sheet used by the Interviewer

Ratings for my Memories of Early Experiences

AGE (in years & months, if possible) **Emotion** attached to memory

Memory 1: _____ _____

Memory 2: _____ _____

Memory 3: _____ _____

Memory 4: _____ _____

Memory 5: _____ _____

Memory 6: _____ _____

Memory 7: _____ _____

Memory 8: _____ _____

Memory 9: _____ _____

Memory 10: _____ _____

Memory 11: _____ _____

Memory 12: _____ _____

Appendix D:

Earliest Memory Sheet used by the Interviewer

Earliest Memory

Appendix E:

Network of Relationships Inventory

ID # ____ ____ ____ ____

Everyone has a number of people who are important in his or her life. These questions ask about your relationships with each of the following people: your mother, your father, a sibling, a relative, a grand-parent, a same-sex friend, and an opposite-sex friend.

The first questions ask you to identify your mother figure, your father figure, a sibling, a relative, a grandparent, and two friends about whom you will be answering the questions.

1. Circle the **mother figure** you will be describing. (If you have both, choose the one you think of as your primary mother figure.)

A. Biological/Adopted Mother

B. Step-Mother (or Father's Significant Other)

C. Other _____

2. Circle the **father figure** you will be describing. (If you have both, choose the one you think of as your primary father figure.)

A. Biological/Adopted Father

B. Step-Father (or Mother's Significant Other)

C. Other _____

3. If one of your **brothers or sisters** is participating in this study also, please choose him or her. If you do not have a sibling taking part in this study, please describe your relationship with the sibling you consider to be most important/closest to you. (If several are equally important/close, just select one.) **If you do not have a sibling, leave these questions blank.**

Your Sibling's First Name _____

How old is s/he? _____ years old.

4. Now we would like you to choose a **relative** who is/was most important to you. Is this person a a) **grandmother**, b) **grandfather**, c) **aunt**, or d) **uncle**? (Please circle one.) The relative's first name is _____.

5. Now we would like you to choose a boy/girl friend whom you are dating or dated. You may choose someone you are seeing now, or someone you went out with earlier in high school. If you choose a past boy/girl friend, please answer the questions as you would have when you were in the relationship.

Boy/Girl Friend's First Name _____

How long is/was the relationship? ____ years ____ months *(please fill in numbers)*

Are you seeing this person now? **A.** Yes **B.** No

6. Please choose the most important **same-sex friend** you have had in high school. You may select someone who is your most important same-sex friend now, or who was your most important same-sex friend earlier in high school. **Do not choose a sibling.** If you select a person with whom you are no longer friends, please answer the questions as you would have when you were in the relationship.

Same-Sex Friend's First Name _____

How long is/was the friendship? ____ years ____ months *(please fill in numbers)*

Are you close friends now?

A. Yes **B.** Friends, but not as close as before **C.** No

7. Please choose the most important **other-sex friend** you have had in high school. You may select someone who is your most important other-sex friend now, or who was your most important other-sex friend earlier in high school. **Do not choose a sibling, relative, or boy/girl friend—even if she or he is or was your best friend.** If you select a person with whom you are no longer friends, just answer the questions as you would have when you were in the relationship.

Other-Sex Friend's First Name _____

How long is/was the friendship? ____ years ____ months *(please fill in numbers)*

Are you close friends now?

A. Yes **B.** Friends, but not as close as before **C.** No

8. Sometimes we would also like you to answer the following questions about some **extra person**. If there is a name written in the space below, please answer about this person also.

Extra Person _____

Relationship _____

****

Now we would like you to answer the following questions about the people you have selected above. Sometimes the answers for different people may be the same but sometimes they may be different.

