



A distant mirror: Memories of parents and friends across childhood and adolescence

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Memories that were easily accessible (i.e., quickly retrieved in a memory-fluency task) of Italian university students were assessed. They were from four periods of life: preschool, elementary school, middle school, and high school/university. Half of the participants were instructed to recall only memories involving parents, and the other half memories involving friends. Across age at the time of remembered events, only memories of friends increased in frequency. For parental memories (but not friend memories), the proportion with negative affect increased over age, especially for males. There were also differences related to whether memories were episodic or generic. It was concluded that memories of different periods of childhood and adolescence can serve as a reflective mirror for developmental changes in parent–child and friendship relationships.

The memories one keeps of one's earlier years are increasingly seen as embedded in personal meaning making. A number of investigators (e.g., Conway & Pleydell-Pearce, 2000; Habermas & Bluck, 2000; McAdams, 1993, 2001) have suggested that our memories from earlier periods of our lives (at least, the ones we have once we achieve early adulthood) are those that are most likely to be integrated into our ongoing life stories. These integrated and evolving life stories give our lives meaning and coherence as well as are an integral part of our identity, and our memories contribute to the ongoing construction of those life stories.

Conway and Holmes (2004) have suggested that the memories we keep from specific earlier ages are those that are most relevant to the important issues of that age according to Erikson's stages of psychosocial development. These authors assessed the memories of older adults and found that memories from different periods of their lives were consistent with the psychosocial issues (such as identity or generativity) that characterized that period according to Erikson. Likewise, McAdams *et al.* (2006) collected life story memories from college freshmen and again 3 years later, and found

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that memory themes not only demonstrated continuity over time but also developmental changes reflecting personality and identity changes during this period of life. More generally, Conway and Pleydell-Pearce's (2000) model for personal memories emphasizes individuals' goals at various times of their lives and how those affect memory.

In short, all of these theorists see memory to some degree as a mirror that may reflect a person's identity, values, and psychosocial goals at different periods of their lives. The present study explores this premise by evaluating the memories that young adults can readily access from different periods of their childhood and adolescence. But, we extend extant research by suggesting that the nature of a person's close relationships with others is an important component that not only influences one's concept of self (Thompson, 2006) but also the memories we keep. A person's two most important types of interpersonal relationships are those with parents and close friends (Smetana, Campione-Barr, & Metzger, 2006). We suggest that the evolution of these relationships over time may affect what memories are recalled from different periods of life. And because both gender and emotion have been shown to play a moderating role in the nature of intimate relationships (Smetana *et al.*, 2006), they may likewise moderate what memories individuals retrieve from their past. Finally, since the structure of memories people retrieve, namely whether they are generic (i.e., generalized) or detailed (i.e., specific) seems to be influenced by the age of the person retrieving memories (Singer, Rexhaj, & Baddeley, 2007), we explore whether memory structure is also related to the memories young adults retrieve about individuals with whom they share an intimate relationship.

Measuring memory

Considerable research has investigated the ability of adults to access the memories of their childhood, and most of it suggests an increase over age in the number of memories that can be recalled from childhood and adolescence (Rubin, 2000). But sheer frequency of memories may be too global a measure if one wants to explore the efficacy of memory as a mirror for the past. Conway and his colleagues (e.g., Conway & Holmes, 2004; Conway & Pleydell-Pearce, 2000) have argued that the memories that are readily accessible are those that are meaningful not only at the time of retrieval but also at the time the events occurred. They further argue that the most accessible memories from a particular period of one's life are best measured by providing subjects with a limited amount of retrieval time. That is, it is the first few memories that are most significant, and an optimal way to elicit them is through a time-limited recall task. Thus in the present study, we explore individuals' memories through use of this type of task. Specifically, young adults were asked to recall as many memories as they could in 3 minutes about each of four different periods of their childhood and adolescence.

Importance of parents versus friends reflected in memory frequency

The social network within which individuals are embedded contributes to their sense of who they are, i.e., their identity and sense of self (Thompson, 2006; Wang, 2003). The most important components of this social network are one's intimate relationships, particularly family members and friends. An important psychosocial change that takes place through childhood and adolescence is the role that parents and friends play (see Smetana *et al.*, 2006, for a review). Changes in the parent-child relationship co-occur

with changes in friendship relationships, and relationships with friends increase in importance with age, particularly during adolescence (Crosnoe, 2000; Laursen & Bukowski, 1997; McLean & Thorne, 2003). Thus, friends become more important to the child at older ages as well as become an increasingly important source for emotional support and a foundation for feelings of self-esteem (Allen & Land, 1999; Thorne & Michaelieu, 1996; Way & Greene, 2006).

Applying Conway *et al.*'s argument to memories of parents versus friends, if parents decrease in importance to one's self-definition and self-esteem while friends increase in importance across childhood and adolescence, this may well be reflected in how many memories of parents versus friends one can readily access at various points of childhood and adolescence. Specifically, even though one provides young adults with the same limited amount of time to access memories of parents or of friends, they may well be able to readily access more memories of events involving parents from the time when they were young children (when parents were of primary importance in their lives), but memories of friends will increase in accessibility as they get older, reflecting the increasing importance of friends psychologically. In fact, during adolescence, when the psychosocial salience and influence of friends may surpass that of parents (Allen & Land, 1999; Crosnoe, 2000; Laursen & Bukowski, 1997), memories involving friends may be proportionately more accessible than those involving parents.

