

The first sight of love: Relationship-defining memories and marital satisfaction across adulthood

Nicole Alea

University of the West Indies, St. Augustine, Trinidad & Tobago

Stephanie C. Vick

University of Virginia, Charlottesville, VA, USA

The current study begins the exploration of relationship-defining memories (i.e., the first time someone met their spouse) across adulthood. Men and women ranging from 20 to 85 years old ($N = 267$; M age = 47.19) completed a measure of marital satisfaction, wrote a relationship-defining memory, and answered questions about the quality of their memory (i.e., vividness, valence, emotional intensity, and rehearsal). Data were collected online. Results indicate that individuals over 70 and those younger than 30 rehearsed relationship-defining memories most often. Women in midlife also reported more vivid memories. The quality of relationship-defining memories also predicted marital satisfaction. Relationship-defining memories that were more vivid, positive, emotionally intense, and rehearsed related to higher marital satisfaction. Age and gender differences were minimal. Results are discussed in the context of the adaptive social function of autobiographical memories, such that these memories might have a role in influencing marital satisfaction across adulthood.

Keywords: Relationship-defining memories; Autobiographical memory; Marital satisfaction; Lifespan; Gender.

In the current paper we introduce the notion of relationship-defining memories, and begin to explore the quality of these memories and their relation to marital satisfaction. We identify relationship-defining memories as recollections about specific significant events that occur during the course of an interpersonal relationship and are vividly and emotionally remembered. These memories help to define the relationship, such that they reflect an enduring theme. Relationship-defining memories are usually thought or talked about often, remain salient for the person over time, and can be linked to other memories about the relationship. They are unique in that they serve as central memories in the life of the

relationship. In definition, then, relationship-defining memories are similar to the memories discussed in the self-defining memory literature (e.g., Singer, 2004; Singer & Blagov, 2004; Singer & Moffitt, 1991–92; Singer & Salovey, 1993), which reflect a person's life goals and personal concerns (Moffitt & Singer, 1994), and dispositional traits or distresses (Blagov & Singer, 2004). Although self-defining memories might take an interpersonal focus for individuals who are socially oriented (McLean & Thorne, 2003), relationship-defining memories are, by definition, about a specific social relationship. It is argued here that, in the same way that self-defining memories anchor a person's coherent sense of self over time

Address correspondence to: Dr Nicole Alea Albada, Lecturer, Psychology, Department of Behavioural Sciences, Faculty of Social Sciences, University of the West Indies, St. Augustine, Trinidad & Tobago. E-mail: Nicole.Albada@sta.uwi.edu

The data for this study were collected while the authors were at the Department of Psychology, University of North Carolina Wilmington. The authors would like to thank Jefferson A. Singer for his introduction to the literature on first encounter memories and input on initial ideas for the development of the project.

(Conway, Singer, & Tagini, 2004), relationship-defining memories may be related to one's perceived relationship satisfaction.

Relationship-defining memories can occur for any type of relationship (e.g., romantic, mother-daughter, siblings, etc.). The current study begins the exploration of relationship-defining memories for the marital relationship, as marriages are the closest and most enduring relationship for adults across the lifespan (Carstensen, Graff, Levenson, & Gottman, 1996). Most couples have a specific memory, the "first encounter of the close kind" memory (Belove, 1980), which meets the criteria for a relationship-defining memory. First encounter memories are early recollections of what was "seen, heard, and spoken" (Belove, 1980, p. 195) during an initial meeting with one's future spouse. The memory is a highly specific, emotionally rich, vivid memory of a brief moment. The moment is distinguishable from the myriad of events that pass in the first days or months of a developing relationship. Although first encounter memories can be the very first instance that a person saw or spoke to their future spouse, these memories might also simply represent the "first sight of love" (Belove, 1980, p. 195) or the moment that someone recognised the potential for lasting love. First encounter memories also capture the hopes of a marriage in a story, and represent for the couple a sense of what the relationship was like, is like, and will probably always be like (Belove, 1980). These memories clearly serve a defining and thematic role in the relationship, and are thus a good starting point for the examination of relationship-defining memories across the adult lifespan.

Thus, using the first encounter memory, the current study had two specific aims: to describe age and gender differences in the quality (e.g., vividness) of first encounter memories across adulthood, and to examine whether the quality of relationship-defining memories predicts marital satisfaction across adulthood differentially by age and gender. Research relevant to these two aims is addressed below. Study expectations are woven throughout.

THE QUALITY OF RELATIONSHIP-DEFINING MEMORIES: AGE AND GENDER EXPECTATIONS

The purpose of the current study is not to examine whether relationship-defining memories

are more qualitatively rich than other types of relationship memories (e.g., memories of mundane daily events with one's spouse) or non-relationship memories, but rather to simply describe the quality of first encounter memories. It is expected that relationship-defining memories will be vivid, emotional, and well rehearsed. The plethora of research on self-defining memories lends support to these expectations. Memories that define the self are specific (i.e., full of details) and affect-laden (e.g., Blagov & Singer, 2004). It is also expected that these memory qualities will be related (e.g., Talarico, LaBar, & Rubin, 2004), in that emotional events, like the first time someone met their spouse, may be rehearsed often, and thus be particularly vivid.