9. How much free time do you spend with this person?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

10. How much do you and this person get upset with or mad at each other?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

11. How much does this person teach you how to do things that you don't know?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

12. How much do you and this person get on each other's nerves?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

13. How much do you talk about everything with this person?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

14. How much do you help this person with things she/he can't do by her/himself?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

15. How much does this person like or love you?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

16. How much does this person treat you like you're admired and respected?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

17. Who tells the other person what to do more often, you or this person?

	S/he always does	S/he often does	About the same	I often do	I always do	S/he always does	S/he often does	About the same	I often do	I always do	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

18. How sure are you that this relationship will last no matter what?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

19. How much do you play around and have fun with this person?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

20. How much do you and this person disagree and quarrel?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

21. How much does this person help you figure out or fix things?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

22. How much do you and this person get annoyed with each other's behavior?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

23. How much do you share your secrets and private feelings with this person?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

24. How much do you protect and look out for this person?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

25. How much does this person really care about you?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

26. How much does this person treat you like you're good at many things?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

27. Between you and this person, who tends to be the BOSS in this relationship?

	S/he always does	S/he often does	About the same	I often do	I always do	S/he always does	S/he often does	About the same	I often do	I always do	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

28. How sure are you that your relationship will last in spite of fights?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

29. How often do you go places and do enjoyable things with this person?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

30. How much do you and this person argue with each other?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

31. How often does this person help you when you need to get something done?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

32. How much do you and this person hassle or nag one another?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

33. How much do you talk to this person about things that you don't want others to know?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

34. How much do you take care of this person?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

35. How much does this person have a strong feeling of affection (loving or liking) toward you?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

36. How much does this person like or approve of the things you do?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

37. In your relationship with this person, who tends to take charge and decide what should be done?

	S/he always does	S/he often does	About the same	I often do	I always do	S/he always does	S/he often does	About the same	I often do	I always do	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

38. How sure are you that your relationship will continue in the years to come?

	Little or None	Some-what	Very Much	Extre-mely Much	The Most	Little or None	Some-what	Very Much	Extre-mely Much	The Most	
Mother	1	2	3	4	5	1	2	3	4	5	Boy/Girl Friend
Father	1	2	3	4	5	1	2	3	4	5	Same-Sex
Sibling	1	2	3	4	5	1	2	3	4	5	Other-Sex
Relative	1	2	3	4	5	1	2	3	4	5	Extra Person

39. Earlier, when we asked you to choose your most important same- and other-sex friends, we said that they could not be a sibling or a relative. Now please tell us who, of all these people, is your best friend?

A. My same-sex friend.

B. My opposite-sex friend.

C. My sibling. Name _____

D. My relative. Name _____

Appendix F:

Revised Network of Relationships Inventory

Network Relationship Inventory

Everyone has a number of people who are important in his or her life. These questions ask about your relationship with your mother, father, sibling, and important friend.

The first questions ask you to identify your mother figure, your father figure, your sibling and your important friend, about whom you will be answering the questions.

1. Circle the **mother figure** you will be describing. (If you have both, choose the one you think of as your primary mother figure.)

A. Biological/Adopted Mother
B. Step-Mother (or Father's Significant Other)
C. Other_____

2. Circle the **father figure** you will be describing. (If you have both, choose the one you think of as your primary father figure.)

A. Biological/Adopted Father
B. Step-Father (or Mother's Significant Other)
C. Other:_____

3. Please describe your relationship with the **sibling** you consider to be most important/closest to you. (If several are equally important/close, just select one.) **If you do not have a sibling, leave these questions blank**.

Is the sibling you are thinking of your brother or your sister?
A. Brother
B. Sister

How old is s/he? ____ years-old

Is s/he younger or older?
A. Younger
B. Older

4. Please choose the most important **friend** you have had. You may select someone who is your most important friend now, or who was your important friend earlier. **Do not choose a sibling**. If you select a person with whom you are no longer friends, please answer the questions as you would have when you were in the relationship.

How long is/was the friendship? ____ years ____ months (*please fill in numbers*)

Are you close friends now?
A. Yes
B. Friends, but not as close as before
C. No

****

Now we would like you to answer the following questions about the people you have selected above. Sometimes the answers for different people may be the same but sometimes they may be different.