Affect in memories involving parents and friends

Not only do friends become increasingly important to children as they get older, but the nature of the relationships children have with their parents and friends also change with age. That with parents seems to become more characterized by conflict as children approach adolescence (Smetana *et al.*, 2006), and there is an increase in the emotion attached to that conflict across age (Laursen, Coy, & Collins, 1998). In contrast, relationships with friends are less likely to be conflictual (McLean & Thorne, 2003), partly because conflict with friends is more likely to disrupt or sever the relationship. Parent-child conflict of course does not have the same consequences since these relationships are enduring and involuntary, even if conflictual. If these relationship dynamics are reflected in the sorts of memories that are readily accessible, then memories involving parents may be likely to increase in negativity as the child gets older. In contrast, such an increase in negative tone would not be expected to be associated with memories involving friends. Indeed, when university students were asked to provide three self-defining memories, those that involved relationships with parents were more likely to be negative than those that involved relationships with friends (McLean & Thorne, 2003).

Gender, memory frequency, and negativity

Gender has often been proposed as playing a moderating role in memory. Several investigators have found that adult women recall more memories and more vivid and detailed memories than do adult men (Davis, 1999; Niedźwieńska, 2003; Pillemer, Wink, DiDonato, & Sanborn, 2003, but see Wang, 2006), although such gender differences in sheer frequency have typically not been found with children (Cleveland & Reese, 2008; Peterson, Wang, & Hou, 2009). However, the gender differences that are found seem to be related to the content of the memories. Specifically, women seem to recall more memories that are related to themes of family and affiliative relationships and to emotion

(Cowan & Davidson, 1984; Schwartz, 1984; Thorne, 1995). Even girls as young as 8 years of age are more likely to stress social context and affiliative themes in their autobiographical memories than are boys (Buckner & Fivush, 1998).

Although considerable research has suggested that parents stress negative emotions more in their memory conversations with their preschool-aged daughters than in those with their sons (Fivush, 1989, 1991; Fivush, Brotman, Buckner, & Goodman, 2000; Kuebli & Fivush, 1992), these emotions are more likely to be sadness and fear. In contrast, anger is more likely to be discussed with preschool-aged boys. However, the memory conversations in these studies were guided by parents, and it is unclear how closely they reflect the emotional tone of memories provided by children and adolescents outside of parent-guided memory conversations. As children get older and their relationships with their parents change, the emotional tone of their memories about their parents may well change too, to reflect those relationship changes. A number of researchers have suggested that not only are parent-child relationships more likely to change in a negative direction affectively as children reach adolescence, but relationships between parents and adolescent sons are often more negative than those between parents and adolescent daughters (Jensen-Campbell & Graziano, 2000; Loeber *et al.*, 2000; Longmore, Manning, & Giordano, 2001). As a consequence, when young adults are recalling memories involving parents from their adolescent years, it is possible that those by males may be more likely to be negative than those by females.

Time structure of memories: Episodic versus generic memories

Some memories are episodic, i.e., they are about one-time events that happened at a specific time and place and include specific details about those events. Such memories are here termed 'episodic' (Peterson, Smorti, & Tani, 2008; see Wang, 2003), although other investigators have used the label 'specific' for these memories (Blagov & Singer, 2004; Singer *et al.*, 2007). In comparison, other memories are about events that were ongoing for a period of time in the past or were repeated multiple times. Such memories have been termed 'generic' or 'summary'. The age of respondents seems to influence the time structure of their memories. In an investigation by Singer *et al.* (2007) comparing memories identified as self-defining by adults over 50 years old with those by university students, the majority of memories recalled by younger adults were specific, episodic ones; in contrast, older individuals were more likely to recall generic memories. This finding fits with other research showing that older adults are more likely to recall semantic than episodic memories, partly as a function of changes in the brain (Levine, Svoboda, Hay, Winocur, & Moscovitch, 2002). The culture of respondents also seems to influence the structure of their memories. Specifically, the memories recalled by Asians such as Chinese are more likely to be of generic events that involve important others, such as family, friends, and communities, rather than the one-time episodic events recalled by Western Europeans (see review in Wang, 2003). This is as true for adults (Wang, Conway, & Hou, 2004) as for children (Peterson *et al.*, 2009). This has been attributed to the penchant of parents in Western European countries to engage in memory conversations with their children that focus on their specific experiences, adventures, and accomplishments; in contrast, Chinese parents are more likely to emphasize family networks and social interrelationships in parent-child conversations (Nelson & Fivush, 2004; Wang, 2003).

Extant research has primarily looked at the relative frequency of episodic versus generic memories in young adults (Blagov & Singer, 2004; Wang *et al.*, 2004; Wood & Conway, 2006), and little research has explored whether the time structure of memories change as the period of life being recalled changes. Research on children's very early memory skills has emphasized the importance of memory for generic or repeated events since it helps children form, not forms scripts or expectations about what will happen in their lives (Nelson, 1986; Hudson & Nelson, 1986). However, as preschoolers get older, memories are more likely to be organized around time-limited episodes (Nelson & Fivush, 2004). So, it is possible that very early memories are more likely to be generic and they become increasingly episodic as the period of life being recalled gets older. Indeed, when Wang and Conway (2004) elicited adults' recollections of childhood, youth, early mid-life, and peak mid-life, they found that memories from the recent past were more likely to be episodic than those from earlier life periods. A more relevant question for our purposes is if the time structure of various memories is affected by whether the memory involved parents or friends. In her review, Wang (2003) suggested that people from cultures that are more likely to recall generic events are also more likely to recall experiences about family members. Thus, culture and the identity of other people in the memory are confounded. However, it is possible that memories about family members are more likely to be generic than are other memories, regardless of culture. To investigate this, one must assess memories of family and of non-family within the same culture. Wang (2006) did this for European-American and Taiwanese young adults' earliest memory of mother, family, and friend, and found that although earliest memories of mother were dated earlier than those of friends, there was no difference between memories of mother versus friend in the likelihood of being episodic. However, only the adults' earliest memories were assessed. Expanding this investigation to other periods of life is another focus of the present study.