Research on age differences in the quality of autobiographical memory is equivocal. Some studies find that older adults' memories are as qualitatively rich in detail (i.e., vividness) and emotion as younger adults' memories (e.g., Bluck, Levine, & Laulhere, 1999; Cohen & Faulkner, 1988). Other work indicates that older adults' memories are more emotional than younger college students' memories (Alea, Bluck, & Semegon, 2004). This effect has also been found in lifespan samples (e.g., Pasupathi & Carstensen, 2003) and a sample ranging from midlife to old age (Kennedy, Mather, & Carstensen, 2004). Further, a positivity bias in memory seems to exist when the emotion in vivid personal memories is assessed across the lifespan (e.g., Webster & Gould, 2007). Yet still there is work which finds that older adults tend to have memories lacking in detail and emotional richness compared to younger adults (Cohen, Conway, & Maylor, 1994; Holland & Rabbitt, 1990), and that their memories tend to be more summarised than college students' memories (Singer, Rexhaj, & Baddeley, 2007). In a review that attempts to make sense of the mixed results, Cohen (1998) suggests that lack of age differences tend to occur when memories are self-selected, as opposed to experimenter directed. If older adults have the opportunity to choose an event to remember from the multitude of events that have occurred in their life, they tend to recall memories that are equal in qualitative richness to younger adults. However, rehearsing their memories, or the extent to which the memory has been thought and talked about since the event occurred, may be one way that older adults maintain vivid memories over time (Cohen et al., 1994). Given that the first encounter memory has such a prominent role in the

marriage (Belove, 1980), is self-selected, and is about a distinctive event (i.e., a single, well-defined event), few age differences across adulthood in the vividness and emotional quality of relationship-defining memories are expected. Older adults, however, are expected to rehearse their memories often compared to other age groups.

Men and women tend to remember life events differently. Women report greater value in purposefully reminiscing about the past (Pillemer, Wink, DiDonato, & Sanborn, 2003) and thus are expected to rehearse their relationship-defining memories more often than men. Their autobiographical memories also tend to be more specific (Pillemer et al., 2003), as well as more emotional and vivid (Davis, 1999), particularly when remembering relationship events (Ross & Holmberg, 1992). Women tend to express more emotion in their narratives about relationship events and do so in a more dramatic fashion, particularly when the memory is about the initial courtship of the relationship (Holmberg, Orbuch, & Veroff, 2004). Thus, although not all studies of autobiographical memory find gender differences (e.g., Talarico et al., 2004), we expect that women's relationship-defining memories will be more qualitatively rich than men's memories.

RELATIONSHIP-DEFINING MEMORIES AND MARITAL SATISFACTION

Belove (1980) clearly states that first encounter memories anchor a couple's story and reflect the current and future hopes of a relationship. Thus it seems likely that these memories may be related to the satisfaction that one may feel in the relationship. Although there is no direct research linking relationship-defining memories and marital satisfaction, there is a growing body of work that aims to understand the adaptive value for relationships in remembering the personal past. This research stems from an area of work on the functions of autobiographical memory (e.g., Baddeley, 1987; Bruce, 1991; Cohen, 1998; Neisser, 1978), which includes exploring why people remember the past (i.e., the uses of autobiographical memory), and why it might be important to do so (i.e., the adaptive value of the uses; see Bluck & Alea, 2002, for a review). One of the uses of autobiographical memory is to initiate, maintain, and enhance social bonds: the social function of autobiographical memory (e.g., Alea &

Bluck, 2003; Cohen, 1998; Pillemer, 1992), or have an effect on relationship satisfaction.

Experimental evidence by Alea and Bluck (2007) found that remembering relationship events can enhance intimacy in a relationship. In the study, young and older adults rated their relationship intimacy before and after remembering autobiographical relationship events (i.e., a romantic evening and a vacation with one's partner) and non-autobiographical events about the same topics. Intimacy was enhanced only after remembering autobiographical relationship events, and there were no age differences in the effects. Women, however, had broader intimacy gains than men. Further, memories rated as personally significant, those that were rehearsed more often, and those that contained more intimate themes, led to greater gains in intimacy levels from pre to post memory-sharing.

In another study, Vick and Alea (2008) found that when participants wrote about negative relationship-defining events (e.g., a vacation gone wrong), those who recalled memories that were less negatively valenced and less emotionally intense overall had correspondingly higher levels of reported marital quality. The relation only existed for young and middle-aged adults and not for older adults. An opposite age trend was found for positive memories (e.g., a couple's wedding day). Older adults, compared to young and middle-aged adults, with more emotionally intense, positive relationship memories had higher levels of marital quality. There were no gender effects.

Finally, longitudinal work by Holmberg and colleagues (2004) found that the content of relationship stories predicts later marital happiness. Individuals, particularly women, who tell stories about a lack of commitment in the relationship are more likely to be unhappy years later, and men are less happy if the stories told were about the wife being the pursuer. This research, however, also indicates that the relation is bidirectional, in that levels of marital happiness can lead individuals to tell particular types of stories (e.g., stories of courtship). Thus, in light of these studies, it is expected that memories with higher levels of qualitative richness—more vivid, emotional, and rehearsed—will correspond to marriages with higher levels of satisfaction. Age and gender are likely to moderate the relation between the quality of relationship-defining memories and marital satisfaction: The relation

is expected to be stronger for older adults and women.

METHOD

Participants

Participants were 267 community-dwelling adults. Sample sizes and descriptive statistics of the sample divided by age decade are reported in Table 1. Participants were initially recruited from an adult psychology participant pool managed by the first author and through an e-mail sent to all faculty and staff members of a mid-sized university in the United States. Additionally, for extra credit in their class, graduate and undergraduate psychology students were recruited to complete the survey. All participants were asked to pass on the web-based survey to eligible friends and family members.

The sample was primarily Caucasian ($n = 244$), although it also consisted of six African-Americans, nine Hispanics, three Asian/Pacific Islanders, two American Indians, and three participants who indicated "other" in regard to their race. The sample was relatively well educated ($M = 15.33$ years of education, $SD = 2.69$). When asked to rate their health as compared to others their own age (Maddox, 1962), participants' average rating was 5.06 ($SD = .87$) on a scale from 1 (*very poor*) to 6 (*very good*).