5. How much free time do you spend with this person?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

6. How much do you and this person get upset with or mad at each other

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

7. How much does this person teach you how to do things that you don't know?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

8. How much do you and this person get on each other's nerves?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

9. How much do you talk about everything with this person?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

10. How much do you help this person with things she/he can't do by her/himself?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

11. How much does this person like or love you?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

12. How much does this person treat you like you're admired and respected?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

13. Who tells the other person what to do more often, you or this person?

	S/he always does	S/he often does	About the same	I often do	I always do
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

14. How sure are you that this relationship will last no matter what?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

15. How much do you play around and have fun with this person?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

16. How much do you and this person disagree and quarrel?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

17. How much does this person help you figure out or fix things?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

18. How much do you and this person get annoyed with each other's behavior?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

19. How much do you share your secrets and private feelings with this person?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

20. How much do you protect and look out for this person?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

21. How much does this person really care about you?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

22. How much does this person treat you like you're good at many things?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

23. Between you and this person, who tends to be the BOSS in this relationship?

	S/he always does	S/he often does	About the same	I often do	I always do
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

24. How sure are you that your relationship will last in spite of fights?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

25. How often do you go places and do enjoyable things with this person?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

26.How much do you and this person argue with each other?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

27. How often does this person help you when you need to get something done?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

28.How much do you and this person hassle or nag one another?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

29. How much do you talk to this person about things that you don't want others to know?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

30. How much do you take care of this person?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

31. How much does this person have a strong feeling of affection (loving or liking) toward you?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

32. How much does this person like or approve of the things you do?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

33. In your relationship with this person, who tends to take charge and decide what should be done?

	S/he always does	S/he often does	About the same	I often do	I always do
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

34. How sure are you that your relationship will continue in the years to come?

	Little or none	Somewhat	Very much	Extremely much	The most
Mother	1	2	3	4	5
Father	1	2	3	4	5
Sibling	1	2	3	4	5
Friend	1	2	3	4	5

Appendix G:

Scoring of the Network of Relationships Inventory

INSTRUCTIONS FOR SCORING NETWORK OF RELATIONSHIP INVENTORY

The first two pages of the Network of Relationships Inventory are used to identify the people who will be rated on the questionnaire. We include an option for an extra person, such as a step-parent. You may also choose to select different relationships. If you wish, you can restrict friendships or romantic relationships to current ones.

The most common version of the NRI consists of ten sets of scales. The names of the scales and item compositions go as follows:

Companionship:	Items 9, 19, 29
Conflict:	Items 10, 20, 30
Instrumental Aid:	Items 11, 21, 31
Antagonism:	Items 12, 22, 32
Intimacy:	Items 13, 23, 33
Nurturance:	Items 14, 24, 34
Affection:	Items 15, 25, 35
Admiration:	Items 16, 26, 36
Relative Power:	Items 17, 27, 37
Reliable Alliance:	Items 18, 28, 38

In our most recent version, we also are using the following three scales:

Support

1. How often do you turn to this person for support with personal problems?
2. How often do you depend on this person for help, advice, or sympathy?
3. When you are feeling down or upset, how often do you depend on this person to cheer things up?

Criticism

1. How often does this person point out your faults or put you down?
2. How often does this person criticize you?
3. How often does this person say mean or harsh things to you?

Dominance

1. How often does this person get his/her way when you two do not agree about what to do?
2. How often does this person end up being the one who makes the decisions for both of you?
3. How does this person get you to do things his/her way?

You may also consider using any of the following scales that were on earlier versions.

Satisfaction

1. How satisfied are you with your relationship with this person?
2. How good is your relationship with this person?
3. How happy are you with the way things are between you and this person?

Punishment

1. How much does this person punish you?
2. How much does this person discipline you for disobeying him/her?
3. How much does this person scold you for doing something you are not supposed to do?

Scale scores are derived by simple averaging of three items. If the subjects are missing a specific item, scale scores can be derived from the other two items. I do not recommend that scale scores be derived if only one item of the three is completed.