Of course, gender may again be a moderator. Considerable research suggests that when boys are with friends, they are more likely to focus on activities and on doing various things together, while girls are often more focused on intimacy with close friends and on spending time sharing feelings (Fonzi & Tani, 2000; Pagano & Hirsch, 2007; Winstead, Derlega, & Rose, 1997). Thus, it is possible that the memories of boys are more likely to focus on episodic events whereas girls are more likely to recall extended or repeated events in which such ongoing intimate relationships are developed. Because of the paucity of research exploring the time structure of memories across age and within the same culture, these aspects of the current study are exploratory, and we have no articulated hypotheses about them.

The current study

University students engaged in a timed recall task (termed a memory-fluency task) four times, and each time they tried to recall memories from a different period of their lives: (a) when they were preschool-aged, (b) in elementary school, (c) in middle school, and (d) in high school or university. These age periods were chosen because they demarcate significant educational transitions, which help people locate memories in time. Approximately half of the participants were asked to recall only memories that involved their parents in some way, and the remaining participants were asked to recall only memories that involved their friends. During each timed memory-retrieval period, participants were asked to recall as many memories as they could and write down only a sentence or two about each memory before moving on to the next memory. After each

timed memory-retrieval period, participants went back over their listed memories and described their age at the time of the memory as well as the emotion attached to the memory, if any.

Hypotheses

Across age, (1) an increasing number of memories will be readily accessible as the age of the child at the time of the remembered events increases. As well, (2) because all of the memories that participants provide involve close relationships, women are expected to recall more memories than men. However, (3) memories involving parents will be more accessible at younger ages than are memories of friends, whereas these relative frequencies will reverse as the age being recalled increases. Thus, when recalling adolescence, young adults will recall more memories that involve their friends than their parents. Furthermore, (4) memories that involve parents are expected to become increasingly negative as the age of the child at the time of the recalled events gets older, whereas those involving friends are not. (5) Moreover, the memories of males about parents are predicted to be more negative than those of females, particularly with increased age at the time of the recalled events. In terms of the time structure of the memories (episodic vs. generic), (6) we expect memories to become increasingly episodic the closer they are in time to the participants' current age, but in terms of differences in the time structure of memories of parents versus friends, there is too little prior research on this variable to allow us to make predictions. Instead, we are interested in seeing whether memories about parents are more or less likely to be generic than memories of friends, and whether memory structure is related to gender or to the affect of the memory.

Method

Participants

A total of 194 university students from the Faculty of Psychology in the University of Florence (115 males and 79 females) were recruited for this study. All participants attended one of two parallel advanced courses of Experimental Psychology taught by different teachers. The two courses covered the same topic (perception and thought in elementary school-aged children), and a student's enrolment in one or the other course was determined by the letter of their family name. Age varied from 18 to 28 years, with a mean age of 22 years ($SD = 1.6$). Participants in the two courses did not significantly differ in terms of gender and age. Seventy-seven per cent of participants came from the centre of Italy, specifically the area around Florence. Participants came from families of middle or high socio-economic level with more than 60% of the parents having a high school diploma or university degree. As well, 71% of the participants had at least one sibling and 73% currently lived at home with their parents.

Procedure

Participants were recruited while they were in class during university courses. They were told about the goals of this research project on memory, and that we wanted them to recall as many memories as they could from four specified time periods. Participants of one course were asked to recall memories that included their parents, whereas participants in the other course were asked to recall memories that included their friends. When

participants understood the nature of the tasks, the first timed recall session took place. They were given a sheet of paper with separate lines labelled for memory 1, memory 2, memory 3, etc. Participants were asked to recall as many memories as they could, and write a short sentence or two summary of each memory on the different lines. They were given 3 minutes to do this task (timed by the researcher). Afterwards, participants were asked to go back through their list of memories and for each one, to specify how old they were when the event occurred (in years and months), and to report the type of emotion they had felt in that situation. They then were given a new sheet of paper and the second timed recall session took place. There were a total of four timed recall sessions, always administered in the same order: memories about the preschool years (under age 6), primary school, secondary school, and high school or university. Each of these timed recall sessions lasted for 3 minutes, and they alternated with an untimed period during which participants described their age at the time of each memory as well as the emotion involved. (As well, participants filled out questionnaires, but these data are beyond the scope of the present report. See Peterson *et al.* (2008), for descriptions of these measures and relevant data.) The whole task entailed about 40 min. The research was conducted in accordance with the guidelines for the ethical treatment of human participants of the American Psychological Association. Prior permission was obtained from the University Dean and President as well as each course professor. Participants provided their individual consent and could withdraw from participation at any time.

Data coding

The number of memories from each age period was tabulated and each memory was classified according to the following categories.

Affect

Memories were classified as *positive* when the emotion referred to a basic state of pleasure of the narrator (e.g., joy, satisfaction, love), *negative* when the emotion referred to a basic state of unpleasure of the narrator (e.g., anxiety, pain, sorrow), and *neutral* when the narrator identified no emotion or used negation to express his/her feeling (e.g., not anxious, not excited). Participants labelled their emotions themselves, and two raters independently read participants' responses and classified them according to the main meaning of the emotion recalled, compared their ratings, and resolved disagreements through discussion. The kappa coefficient for agreement was .81.