All participants were required to be in a heterosexual marriage for at least 2 years. This was done to avoid the potential confound of the recency of marriage on marital satisfaction (McNulty & Karney, 2001; see also Alea & Bluck, 2007). The average length of marriage for the present study was 20.38 years ($SD = 12.93$ years; range 2–61 years). In addition, 75% of the marriages were reported as being first marriages (see Table 1 for percentage of first marriage by

age decade). Another inclusion criterion was computer proficiency, as the study was conducted online; 98% of participants felt capable of answering questions on the computer and of typing passages, and rated their computer proficiency as high ($M = 4.08$, $SD = .87$ on a 1 to 5-point Likert scale).

Measures

Marital satisfaction and relationship characteristics. The three-item widely used and reliable Kansas Marital Satisfaction Scale (KMS; Schumm et al., 1986) was used to assess marital satisfaction. On a 7-point Likert scale, where 1 is *extremely dissatisfied* and 7 is *extremely satisfied*, the KMS assesses the extent to which couples are satisfied with their marriage, with their husband or wife as a spouse, and in their relationship with their husband or wife. Cronbach's $\alpha = .97$ in the current study. Two specific relationship characteristics were also assessed: length of marriage (as an inclusion criterion and control variable in analyses) and whether or not the relationship was a first marriage (for background information). The mean level of marital satisfaction in the current study was 17.33 ($SD = 3.98$), and ranged from 3 to 21.

Autobiographical memory quality. The Autobiographical Memory Questionnaire (AMQ; Talarico et al., 2004) is a 23-item measure that assesses metacognitive, phenomenological, and linguistic qualities of autobiographical memory. Only the metacognitive and phenomenological qualities were examined in the current study. The relation between linguistic properties of the first encounter memory and marital satisfaction are reported elsewhere (Alea, McLean, & Vick, in press). The original AMQ was compiled from a variety of memory questionnaires and theories about the conscious experience of remembering

TABLE 1
Sample size, mean age, and gender distribution by decade

Age decade	n	M age	SD	Gender (% female)	Percent in first marriage
20–29	29	25.10	2.62	69%	100%
30–39	37	35.03	2.83	57%	92%
40–49	82	45.44	2.64	76%	66%
50–59	86	53.72	2.78	56%	72%
60–69	22	63.64	3.32	55%	50%
70–85	11	75.36	4.48	46%	91%
Total	267	47.19	12.32	63%	75%

(e.g., Rubin, Burt, & Fifield, 2003; Rubin, Schrauf, & Greenberg, 2003). Previous research has conceptually grouped items and relied on one-item measures of quality (e.g., Talarico et al., 2004), and has used principal component factor analysis to obtain a two-dimensional depiction of the relation between items (Rubin et al., 2003; Rubin & Siegler, 2004). For the purposes of the present study, an exploratory factor analysis was conducted to create memory quality subscales (details described in Preliminary Results). A four-factor solution was suggested and the following memory quality subscales were created: vividness, valence, emotional intensity, and rehearsal. The items corresponding to each of the subscales are further discussed below (exact items are given in Table 3). Responses to items are made on a 7-point Likert scale and subscales are averaged.

Memory *vividness* is assessed with eight items. Three items assess the visual and auditory quality of the memory. Two items assess memory vividness as a sense of reliving the event, and three items are metacognitive judgements about the visual quality of the memory. Higher scores on this scale indicate that the memory is remembered as clearly as if it were happening now, with a complete sense of reliving the event and judgement about the memory quality. Cronbach's alpha was .88.

The *valence* of the autobiographical memory is assessed with three items. Two items ask whether the emotions associated with remembering the event are extremely positive and negative. The negatively valenced question is reverse scored. The other question asks whether participants are feeling the same particular emotions that were felt at the time of the event. Higher scores mean that the memory is more positively valenced and that these positive emotions are being re-felt during remembering. Cronbach's alpha was .81.

Emotional intensity of the memory was assessed with four items. One item directly asks about the intensity of the emotions felt when remembering. Three items assess emotional intensity as visceral responses. Higher scores mean that the emotions associated with the memory are extremely intense and that the visceral reactions are felt to a greater extent than what is experienced when remembering other events. Cronbach's alpha was .80.

Rehearsal included three items. Two questions ask if since the event happened the person has thought and talked about the event. Another item assesses involuntary rehearsal. Higher scores mean that the memory is rehearsed often, compared to

the extent to which other memories are rehearsed. Cronbach's alpha was .85.

In addition to the above memory qualities, participants were also asked to report how old they were at the time of the memory. This variable was then subtracted from the participant's age to obtain the *time since the event*.

Procedure

Data for the present study were collected as part of a larger project. The study was administered completely online using SurveyMonkey (1999; www.surveymonkey.com), a user-friendly, secure (i.e., meets the Safe Harbor requirements for security and has SSL encryption), survey management service. Participants had the convenience of accessing the survey from any computer with Internet connection (i.e., home, work, etc.).

The first few pages thanked participants for their interest, provided directions for completing the survey, and asked participants to agree to an honour code for completing the survey (see McCabe, Trevino, & Butterfield, 2001, for the efficacy of honour codes). Participants were then asked initial relationship screening questions (e.g., whether they were currently married, and for a minimum of 2 years), and upon meeting the criteria, completed the informed consent.