We usually derive factors of social support and negative interchanges for each relationship. The social support measure would consist of the average of the Companionship, Instrumental Aid, Intimacy, Nurturance, Affection, Admiration, and Reliable Alliance scores. If included, Satisfaction and Support would also go on this factor. The negative interaction factor is the average of the Conflict and Antagonism scales. If included, Criticism, Dominance, and Punishment would go on this factor. Power is not part of these factors. Separate scores are derived for each relationship.

We have also used a short form assessing support with items 16, 18, 19, 21, 23, 25, and 34 and negative interaction with items 10, 12, 20, 22, 30, and 32. If you do this, you can only measure the factors, not the scales.

It is perfectly acceptable to us for you to include only a limited number of relationships or scales. However, we request that you include all three items for any scale that you incorporate so as to insure comparability of results across studies. Validation information can be obtained from the articles using the measure. A summary of some evidence is presented in "Furman, W. (1996). The measurement of children and adolescents' perceptions of friendships: Conceptual and methodological issues. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), The company they keep: Friendships in childhood and adolescence. Cambridge, MA: Cambridge University Press."

Appendix H:

Scoring of the Revised Network of Relationships Inventory

INSTRUCTIONS for SCORING the REVISED NETWORK of RELATIONSHIP INVENTORY

The most common version of the NRI consists of ten sets of scales. The names of the scales and item compositions go as follows:

Companionship:	Items 5, 15, 25
Conflict:	Items 6, 16, 26
Instrumental Aid:	Items 7, 17, 27
Antagonism:	Items 8, 18, 28
Intimacy:	Items 9, 19, 29
Nurturance:	Items 10, 20, 30
Affection:	Items 11, 21, 31
Admiration:	Items 12, 22, 32
Relative Power:	Items 13, 23, 33
Reliable Alliance:	Items 14, 24, 34

Scale scores are derived by simple averaging of three items. If the subjects are missing a specific item, scale scores can be derived from the other two items. I do not recommend that scale scores be derived if only one item of the three is completed.

We usually derive factors of social support and negative interchanges for each relationship. The social support measure would consist of the average of the Companionship, Instrumental Aid, Intimacy, Nurturance, Affection, Admiration, and Reliable Alliance scores. If included, Satisfaction and Support would also go on this factor. The negative interaction factor is the average of the Conflict and Antagonism scales. If included, Criticism, Dominance, and Punishment would go on this factor. Power is not part of these factors. Separate scores are derived for each relationship.

It is perfectly acceptable to us for you to include only a limited number of relationships or scales. However, we request that you include all three items for any scale that you incorporate so as to insure comparability of results across studies. Validation information can be obtained from the articles using the measure. A summary of some evidence is presented in "Furman, W. (1996). The measurement of children and adolescents' perceptions of friendships: Conceptual and methodological issues. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), The company they keep: Friendships in childhood and adolescence. Cambridge, MA: Cambridge University Press."

Appendix I:

Adolescents' Report of Parental Monitoring

Adolescents' Report on Parental Monitoring

When you were young: (please circle one number per question).	1) NEVER 2) RARELY 3) SOMETIMES 4) OFTEN 5) ALWAYS
1. did you tell your parents where you were going out?	1 2 3 4 5
2. did you inform your parents about activities you were doing or intended to do?	1 2 3 4 5
3. did you tell your parents about your friends?	1 2 3 4 5
4. did your parents know how to contact you if they needed to reach you?	1 2 3 4 5
5. did you know how to get in touch with your parents when they were out of the home?	1 2 3 4 5
6. did you tell your parents your daily plans?	1 2 3 4 5
7. did your parents ask you what you did during the day?	1 2 3 4 5

Appendix J:

Reminiscence Functions Scale

Reminiscence Functions Scale

At different points throughout their lives, most adults think about the past. Recalling earlier times can happen spontaneously or deliberately, privately or with other people, and may involve remembering both happy and sad episodes. The process of recalling memories from our personal past is called reminiscence, an activity engaged in by adults of all ages.

This questionnaire concerns the why, or functions, of reminiscence. That is, what purpose does reminiscence fulfill, or, what goal does retrieving certain memories help you accomplish?