Specificity or structure

Memories were classified as episodic versus generic as follows: memories that involved a single event that took place at a specific place and time were classified as episodic (e.g., 'The birthday party when my parents gifted a bicycle to me'), whereas generic memories were memories of repeated events or events that extended over days or weeks (e.g., 'Sunday dinners in my grandparents' house'). This is the same scoring system used in a number of other research studies (e.g., Peterson *et al.*, 2008, 2009; Peterson, Noel, Kippenhuck, Harmundal, & Vincent, in press; Wang, 2006; Wang & Conway, 2004). All memories were classified into one of these two mutually exclusive categories. Two raters independently classified the memories as episodic or generic, compared their ratings, and resolved disagreements through discussion. The kappa coefficient for agreement was .87.

Results

Frequency of memories

The group of participants who recalled memories that involved their parents recalled a mean of 17.21 ($SD = 6.43$) memories, while participants who recalled memories that involved their friends recalled a mean of 20.83 ($SD = 8.05$) memories. The difference between the two groups was significant, $F(1, 190) = 11.33, p < .001$. The two groups' participants wrote short descriptions of each memory, with the mean number of words per description for parent memories = 13.87 ($SD = 3.15$) and for friend memories = 14.25 ($SD = 2.98$). The two groups did not differ in terms of length of written descriptions, $F(1, 192) = 0.74, p > .05$.

To assess the number of memories recalled by participants in each of the age periods, a 2 (Group: parents vs. friends) \times 2 (Gender) \times 4 (Age) repeated measures MANOVA was calculated, with Group and Gender both between-subjects factors and Age a repeated measure. There was a significant main effect for both Group, $F(1, 187) = 11.03, p = .001, \eta^2 = .056$, and Age, Wilks exact $F(3, 185) = 53.66, p < .001, \eta^2 = .465$. These were complicated by a significant Group \times Age interaction, Wilks exact $F(3, 185) = 31.65, p < .001, \eta^2 = .339$. This interaction is shown in Figure 1. Follow-up 2 (Group) \times 2 (Gender) ANOVAs were calculated on each age period separately, and showed that participants recalled significantly more memories involving parents than friends from the preschool years (age period 1), $F(1, 188) = 9.24, p = .003, \eta^2 = .050$. In contrast, they recalled more memories involving friends in both middle school and high school/university (age periods 3 and 4), $F(1, 188) = 22.78, p < .001, \eta^2 = .122$, and $F(1, 188) = 42.20, p < .001, \eta^2 = .182$, respectively. In primary school (age period 2), there was no difference in how many memories involved parents versus friends.

There was also a main effect of Gender, $F(1, 187) = 7.97, p = .005, \eta^2 = .041$, and a borderline Gender \times Age interaction, Wilks exact $F(3, 185) = 2.44, p = .066, \eta^2 = .038$. This interaction is shown in Figure 2. Follow-up ANOVAs on each age category separately showed that although both females and males recalled the same number of memories

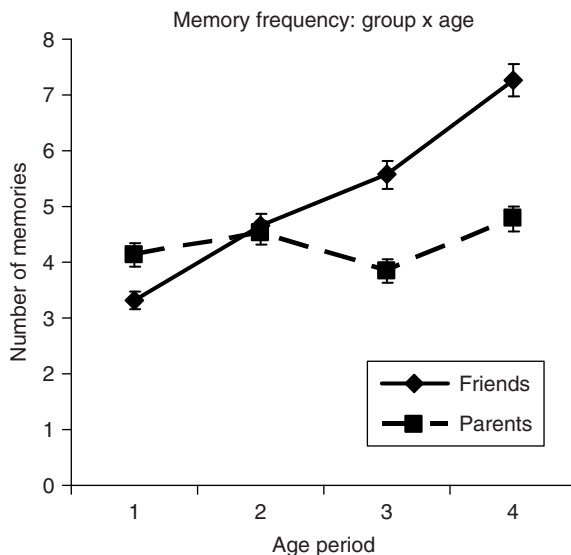


Figure 1. Frequency of memories recalled from each age period, for both friends and parents.

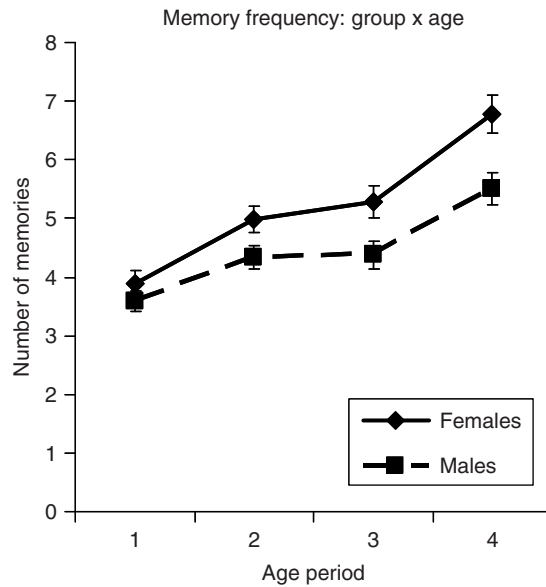


Figure 2. Frequency of memories recalled from each age period, separately by gender.

from the preschool years, women recalled more memories than did men from each of the older age periods: for elementary school, $F(1, 190) = 4.64$, $p = .033$, $\eta^2 = .024$, for middle school, $F(1, 188) = 6.87$, $p = .009$, $\eta^2 = .035$, and for high school/university, $F(1, 190) = 11.32$, $p = .001$, $\eta^2 = .056$. There were no other significant interactions.