The study procedures began with participants answering computer competency questions and questions about relationship characteristics. The Kansas Marital Satisfaction questionnaire was completed next, followed by filler items that were part of the larger study (which took approximately 30 minutes). Participants were then directed to the autobiographical memory portion of the survey. This portion of the survey asked participants to share a memory about their first encounter with their current spouse (see Table 2 for an example first encounter memory). Based on Belove's (1980) work, directions stated that "many couples have a story that they share about their first encounter" and that these memories often have three attributes:

First, it is a memory from early in the relationship, either the first time you met your spouse, or when you saw the first glimmer of or potential for lasting love (i.e., sparks flew or you realised that they were "the one"). Second, it is the memory that you might tell someone else if that person asked about how the

TABLE 2

Example of a first encounter relationship-defining memory

The fair had come to town and I was only seventeen years old. I remember at the time I was dating someone else and I had gone to the fair with this individual. My older sister and her husband had also gone to the fair and we all planned to meet up there. We were by the pirate ship and I was waiting in line to go on the ride. My sister and her husband had seen us from across the way and had come over. When they finally reached us they were not alone, they had Andy with them. My sister's husband, Jim, introduced Andy to me and explained that they worked out together at the gym and that Andy was new in town. We exchanged small pleasantries and I continued on my way to the ride. While I was on the ride I could not take my eyes off of him. When we got off the ride he ended up hanging out with us the whole night. We had such a good time. The following night we all (except the person I was dating) went out to eat and then Andy and I went for a long walk on the beach. We connected immediately, the conversation just flowed and there were never any awkward silences. Two days later I broke it off with the guy I had been dating and Andy and I have been together ever since.

Names have been changed.

relationship started, or how you met your spouse. It is not the full story of the early part of the relationship, but a specific moment which suggests that this is the beginning of "your story" as a couple. Lastly, it is a memory that you think about, is familiar to you, and is likely to also be familiar to your spouse. It is probably the memory that your spouse would share as their first encounter experience with you.

Based on Singer and Moffitt's (1991–92) work on self-defining memories, the following attribute was also included in the instructions to provide more clarity about the need for this memory to be a *defining* moment in the relationship: "It is a memory for a specific moment or event that is very clear and stands out in your mind. It probably still feels important to you even as you think about it, and it may lead to strong feelings."

Participants were encouraged to write about their memory in a large text box that would expand as they typed. To ensure memory completeness, standard directions were also included (based on Alea & Bluck, 2007, and Bluck et al., 1999) which asked participants: "Please be as specific as possible, including as many details as you can remember. Make sure to address: WHAT happened, WHO was there, WHERE it was, and WHEN it happened. To include all of this information, it will likely take more than just a few sentences."

After writing their first encounter memory, participants were asked to complete the Autobiographical Memory Questionnaire. To conclude, participants were asked to answer demographic (e.g., gender, age, race, and education; adopted from Alea & Bluck, 2007) and health questions (e.g., Maddox, 1962), and thanked for their participation.

RESULTS

The first section of the results involves preliminary analyses: the factor analysis of the Autobiographical Memory Questionnaire, and descriptive information and correlations between the memory quality variables. The remaining two sections examine the two aims of the study. Statistics are reported for only the significant effects.

Preliminary analyses

Autobiographical memory questionnaire exploratory factor analysis. An exploratory principal components factor analysis with an oblique (direct oblimin) rotation was conducted with 19 of the items from the scale. Using the scree test (Cattell, 1966) and the criteria of eigen values > 1.00 (Kaiser, 1960), four factors were extracted and accounted for 68.23% of the variance. The pattern matrix is reported in Table 3. Items with factor loadings greater than $|.30|$ were considered significant at $p < .01$ (Stevens, 1996). However, in order to be more conservative and ensure that an item shares at least 15% of the variance with the factor (i.e., has some practical significance), only items with factor loadings of $|.40|$ or greater were interpreted (Stevens, 1996). One item loaded on two factors so it was dropped from the interpretation of the subscales. The four factors were interpreted as representing vividness, valence, emotional intensity, and rehearsal subscales.

Descriptive statistics and relations between the memory quality variables. Preliminary analyses were also conducted to examine the mean levels of and relations between the memory quality variables. These results are presented in Table 4. As can be seen, the relationship-defining memories were rated as being quite vivid and positively valenced. However, they were only moderately emotionally intense and were not necessarily rehearsed often. The mean levels of the memory qualities in the current study,

TABLE 3
Pattern matrix for the exploratory factor analysis of the Autobiographical Memory Questionnaire

Item	Factors			
	1	2	3	4
1. While remembering the event, I can see it in my mind.	.86	.03	-.02	-.05
2. While remembering the event, I know the setting where it occurred.	.82	-.00	.00	.10
3. I believe the event in my memory really occurred the way I remember it, and that I have not imagined or fabricated anything that did not occur.	.76	-.11	-.11	.07
4. As I think about the event, I can actually remember it rather than just knowing that it happened.	.74	-.04	.07	-.14
5. While remembering the event, I feel that I travel back to the time when it happened.	.58	.28	.14	-.06
6. While remembering the event, I feel as though I am reliving it.	.57	.21	.25	-.09
7. While remembering the event, I can hear it in my mind.	.52	.23	-.02	-.21
8. While remembering the event, I feel that I see it out of my own eyes rather than that of an outside observer.	.49	-.11	.15	-.14
9. While remembering the event, I feel sweaty or clammy.	-.08	.85	-.09	.10
10. While remembering the event, I feel tense all over or I feel knots, cramps, or butterflies in my stomach.	-.04	.81	-.11	-.11
11. While remembering the event, I feel my heart pound, or race.	.11	.70	-.09	.10
12. The emotions that I feel are extremely intense.	.24	.50	.28	-.13
13. While remembering the event, the emotions are extremely negative. (Reversed)	-.07	-.16	.90	.05
14. While remembering the event, the emotions are extremely positive.	.03	.02	.86	-.04
15. While remembering the event, I feel the same particular emotions I felt at the time of the event.	.23	.29	.48	-.11
16. While remembering the event, I feel the emotions as strongly as I did then.	.16	.40	.48	-.15
17. Since it happened, I have talked about this event.	-.02	-.11	-.06	-.98
18. Since it happened, I have thought about this event.	.01	-.04	.09	-.89
19. This memory has previously come to me 'out of the blue,' without my trying to think about it.	.01	.20	-.06	-.78

A principal components analysis with an oblique (direct oblimin) rotation was used. Only factor loadings $\geq |.40|$ were interpreted. Item 16 was not considered in interpretation because it loaded on two factors. Items in bold and boxed were interpreted as the following factors: Factor 1 – Vividness; Factor 2 – Emotional Intensity; Factor 3 – Valence; Factor 4 – Rehearsal.

however, were all well above the levels reported in previous research (e.g., Talarico et al., 2004). On average, the memories were also about somewhat distant events with an average of 24 years having passed since the event occurred. Recent memories were not particularly common: 18% of the memories were less than 10 years old, 20% were between 10 and 19 years old, 25% were between 20 and 29 years old, 27% were between 30 and 39 years old, 6% between 40 and 40 years old, and 4% of the memories were about events that occurred more than 50 years ago. There was, however, a strong relation between the participant's age and the time since the event, $r(267) = .76, p < .001$.