Below are listed 43 statements which other people have identified as possible uses or functions of reminiscence. You are to carefully read each statement and then rate each statement on the scale describing how frequently you reminisce with that particular purpose in mind. Note that we are not asking you how frequently you reminisce in general, but rather, WHEN YOU DO REMINISCE, how frequently is it for a particular purpose. For example, a statement might read:

"I reminisce to help me solve current problems."

If you have NEVER used reminiscence for that purpose, rate that statement as 1, RARELY is rated as 2, SELDOM as 3, OCCASIONALLY is rated as 4, OFTEN is rated as 5, and if you VERY FREQUENTLY reminisce for the stated purpose, then rate the statement as 6.

Please answer each question separately. That is, some of the statements may seem to be describing similar functions, but rate each statement independently of both earlier and later statements. Answer as truthfully as possible and work relatively quickly, as your first impressions are often the most accurate. Please record your answers in the spaces provided at the end of each statement. Thank you.

When I reminisce it is: (please circle one number per question).	NEVER RARELY SELDOM OCCASIONALLY OFTEN VERY FREQUENTLY					
1. to teach younger family members what life was like when I was young and living in a different time.	1	2	3	4	5	6
2. to help me put my house in order before I die.	1	2	3	4	5	6
3. because it fills the gap when I find time heavy on my hands.	1	2	3	4	5	6
4. to help me plan for the future.	1	2	3	4	5	6
5. to keep alive the memory of a dead loved one.	1	2	3	4	5	6
6. because it brings me closer to newer friends and acquaintances.	1	2	3	4	5	6
7. because it promotes fellowship and a sense of belonging.	1	2	3	4	5	6
8. because it helps me contrast the ways I've changed with the ways I've stayed the same.	1	2	3	4	5	6
9. because it gives me a sense of personal completion or wholeness as I approach the end of life.	1	2	3	4	5	6
10. to see how my past fits in with my journey through life.	1	2	3	4	5	6
11. to pass the time during idle or restless hours.	1	2	3	4	5	6
12. to help solve some current difficulty.	1	2	3	4	5	6
13. to keep painful memories alive.	1	2	3	4	5	6
14. out of loyalty to keep alive the memory of someone close to me who has died.	1	2	3	4	5	6
15. to rehash lost opportunities.	1	2	3	4	5	6

16. to reduce boredom.	1	2	3	4	5	6
17. to remember an earlier time when I was treated unfairly by others.	1	2	3	4	5	6
18. to remind me that I have the skills to cope with present problems.	1	2	3	4	5	6
19. to relieve depression.	1	2	3	4	5	6
20. to transmit knowledge that I□ve acquired to someone else.	1	2	3	4	5	6
21. for lack of any better mental stimulation.	1	2	3	4	5	6
22. to create a common bond between old and new friends.	1	2	3	4	5	6
23. in order to teach younger persons about cultural values.	1	2	3	4	5	6
24. because it gives me a sense of self-identity.	1	2	3	4	5	6
25. to remember someone who has passed away.	1	2	3	4	5	6
26. because remembering my past helps me define who I am now.	1	2	3	4	5	6
27. as a way of bridging the generation gap.	1	2	3	4	5	6
28. as a social lubricant to get people talking.	1	2	3	4	5	6
29. because it helps me prepare for my own death.	1	2	3	4	5	6
30. in order to leave a legacy of family history.	1	2	3	4	5	6
31. to put current problems in perspective.	1	2	3	4	5	6
32. to try to understand myself better.	1	2	3	4	5	6
33. because I feel less fearful of death after I finish reminiscing.	1	2	3	4	5	6
34. to create ease of conversation.	1	2	3	4	5	6
35. because it helps me see that I□ve lived a full life and can therefore accept death more calmly.	1	2	3	4	5	6
36. as a means of self-exploration and growth.	1	2	3	4	5	6
37. for something to do.	1	2	3	4	5	6
38. because it helps me cope with thoughts of my own mortality.	1	2	3	4	5	6