Affect in memories

The affect of the recalled memories was classified as negative, positive, or neutral. The group that provided memories about friends provided significantly more positive memories than did the group providing memories about parents, $F(1, 189) = 12.47$, $p < .001$ ($M = 13.3$, $SD = 6.17$ for friend memories and $M = 10.4$, $SD = 5.03$ for parent memories). The two groups did not significantly differ in the number of negative memories, $F(1, 189) = 2.39$, $p > .05$ ($M = 3.49$, $SD = 4.04$ for friend memories and $M = 6.39$, $SD = 5.50$ for parent memories). Percentages of memories in each affect category about both parents and friends from each age period are shown in Table 1. (Because there were so few neutral memories, they are not analysed further.) A 2 (Group) \times 2 (Gender) \times 4 (Age) repeated measures MANOVA was calculated for the percentage of memories that were negative, with Group and Gender between-subject variables and Age a repeated measure. There was a main effect of both Group, $F(1, 185) = 17.31$, $p < .001$, $\eta^2 = .086$, and Age, Wilks exact $F(3, 183) = 8.38$, $p < .001$, $\eta^2 = .121$. This was complicated by a Group \times Age interaction, Wilks exact $F(3, 183) = 4.15$, $p = .007$, $\eta^2 = .064$. This interaction is shown in Figure 3. Follow-up ANOVAs calculated on each age period separately showed that the percentage of memories that were negative about parents versus friends did not differ during the preschool or elementary years (age period 1 and 2). However, a larger percentage of the memories involving parents were negative in both of the older two age periods than were memories involving friends, $F(1, 188) = 17.98$, $p < .001$, $\eta^2 = .087$, and $F(1, 188) = 18.39$, $p < .001$, $\eta^2 = .088$, for middle school and high school/university, respectively.

Table 1. Percentages (and SDs) of memories that were negative, positive, or neutral, separated by group (parents or friends), age period, and gender

Age period	Gender	% negative		% positive		% neutral	
		M	SD	M	SD	M	SD
<i>Parents</i>							
1	Male	30.5	29.5	65.5	30.7	4.0	10.0
	Female	21.8	26.3	74.2	26.1	3.9	10.2
2	Male	37.4	28.0	56.5	29.5	6.1	12.0
	Female	33.5	28.5	63.8	28.5	2.7	7.9
3	Male	44.0	29.7	46.8	30.4	9.2	22.6
	Female	40.7	31.5	51.6	31.3	7.6	17.3
4	Male	51.0	31.4	44.0	28.8	5.0	16.0
	Female	37.3	26.2	56.3	26.1	6.4	13.2
<i>Friends</i>							
1	Male	21.5	25.7	72.9	30.1	5.6	17.4
	Female	25.9	30.5	67.7	32.4	6.4	12.2
2	Male	26.8	26.5	62.4	29.6	8.9	19.2
	Female	32.8	23.8	58.7	24.4	8.4	12.0
3	Male	23.1	20.6	63.8	28.2	13.0	20.2
	Female	29.0	21.1	60.8	23.5	10.1	13.0
4	Male	27.7	23.5	63.2	25.9	9.0	14.0
	Female	29.7	22.6	62.7	22.8	7.6	11.0

Although there was no main effect of gender, nor a Gender × Age interaction, there was a significant Gender × Group interaction, $F(1, 185) = 7.30, p = .008, \eta^2 = .038$, depicted in Figure 4. Separate follow-up 2 (Gender) × 4 (Age) repeated measures MANOVAs (age repeated) were calculated for friends and parents. There was no significant effect of gender on the memories of friends, with both males and females

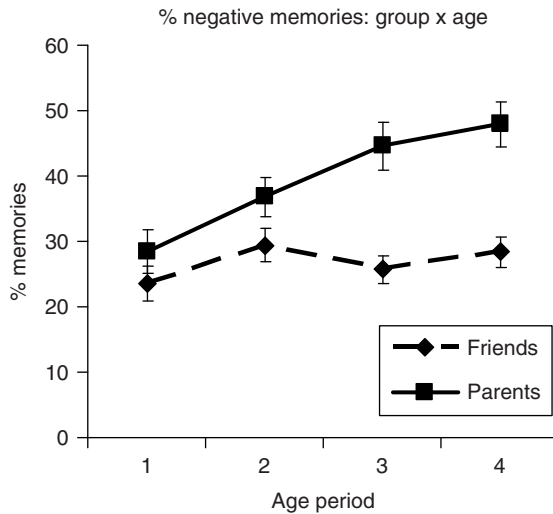


Figure 3. Percentage of memories that were negative about friends and parents, for each age period separately.

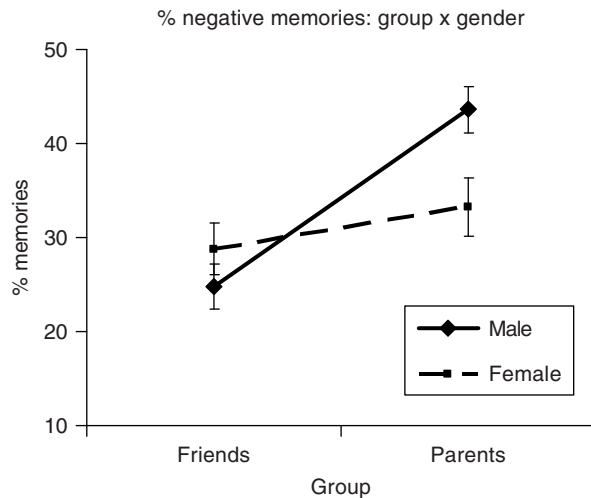


Figure 4. Percentage of memories that were negative about friends and parents, separately for males and females.

having an equivalently small proportion of negative memories about friends. However, males had significantly more negative memories of parents than did females, $F(1, 84) = 5.11, p = .026, \eta^2 = .057$.