In general, the four memory qualities (vividness, valence, emotional intensity, and rehearsal) were highly and positively correlated. The relation between these memory qualities and time since the event was only moderate for vividness, emotional intensity, and rehearsal, and non-significant for valence. Thus, although the memory qualities are related to one another, the time since the

event does not seem to have a large effect on the quality of the memory.

Are there age and gender differences in the quality of relationship-defining memories?

In order to examine age and gender differences in the quality of relationship-defining memories, a 6 (age group by decade) \times 2 (gender) multivariate analysis of covariance (MANCOVA) was conducted. The dependent variables were the four memory qualities: vividness, valence, emotional intensity, and rehearsal. The covariate was the time since the event. The multivariate main effect for age group was significant, Roy's largest root = 3.48, $p < .01$, as was the age group by gender interaction, Roy's largest root = 3.38, $p < .01$. The gender multivariate effect was not significant.

The univariate tests revealed that there was an age group main effect for rehearsal, $F(5, 254) = 3.19, p < .01$. Results are presented in Figure 1.

TABLE 4
Descriptive statistics and correlations between the memory quality variables

Memory quality	M	SD	1	2	3	4	5
1. Vividness	5.74	1.10	–				
2. Valence	6.00	1.05	.63***	–			
3. Emotional intensity	3.22	1.39	.53***	.43***	–		
4. Rehearsal	4.33	1.30	.59***	.48***	.56***	–	
5. Time since the event	23.81	13.55	-.14*	-.08	-.16**	-.16**	–

Vividness, valence, emotional intensity, and rehearsal are the averages from items rated on a 7-point Likert scale. Times since the event is in number of years.

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

All possible pairwise comparisons using the Bonferroni method revealed that 70- to 85-year-olds rehearsed their memories more than all the other age groups, $t(47) = 3.52$ for 30 to 39, $t(91) = 3.42$ for 40 to 49, $t(96) = 3.31$ for 50 to 59, and $t(32) = 3.05$ for 60 to 69, $ps < .05$. The exception was that there was no difference in the frequency of rehearsal between the 70- to 85-year-olds and the 20- to 29-year-olds, $t(39) = 2.36$, $p > .05$. The age group main effects for vividness, valence, and emotional intensity were not significant.

The univariate tests for the age by gender effect revealed that there was a significant interaction for memory vividness, $F(5, 254) = 2.23$, $p = .05$. Results are presented in Figure 2. All possible pairwise comparisons using the Bonferroni method were conducted. There were no differences between the age groups in memory vividness for men or for women. However, comparisons made between the genders for each age decade revealed a significant effect. For 40- to 49-year-olds, there was a significant gender difference, $t(81) = 3.20$, $p < .01$. Women reported more vivid relationship-defining memories than men.

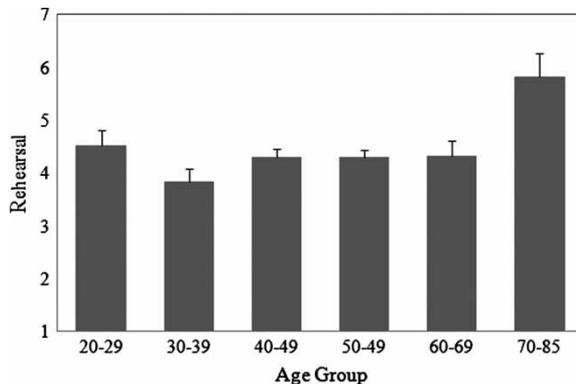


Figure 1. Age group differences in rehearsal of relationship-defining memories.
Note. Significant differences are between 70 to 85 year-olds and all other age groups, except for 20 to 29 year-olds.

In summary, there were few age and gender differences. The youngest and oldest age groups rehearsed the relationship-defining memories most often. Women aged 40 to 49 also reported more vivid relationship-defining memories than men in this age range. The next question is whether age and gender continuity tend to also exist when predicting marital satisfaction from the quality of relationship-defining memories.

Does the quality of relationship-defining memories predict marital satisfaction?

Hierarchical regression analyses were used to examine whether the quality of relationship-defining memories predicts marital satisfaction, and whether age or gender moderates any effects. Thus, for all regression analyses, age and gender were entered into the model in the first step to control for age and gender trends in marital satisfaction. One of the four memory quality variables (e.g., vividness) was entered in the second step of the model to examine whether memory quality predicted marital satisfaction. In

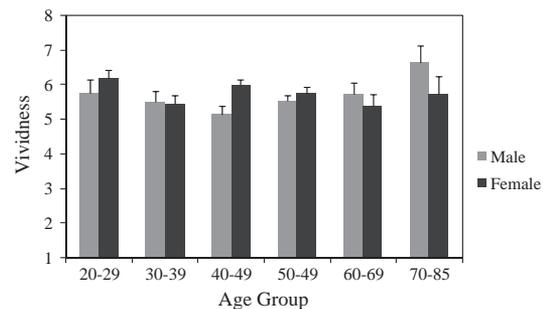


Figure 2. Age group by gender differences in the vividness of relationship-defining memories.
Note. The significant difference is between men and women in the 40 to 49 year-old age group.

the third step, the age by memory quality and the gender by memory quality interaction variables were entered. Age by gender by memory quality interaction terms were also considered, but the three-way interaction results were not significant. Thus, only analyses with two-way interactions are reported. The criterion variable was marital satisfaction. In addition, all analyses were re-run controlling separately for time since the event, length of the marriage, and whether participants were in their first marriage. None of the results changed and thus these variables are not considered further.