39. to see how my strengths can help me solve a current problem.	1	2	3	4	5	6
40. to rekindle bitter memories.	1	2	3	4	5	6
41. to remember people I was close to but who are no longer a part of my life.	1	2	3	4	5	6
42. to avoid repeating past mistakes at some later date.	1	2	3	4	5	6
43. to keep memories of old hurts fresh in my mind.	1	2	3	4	5	6

Appendix K:

Revised Reminiscence Functions Scale

Reminiscence Functions Scale

At different points throughout their lives, most adults think about the past. Recalling earlier times can happen spontaneously or deliberately, privately or with other people, and may involve remembering both happy and sad episodes. The process of recalling memories from our personal past is called reminiscence, an activity engaged in by adults of all ages.

This questionnaire concerns the why, or functions, of reminiscence. That is, what purpose does reminiscence fulfill, or, what goal does retrieving certain memories help you accomplish?

Below are listed 37 statements which other people have identified as possible uses or functions of reminiscence. You are to carefully read each statement and then rate each statement on the scale describing how frequently you reminisce with that particular purpose in mind. Note that we are not asking you how frequently you reminisce in general, but rather, WHEN YOU DO REMINISCE, how frequently is it for a particular purpose. For example, a statement might read:

"I reminisce to help me solve current problems"

If you have NEVER used reminisce for that purpose, rate that statement as 1, RARELY is rated as 2, SELDOM as 3, OCCASIONALLY is rated as 4, OFTEN is rated as 5, and if you VERY FREQUENTLY reminisce for the stated purpose, then rate the statement as 6.

Please answer each question separately. That is, some of the statements may seem to be describing similar functions, but rate each statement independently of both earlier and later statements. Answer as truthfully as possible and work relatively quickly, as your first impressions are often the most accurate. Please use the attached sheet to record your responses. Thank you.

When I reminisce it is: (please circle one number per question).

1) NEVER
2) RARELY
3) SELDOM
4) OCCASIONALLY
5) OFTEN
6) VERY FREQUENTLY

1. to teach younger family members what life was like when I was younger.	1	2	3	4	5	6
2. because it fills the gap when I find I have nothing to do.	1	2	3	4	5	6
3. to help me plan for the future.	1	2	3	4	5	6
4. to keep alive the memory of a dead loved one.	1	2	3	4	5	6
5. because it brings me closer to newer friends and acquaintances.	1	2	3	4	5	6
6. because it promotes fellowship and a sense of belonging.	1	2	3	4	5	6
7. because it helps me contrast the ways I've changed with the ways I've stayed the same.	1	2	3	4	5	6
8. to see how my past fits in with my journey through life.	1	2	3	4	5	6
9. to pass the time during idle or restless hours.	1	2	3	4	5	6
10. to help solve some current difficulty.	1	2	3	4	5	6
11. to keep painful memories alive.	1	2	3	4	5	6
12. out of loyalty to keep alive the memory of someone close to me who has died.	1	2	3	4	5	6
13. to rehash lost opportunities.	1	2	3	4	5	6

14. to reduce boredom.	1	2	3	4	5	6
15. to remember an earlier time when I was treated unfairly by others	1	2	3	4	5	6
16. to remind me that I have the skills to cope with present problems.	1	2	3	4	5	6
17. to relieve depression.	1	2	3	4	5	6
18. to transmit knowledge that I've acquired to someone else.	1	2	3	4	5	6
19. for lack of any better mental stimulation.	1	2	3	4	5	6
20. to create a common bond between old and new friends.	1	2	3	4	5	6
21. in order to teach others about cultural values.	1	2	3	4	5	6
22. because it gives me a sense of self-identity.	1	2	3	4	5	6
23. to remember someone who has passed away.	1	2	3	4	5	6
24. because remembering my past helps me define who I am now.	1	2	3	4	5	6
25. as a way of bridging the "generation gap"	1	2	3	4	5	6
26. as a "social lubricant" to get people talking.	1	2	3	4	5	6
27. in order to leave a legacy of family history.	1	2	3	4	5	6
28. to put current problems in perspective.	1	2	3	4	5	6
29. to try to understand myself better.	1	2	3	4	5	6
30. to create ease of conversation.	1	2	3	4	5	6
31. as a means of self-exploration and growth.	1	2	3	4	5	6
32. for something to do.	1	2	3	4	5	6