Specificity of memories

Each of the memories was classified as episodic or generic. The participants who recalled memories involving friends recalled significantly more episodic memories ($M = 13.43, SD = 7.15$) than did participants recalling memories involving parents ($M = 9.33, SD = 5.52$), $F(1, 190) = 19.78, p < .001$). The two groups did not differ in the number of script memories they provided ($M = 7.54, SD = 4.87$ for friend memories and $M = 7.86, SD = 4.24$ for parent memories). More detailed data on the percentages of the memories that were episodic are shown in Table 2. A 2 (Group) \times 2

Table 2. Percentages of memories that were episodic, separately by group (parents or friends), age period, and gender

Age period	Male		Female		Both	
	M	SD	M	SD	M	SD
<i>Parents</i>						
1	52.2	36.8	43.8	38.3	49.0	37.4
2	52.4	35.3	38.4	34.1	47.0	35.3
3	60.8	38.7	46.7	37.8	55.4	38.8
4	67.1	36.6	58.8	37.2	63.9	36.8
<i>Friends</i>						
1	55.2	40.4	47.7	38.9	52.0	39.7
2	70.5	34.7	56.1	32.6	64.3	34.4
3	68.2	33.5	57.1	29.9	63.7	32.4
4	73.8	31.3	72.7	28.8	73.3	30.1

(Gender) \times 4 (Age) repeated measures MANOVA was calculated on the percentage of memories that were episodic, and there was a main effect of Age, Wilks exact $F(3, 183) = 12.20, p < .001, \eta^2 = .167$, with the mean percentages of memories that were episodic being 49.7, 54.4, 58.3, and 68.1% for age periods 1–4, respectively. *Post hoc* Sidak analyses showed that there were no differences between the first three age periods whereas the proportion of episodic memories in age period 4 differed significantly from that of all three of the earlier age periods ($ps < .01$). There was also a main effect of Group, $F(1, 185) = 7.16, p = .008, \eta^2 = .037$, with a higher percentage of memories about friends being episodic ($Ms = 63.3$ and 53.8% for friends and parents, respectively). In addition, there was a main effect of Gender, $F(1, 185) = 6.76, p = .010, \eta^2 = .035$, with males ($M = 62.5\%$) providing a higher proportion of episodic memories than females ($M = 52.7\%$). There were no other significant effects.

Relationship between affect and specificity

Finally, to see if there was a relationship between memory structure and its emotion, Pearson correlations were calculated between whether the emotion of a memory was negative or positive, and whether the structure of the memory was episodic or generic. Table 3 presents the correlations between emotion and structure for males and females separately for memories about parents and about friends. Overall, there was a general tendency for negative memories to be more likely to be episodic while positive memories were more likely to be generic. For males, negative memories about friends were more likely to be episodic whereas positive memories about friends were more likely to be generic. However, there was no relationship between negative emotion and structure for memories of parents. For females, there was a tendency to show the same pattern.

Table 3. Pearson correlations between affect and having an episodic memory structure, separately by group (parents or friends), and gender

Gender	Parents		Friends	
	% positive	% negative	% positive	% negative
Males	-.068	.121	-.328**	.533***
Females	-.122	.278	-.276 ⁺	.273 ⁺

⁺ $p < .10$; ** $p < .01$; *** $p < .001$.

Discussion

Our premise was that, to some extent, memory would act as a mirror to the past. Specifically, when asked for memories about people with whom they had close relationships, namely parents and friends, the memories that are most accessible to young adults would reflect the sorts of relationships with those people they had experienced at different points of time while growing up, and moreover, would reflect the dynamic changes that took place within those relationships. Our findings confirmed our expectations.

Frequency of memories

Our first hypothesis was that the older the targeted time period about which memories were to be retrieved, the more memories there would be. There is considerable research suggesting that the number of memories one can retrieve from different periods of one's childhood increases as one's age during those periods increases (see review in Rubin, 2000), so it is not surprising that overall, considering the data from all participants, this was found. However, what was surprising is that this was only found for those participants recalling events that involved their friends in some way. It was not true for those participants who were recalling memories that had parental involvement, for whom there was no increase over age in the number of memories. It is important to note that remembering friend-related events did not replace (and therefore directly decrease the frequency of) parent-related events, because separate groups of participants recalled each type of memory. Furthermore, because we always asked for memories about age periods in the same order, beginning with the youngest age and moving through the age periods chronologically, one would expect that practice effects would contribute to increasing the accessibility of memories with age. As well, the more recent age periods we asked about were not as far in the past - and the well-known phenomenon of recency effects should also lead to more memories of recent events. For all of these reasons, it is the more surprising that there was no increase in the number of memories about parents that participants could access from periods in their lives when they were older. This confirmed our hypothesis that the identity of the individuals involved in close relationships would substantially affect how many memories were readily accessible.