Regression results for all analyses are summarised in Table 5. For all analyses, age and gender were not significant predictors of marital satisfaction, $R^2 = .02$, $F(2, 264) = 2.03$, $p > .05$. Results were similar for memory vividness and the valence of the memory. The vividness of the relationship-defining memory predicted an additional 4% of the variance in marital satisfaction, $F(1, 263) = 13.28$, $p < .05$. As the relationship-defining memory became more vivid, marital satisfaction increased. Similarly the valence of the memory predicted an additional 18% of the variance in marital satisfaction, beyond age and gender, $F(1, 263) = 61.27$, $p < .001$. Memories that were more positive were related to higher levels of marital satisfaction. The interaction terms did

not contribute significantly to the model for memory vividness or valence.

Emotional intensity associated with remembering the first encounter with one's spouse explained an additional 4% of the variance in marital satisfaction beyond age and gender, $F(1, 263) = 13.27$, $p < .001$. As the memories become more emotionally intense there was an increase in marital satisfaction. This effect, however, was mediated by both age and gender; the interaction terms explained an additional 3% of the variance in marital satisfaction, $F(2, 261) = 3.99$, $p < .05$. To examine this interaction, correlations were run between emotional intensity and marital satisfaction for each age decade separately. Significant relations were found only for 50- to 59-year-olds, $r(86) = .32$, $p < .01$, and 60- to 69-year-olds, $r(22) = .45$, $p < .05$. As the emotional intensity of the relationship-defining memory increased, so did marital satisfaction. Further, for women there was a positive relation between the intensity of relationship-defining memories and marital satisfaction, $r(168) = .28$, $p < .001$, but there was no relation for men.

Finally, the extent to which people rehearsed the relationship-defining memories explained an additional 5% of the variance in marital satisfaction beyond age and gender, $F(1, 263) = 15.70$, $p < .001$. The more frequently people rehearsed their first encounter memories, the greater their

TABLE 5
Hierarchical regressions

Predictors	R ²	B	SEB	Beta	t
Step 2: Vividness	.06	.76	.21	.22	3.64***
Step 3: Vividness	.08	.76	.21	.22	3.67***
Age × Vividness		.14	.17	.05	.81
Gender × Vividness		.75	.43	.10	1.72
Step 2: Valence	.20	1.55	.20	.43	7.83***
Step 3: Valence	.20	1.55	.20	.43	7.80***
Age × Valence		-.14	.19	-.04	-.76
Gender × Valence		.03	.45	.00	.07
Step 2: Intensity	.06	.60	.16	.22	3.64***
Step 3: Intensity	.09	.60	.16	.22	3.70***
Age × Intensity		.25	.12	.12	2.00*
Gender × Intensity		.75	.34	.13	2.21*
Step 2: Rehearsal	.07	.69	.18	.24	3.96***
Step 3: Rehearsal	.11	.70	.17	.24	4.06***
Age × Rehearsal		.24	.13	.11	1.80
Gender × Rehearsal		1.07	.35	.18	3.01**

Summary of hierarchical regressions examining memory qualities as predictors of marital satisfaction, with age and gender as moderators. Age and gender were entered in Step 1 for all models, but did not explain a significant amount of variance ($R^2 = .02$, $p > .05$) and thus are not presented.

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

reported marital satisfaction. The interaction terms explained an additional 4% of the variance in marital satisfaction, $F(2, 261) = 5.89$, $p < .01$, although the effect was primarily due to the gender interaction. Separate correlations between rehearsal and marital satisfaction for men and women separately revealed that for women there was a significant positive relation, $r(186) = .33$, $p < .001$. There was no relation for men.

In summary, the quality of relationship-defining memories predicted marital satisfaction. As the vividness, positive valence, emotional intensity, and extent of rehearsing the memory increased, so too did marital satisfaction. Age and gender moderating effects were minimal. Individuals in midlife (50 to 69 years old) showed the strongest relations between the emotional intensity of relationship-defining memories and marital satisfaction. This effect was also true for women: as rehearsal increased marital satisfaction also increased for women.

DISCUSSION

The quality of relationship-defining memories is relatively consistent across adulthood

Relationship-defining memories were positively valenced and quite vivid; qualities also shared by self-defining memories (e.g., Blagov & Singer, 2004; Wood & Conway, 2006). Participants reported being able to see and hear the happenings of the event, including reliving the event and knowing that it happened the way that it was remembered. These memory qualities are likely a by-product of these memories being about a distinctive event in the developmental course of the relationship. Perhaps this is also why few age differences were found: distinctive memories probably do not change much over time. Future work could elucidate the uniqueness of first encounter memories by examining whether the quality differs from other types of distinctive relationship-defining memories (e.g., a wedding day) or even more generic relationship events (e.g., yearly vacations). A rough comparison with the quality of emotional memories reported by college students (in Talarico et al., 2004) and those in the current study, suggests that relationship-defining memories are more qualitatively rich, and thus perhaps more distinctive.

This comparison points to a drawback of the current study: there was no control memory. We are able to describe the quality of relationship-defining memories, which is insightful given the infancy of this area of research, but cannot say whether these memories differ in significant ways from other types of memories (e.g., self-defining memories). Thus it is suggested that future work include a control memory. It is not completely clear what the "ideal" control for a relationship-defining memory would be (e.g., non-relationship memory, mundane relationship memory, etc.), but it is likely to depend on the specific research question.