33. to see how my strengths can help me solve a current problem.	1	2	3	4	5	6
34. to rekindle bitter memories.	1	2	3	4	5	6
35. to remember people I was close to but who are no longer a part of my life.	1	2	3	4	5	6
36. to avoid repeating past mistakes at some later date.	1	2	3	4	5	6
37. to keep memories of old hurts fresh in my mind.	1	2	3	4	5	6

Appendix L:

Consent Form

Adult CONSENT FORM – Memory for Early Experiences

The information collected for this project is confidential and is protected under the Freedom of Information and Protection of Privacy Act. 1989 (Bill 49)

I have read and understood the request that I participate in the study examining adults' and children's memory for early experiences.

_____ **I agree** to participate in this study. I understand that I will be asked to recall my memories from the age of 5 and younger, and that my answers will be anonymous. I understand that my participation is voluntary and that I am free to withdraw from the study at any point in time. Any inquiries I may have will be fully answered by the principal investigator.

_____**I would like my name to entered into a draw for $100.**

Signature of Student: _____

Contact information (if you would like to participate in the draw)

E-mail address: _____

Or telephone number: _____

Date: _____

Thank you very much.

Appendix M:

Information Form

Memory for Early Experiences - Information Form

We are conducting a project concerned with adults' and children's memory skills. This comparison is important because it will help us understand children's strengths as witnesses in court. The Interdisciplinary Committee on Ethics in Human Research (ICEHR) of Memorial University has granted permission to us to request your cooperation in this study.

Purpose of Study
A controversial debate is ongoing as to whether or not children should be used as witnesses in court. The reason for this debate is that some people believe that the memory skills of children are very poor, much worse than those of adults. We think this is not true (and have been told this by many parents). To study children's memory and compare it to that of adults, we want to look at the fluency of both adults' and children's memories, more specifically how many memories one can recall in a period of 4 minutes.

Procedure and Time Commitment
It will take about 15 minutes of your time to participate. You will be asked to remember as many memories as you can from when you were young, before you started primary school. You will be asked to state something about each memory as you think of it, to remind you of it later, and then go on to think of other memories. Your brief statements about each memory will be recorded by a research assistant. After the 4-minute period is up, you will be asked about your age at the time of each event as well as how the event made you feel at the time. As well, you will be asked which of the memories was your first or earliest memory. In addition, you will be asked to fill out 4 questionnaires.

Foreseeable Risks and Benefits
We foresee little in the way of risks or benefits. However, it is possible that you may remember an upsetting event. If so, you can immediately terminate your participation.

Confidentiality
Your participation will be kept anonymous and strictly confidential. The information gathered will be seen solely by the researchers involved in this study and will be used solely for research purposes. The data will be reported in terms of age and gender groups, and no information that identifies a particular individual will ever be released.

Consent
Participation is completely voluntary and you have the right to withdraw from the study at any time. If you do so, your data will be withdrawn as well.

We sincerely appreciate your cooperation. We are entering the names of all students who wish to participate into a draw for $100. If you would like to be entered into this draw, please provide us with how to contact you if your name is drawn.

Should you have any questions or comments about this research, please contact Dr. Carole Peterson at carole@mun.ca or by telephone at 737-7682, or Duyen Nguyen at duyen_nguyen@hotmail.com, or by telephone at 728-1233.

The proposal for this research has been approved by the Interdisciplinary Committee on Ethics in Human Research at Memorial University. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 737-8368.

Yours sincerely,

Dr. Carole Peterson
Professor of Psychology
Memorial University of Newfoundland

Duyen Nguyen
Graduate Student, Psychology Dep't