We also predicted that women would recall more memories than would men. Although the literature is mixed in terms of whether adult women can recall more autobiographical memories than men, when gender differences are found it is typically for memories involving relationships, affiliation, and family (Pillemer *et al.*, 2003). Since we specifically asked participants to recall memories involving people with whom most individuals have the closest relationships, we predicted and found that women recalled more memories than did men. However, this was only true for the later periods of their lives. There were no gender differences when they were young, consistent with other research that found no differences in the number of memories recalled by young boys versus girls (Cleveland & Reese, 2008; Peterson *et al.*, 2009). Thus, this lack of gender differences in number of memories seems to be just as true when children are recalling autobiographical events as when young adults are thinking back to their childhood to recall autobiographical events.

When asked for memories about their preschool years, participants provided more memories that involved their parents than peers, as predicted. At this time of their lives, the most intense relationships children have are with parents (Thompson, 2006). However, as children move through elementary school and into adolescence, relationships with parents and friends undergo substantial transformation (Smetana *et al.*, 2006). Time spent with friends and peers increases while activities shared with parents diminish (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996). Regarding the evolution of the kinds of intimate relationships with which they are involved, Gray and Steinberg (1999) suggest that in adolescence, an increase of intimacy with friends with respect to parents takes place, and intimacy with the sentimental partner constitutes an extension of this process. At least regarding intimacy, a progressive development takes place with intimacy passing from parental relationships to friendship relationships and, finally, to romantic relationships. An analogous point of view is proposed by Laursen and Bukowski (1997). They suggest that the decline of

relationships with parents during adolescence implies the transfer of some functions, including supportive ones, to friends, and later to romantic relationships. Though family keeps playing a significant role for adolescents' development (Hair, Moore, Garret, Ling, & Cleveland, 2008), relationships with friends become more and more intense and intimate, and youth increasingly turn to friends to get necessary emotional support (Buhrmester, 1996), and to become less dependent on their parents (Crosnoe & Needham, 2004; Freeman & Brown, 2001; Tani, 2005).

The increasing frequency of friend memories may also reflect the differential importance of friends versus parents at the current time of retrieval for our sample of participants. Indeed, as adults get older, a renewed emphasis on the importance of family in their identity construction (Conway & Holmes, 2004) may well be reflected in yet more changes in the relative frequency of memories of family versus friends, consistent with the sorts of changes across time found by McAdams *et al.* (2006). Alternatively, it may be that the pattern of friend versus parent memories may reflect differences in memory availability rather than accessibility. Children spend less time doing things with parents and more with friends as they get older (Larson *et al.*, 1996). So, it is possible that because they share more experiences with friends than parents at older ages, they may have more things to remember about friends than parents.

Affect in memories

As part of the transformation in parent relationships that take place as children move into adolescence, these relationships become more conflictual. This is partly because adolescents are coping with developing personal identity and social autonomy (Laursen *et al.*, 1998). Recent research has shown that during the adolescent period there is a decline in the perceived quality of relationships with parents (Loeber *et al.*, 2000). Specifically, conflict with parents increases in adolescence, whereas warmth and intimacy decrease. Adolescents perceive higher levels of conflict with parents, less parental involvement in their lives, and less positive regard from their parents (McGue, Elkins, Brent, & Iacono, 2005). Partly because relationships with parents are less egalitarian than those with friends, adolescents report more frequent conflicts with parents than with friends, and those conflicts involve more affective intensity, including intense anger (Jensen-Campbell & Graziano, 2000). In contrast, adolescents report considerably less conflict in their interactions with friends, although such conflict does happen and has important developmental effects (McLean & Thorne, 2003). Of course, if such conflict repeatedly occurs with a friend, one can readily end that relationship or alternatively it may be terminated by the other person. In other words, serious conflict threatens the existence of that particular relationship. In contrast, relationships with parents are not voluntary and such conflict does not have the same relationship-terminating effect.

The different pattern of affect that we found in memories retrieved about parents versus friends reflect the affective changes that have been documented in relationships with parents versus peers over time. That is, as predicted, memories that involved parents became increasingly negative as the age of the child at the time of the recalled events got older. In contrast, there were no changes over age in the percentage of memories involving friends that were negative. Across all age periods, approximately a quarter of the memories about friends contained negative affect, whereas by the time the participants were in high school or university, almost half of those involving their parents were negative. It should not be forgotten, however, that even in adolescence,

a large proportion of memories involving parents were still positive. This is in spite of the robust findings that negative events are more likely to be recalled than positive ones (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001).

There were gender differences in the proportion of memories that contained negative affect, at least for memories about parents. (There was no difference between males and females in the proportion of memories about friends that were negative.) As predicted, the memories provided by males that involved their parents were significantly more negative than those provided by females. A growing body of research has identified gender differences in adolescents' relationships with parents and, particularly, in a variety of parenting behaviours, attitudes, and beliefs. Females are more involved within the family life, are more monitored in their activities and plans (Cottrell *et al.*, 2007), and disclose more information and feelings to their parents than do males (Stattin & Kerr, 2000). During family interactions, females use more directional communication strategies, are more self-disclosing and seek help more often from their parents when confronted with a problem (Snyder & Ingram, 2000). Other studies have shown that, in general, female adolescents report warmer, more nurturing, and closer relations with their parents than do male adolescents (Matos, Barbosa, Almeida, & Costa, 1999; Mayselless, Wiseman, & Hai, 1998; Stewart *et al.*, 2000) and display higher levels of emotional disclosure within their relationships (Beyers & Goosens, 1999). Furthermore, females seem to have a stronger sense of obligation to support, assist, and respect their parents and their family than do males (Fulgini & Zhang, 2004). Attachment research has also suggested that females are more attached to both their parents and give higher importance to emotional support than do males (Kenny & Donaldson, 1991). Taken together, this body of research suggests that females have a more positive relationship with their parents than do males during the adolescent years. This is reflected in our findings in that women's memories involving parents were more positive and less negative than were those of males.