Although emotionally positive, the memories were not as emotionally intense as was expected. This may be because the intensity measure involved visceral reactions that are more typical of negative emotions (e.g., feeling tense, sweaty). It was also surprising that the relationship-defining memories were not rehearsed very often, particularly given that frequently thinking or talking about the event is one of the essential characteristics of these memories. The positive relations with the other memory qualities (i.e., vividness, valence, and intensity) also suggest that rehearsal should have been higher than it was. That is, previous research indicates that vivid and emotional memories are usually thought and talked about often (e.g., Talarico et al., 2004). It is possible that the memory is so unique that it does not require constant rehearsal in order to remain vivid, similar to some flashbulb memory research (e.g., Talarico & Rubin, 2007). Alternatively, perhaps people are actually not very good at reporting how often they rehearse life events.

Rehearsal was the only memory quality for which age differences were found. It was expected that older adults would rehearse their relationship-defining memories the most as thinking and talking about their lives is an important process in keeping memories detailed and vivid for older adults (Cohen et al., 1994). This was partially true. The oldest age group (70- to 85-year-olds) and the youngest age group (20- to 29-year-olds) rehearsed their memories more frequently than all other age groups, but not differently from each other. Perhaps the youngest and oldest age groups have different types of rehearsal. The younger adults likely just experienced the event (given the strong relation between chronological age and time since the event) and are thus thinking about the memory often and sharing it with family members and friends. This reflects

current rehearsal. Older adults' high level of rehearsal is for an event that probably happened years ago and may reflect a lifetime of remembering the event and sharing it with others.

One expected gender difference was found. Women reported that their relationship-defining memories were more vivid than men's memories, but only for 40- to 49-year-olds. Enhanced memory vividness for relationship events is consistent with previous research. Women self-report more vivid relationship memories, and independent observers also judge women's memories to be more vivid than men's (Ross & Holmberg, 1992). It is curious, however, that the effect only existed for a midlife age group. Perhaps middle-aged women are at a time in their life when they are re-evaluating their role as a wife. Family dynamics change as children move out of the house and marital satisfaction tends to return to pre-child marital quality (Gorchoff, Oliver, & Helson, 2008). Thus remembering past relationship events vividly might be particularly beneficial to women at this point in their life.

The quality of relationship-defining memories predicts marital satisfaction

As expected, memories that were more perceptually vivid, emotionally positive, and intense, and were more often rehearsed related to higher levels of marital satisfaction. This lends support to a growing body of work attempting to link the quality of memories with the role they might serve for individuals in their daily lives. Alea and Bluck (2003), for example, proposed that detail and emotion in autobiographical memories is necessary in order for a memory to serve a social-bonding function. Further, memories that are more significant and more often rehearsed lead to enhanced intimacy after remembering (Alea & Bluck, 2007). The relation between memory quality and marital satisfaction found in the current study implies that relationship-defining memories may have an adaptive value for the individual if the memory's quality is sufficiently rich and rehearsed often. Future research could directly ask couples how they make use of their relationship memories in daily life, particularly if they are experiencing marital conflict, as memories may not be enough to sustain people through a difficult time in their marriage. Future research might also examine the predictive validity.

Another indication that the memories alone are not the only predictor of marital satisfaction is that memory quality actually explained a rather small amount of variance in marital satisfaction. One quality, however, did seem particularly important: memory valence. More positive relationship-defining memories were related to higher levels of marital satisfaction. This coincides with work indicating that expressing positive emotions is related to higher marital happiness (e.g., Carstensen, Gottman, & Levenson, 1995). It is also likely that the relation between the quality of relationship-defining memories and marital satisfaction is bidirectional. Higher marital satisfaction coexists with a tendency to engage in selective recall about marital events, discounting the occurrence of negative events and perceptions of one's spouse and marital history (e.g., Frye & Karney, 2004; Karney & Coombs, 2000). Perhaps individuals with higher marital satisfaction rehearse relationship-defining memories more often, causing the memories to be more vivid and emotionally intense. Our findings also do not rule out the possibility that people who are satisfied in their marriages, or maybe even just happy in general, have happier memories, whether they are relationship-defining, self-defining, or even involuntarily recalled. Again a control memory would help to elucidate this possibility.

In general, the results outlined above were consistent across age and gender, with two qualifications. The relation between emotional intensity of autobiographical memories and marital satisfaction was primarily for individuals in late midlife (50 to 59 years old) and early old age (i.e., 60 to 69 years old), as well as for women. Carstensen and her colleagues (Carstensen, Isaacowitz, & Charles, 1999) note that emotion takes an increasingly salient role in the lives of older adults. This centrality may help to explain these findings. Women, but not men, also showed a relation between the frequency of rehearsing their relationship-defining memories and marital satisfaction. Women tend to think about the past more than men (Pillemer et al., 2003) and are more adept at narrating the events of their life, particularly the relationship story (Holmberg et al., 2004). The current research suggests that doing so could be beneficial for their marital satisfaction. When rehearsing these events, it may be that women are focusing on aspects of the event that are more likely to enhance relationship satisfaction. For example, women are more likely

to include intimate themes in relationship stories, compared to men (e.g., Alea & Bluck, 2007).

Summary: Remembering the first sight of love

The current study introduced the notion of relationship-defining memories and, following Belove's (1980) lead, suggests that these memories may be adaptive for marital satisfaction across adulthood. The relationship-defining memory examined, the first encounter memory, was vivid, particularly for women, and positively valenced. It was also rehearsed more by the youngest and oldest age groups in the study. The quality of the first encounter memories also predicted levels of marital satisfaction, with mostly stability across adulthood and gender continuity. It is likely that vividly and emotionally remembering the first sight of love may function to sustain satisfaction in one's marriage. This claim, however, warrants further experimental and longitudinal empirical validation.