For males, recent research has shown that the decline that takes place over adolescence in perceived relationship quality with parents is more pronounced (Loeber *et al.*, 2000). During conflict with parents, male adolescents use fewer resolution tactics based on negotiation than do female adolescents (Jensen-Campbell & Graziano, 2000). As well, parents use more coercive strategies with boys to monitor their behaviour, and these strategies are more often centred on physical punishment than on adequate communication of rules and prohibitions (Longmore *et al.*, 2001). This may be exacerbated in our Italian sample because young people typically remain living in the family home during young adulthood, and indeed, three quarters of our sample still resided with their parents. This body of research suggests that the relationships between parents and their sons tend to be more conflictual and negative than those with their daughters.

Episodic versus generic memories

Approximately half of the memories retrieved by the participants were generic, i.e., reporting events that had been repeated a number of times at some earlier period of their lives. This is higher than the proportion of generic memories found for a North American sample in a study using the same memory-fluency task used here, but lower than in a Taiwanese sample, who recalled about 60% generic memories concerning both family and friends (Wang, 2006). However, the instructions to participants were different in both studies – in particular, participants in Wang were not asked to recall

only memories involving parents or friends – so it is difficult to make comparisons. Our proportion of generic memories is also lower than in studies where participants were instructed to recall only self-defining memories (Blagov & Singer, 2004; Singer *et al.*, 2007; Wood & Conway, 2006), but again, there were important methodological differences between those studies and this one. In particular, asking participants to recall at length those memories that they see as most self-defining is quite different from asking them to provide short summaries in a time-limited task. Nevertheless, the fact that so many memories were generic in the current investigation suggests that studies in which participants are instructed to only provide episodic memories (e.g., Conway & Holmes, 2004; Jack, MacDonald, Reese, & Hayne, 2009; Rubin & Schulkind, 1997) are not only potentially culturally biased, but also may be eliminating a lot of memories that people have of their earlier lives. Because during one particular visit to the seashore in July of 1 year a child used to play in the waves a particular way everyday, the memory of that repeated event should not be discounted because it was repeated over the course of a month rather than occurred on only 1 day.

As predicted, memories were increasingly likely to be episodic the closer they were in time to the participants' current age. This is consistent with Wang and Conway's (2004) findings when memories across various periods of childhood and adulthood were elicited from older adults. As well, memories provided by males were more likely to be episodic than were those of females, and this may be related to the different patterns of interpersonal interactions that boys versus girls have. Considerable research suggests that especially when boys are with friends, they are more likely to focus on activities, on doing various things together, and rarely talk of their private life (Fonzi & Tani, 2000; Pagano & Hirsch, 2007; Winstead *et al.*, 1997). In contrast, girls are often more focused on intimacy with close friends, on spending time-sharing feelings, and dialogue is one of the most typical aspects of female friendship. Thus, it is possible that the males' memories are more likely to focus on episodic events, namely activities that they participated in with others, whereas females are more likely to recall extended or repeated events in which ongoing intimate relationships are developed.

Memories about parents were more likely to be generic than memories about friends, and we suggest that this may be due to the repeated nature of many parent-child interactions. Even affectively negative memories about parents were just as likely to be generic as episodic. In contrast, negative memories about friends were more likely to be episodic, especially for males. This may be due to the differences in parent-child versus friend-friend conflict. Conflict with parents is not only more frequent, but also often thematically repetitive. For example, an adolescent may have had a similar fight every Friday evening when age 16 about whether or not he or she could have the car that night. Such repetitive conflict is atypical with friends because of the potentially destructive effect it may have on the relationship. The corollary is that if a memory involving a friend was negative, it was more likely to be episodic, i.e., was contextualized to a specific time and place.

Limitations

This study is just a beginning and there is much that we do not know. First, we have no specific knowledge about the lives of the participants and thus we cannot know if the memories that were readily recalled are indeed individually reflective of the relationships experienced by them. For example, would individuals who had engaged in more shared activities with parents have a different pattern of memories than would

individuals with fewer such experiences? This would allow investigators to address the issue of memory accessibility due to the nature and importance of different sorts of relationships versus memory availability due to the number of shared experiences. In addition, would the pattern of findings be different for subsets of individuals experiencing divergent paths of development, such as developmentally challenged children, immigrant children, maltreated children, or children in poverty versus more economically advantaged children? As well, the participants only provided a sentence or two synopses of their memories. Future research should also involve more extended interviews, such that memories can be more detailed and one can make a comprehensive analysis of thematic content. And finally, the sample was composed of Italian university students, most of whom still lived at home, and cross-cultural comparisons would be fruitful.

Conclusion

Overall, our findings suggest that the memories that one readily accesses from various periods of one's life can be a reflection of the developmental issues faced at various times while growing up - thus, to some degree, a mirror to the past. Thus, it is supportive of the viewpoint advanced by some investigators (Conway & Holmes, 2004; Conway & Pleydell-Pearce, 2000; McAdams *et al.*, 2006) who argued that the memories that are readily accessible are those that are meaningful and to some degree fit in with the goals and issues of the self at the time the events occurred as well as at the time of reminiscence. It is also supportive of the growing body of evidence suggesting that memory reflects the socio-emotional experiences of the child (see review in Nelson & Fivush, 2004). In conclusion, when one assesses the readily accessible memories that young adults have of their childhood, systematic changes in those memories seem to reflect the dynamic changes that take place in the close relationships they have with parents and friends.

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