Manuscript received 11 July 2009

Manuscript accepted 12 June 2010

First published online 18 August 2010

REFERENCES

- Alea, N., & Bluck, S. (2003). Why are you telling me that? A conceptual model of the social function of autobiographical memory. *Memory, 11*, 165–178.
- Alea, N., & Bluck, S. (2007). I'll keep you in mind: Using memory to enhance intimacy in relationships. *Applied Cognitive Psychology, 21*, 1091–1111.
- Alea, N., Bluck, S., & Semegon, A. B. (2004). Young and older adults' expression of emotional experience: Do autobiographical narratives tell a different story? *Journal of Adult Development, 11*, 235–250.
- Alea, N., McLean, K. C., & Vick, S. C. (in press). The story of us: Examining marital quality via positive and negative relationship narratives. In K. S. Pearlman (Ed.), *Marriage: Roles, stability and conflicts*. Hauppauge, NY: Nova Science Publishers, Inc.
- Baddeley, A. (1987). But what the hell is it for? In M. M. Gruneberg, P. E. Morris, & R. N. Sykes (Eds.), *Practical aspects of memory: Current research and issues Vol. 1* (pp. 3–18). Chichester, UK: Wiley.
- Belove, L. (1980). First encounters of the close kind (FECK): The use of the story of the first interaction as an early recollection of a marriage. *Individual Psychologist, 36*, 191–208.
- Blagov, P. S., & Singer, J. A. (2004). Four dimensions of self-defining memories (specificity, meaning, content, and affect) and their relationships to self-restraint, distress, and repressive defensiveness. *Journal of Personality, 73*, 481–511.
- Bluck, S., & Alea, N. (2002). Exploring the functions of autobiographical memory: Why do I remember the autumn. In J. D. Webster & B. K. Haight (Eds.), *Critical advances in reminiscence theory: From theory to application* (pp. 61–75). New York: Springer Publishing Company.
- Bluck, S., Levine, L. J., & Lulhere, T. M. (1999). Autobiographical remembering and hypermnnesia: A comparison of older and younger adults. *Psychology & Aging, 14*, 671–682.
- Bruce, D. (1991). Mechanistic and functional explanations of memory. *American Psychologist, 46*, 46–48.
- Carstensen, L. L., Gottman, J. M., & Levenson, R. W. (1995). Emotional behavior in long-term marriage. *Psychology & Aging, 10*, 140–149.
- Carstensen, L. L., Graff, J., Levenson, R. W., & Gottman, J. M. (1996). Affect in intimate relationships: The developmental course of marriage. In C. Magai & S. H. McFadden (Eds.), *Handbook of emotion, adult development, and aging* (pp. 227–247). San Diego, CA: Academic Press.
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socio-emotional selectivity. *American Psychologist, 54*(3), 165–181.
- Cattell, R. B. (1966). The meaning and strategic use of factor analysis. In R. B. Cattell (Ed.), *Handbook of multivariate experimental psychology* (pp. 174–243). Chicago, IL: Rand McNally.
- Cohen, G. (1998). The effects of aging on autobiographical memory. In C. P. Thompson, D. J. Herrmann, D. Bruce, D. J. Read, D. G. Payne, & M. P. Toglia (Eds.), *Autobiographical memory: Theoretical and applied perspectives* (pp. 105–123). Hillsdale, NJ: Lawrence Erlbaum Associates Inc.
- Cohen, G., Conway, M., & Maylor, E. A. (1994). Flashbulb memories in older adults. *Psychology & Aging, 9*, 454–463.
- Cohen, G., & Faulkner, D. (1988). Life span changes in autobiographical memory. In M. M. Gruneberg, P. E. Morris, & R. N. Sykes (Eds.), *Practical aspects of memory: Current research and issues Vol. 1* (pp. 277–282). Chichester, UK: Wiley.
- Conway, M. A., Singer, J. A., & Tagini, A. (2004). The self and autobiographical memory: Correspondence and coherence. *Social Cognition, 22*, 491–529.
- Davis, P. J. (1999). Gender differences in autobiographical memory for childhood emotional experiences. *Journal of Personality and Social Psychology, 76*, 498–510.
- Frye, N. E., & Karney, B. R. (2004). Revision in memories of relationship development: Do biases persist over time? *Personal Relationships, 11*, 79–97.
- Gorchoff, S. M., Oliver, J. P., & Helson, R. (2008). Contextualizing change in marital satisfaction during middle age: An 18-year longitudinal study. *Psychological Science, 19*, 1194–1200.
- Holland, C. A., & Rabbitt, P. M. A. (1990). Autobiographical and text recall in the elderly: An investigation of a processing resource deficit. *The Quarterly Journal of Experimental Psychology, 42A*, 441–470.

- Holmberg, D., Orbuch, T. L., & Veroff, J. (2004). *Thrice-told tales: Married couples tell their stories*. Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, 20, 141–151.
- Karney, B. R., & Coombs, R. H. (2000). Memory bias in long-term close relationships: Consistency or improvement? *Personality & Social Psychology Bulletin*, 26(8), 959–970.
- Kennedy, Q., Mather, M., & Carstensen, L. L. (2004). The role of motivation in the age-related positivity effect in autobiographical memory. *Psychological Science*, 15, 208–214.
- Maddox, G. L. (1962). Some correlates of differences in self-assessment of health status among the elderly. *Journal of Gerontology*, 17, 180–185.
- McCabe, D. L., Trevino, L. K., & Butterfield, K. D. (2001). Cheating in academic institutions: A decade of research. *Ethics & Behavior*, 11, 219–232.
- McLean, K. C., & Thorne, A. (2003). Late adolescents' self-defining memories about relationships. *Developmental Psychology*, 39, 633–645.
- McNulty, J. K., & Karney, B. R. (2001). Attributions in marriage: Integrating specific and global evaluations of a relationship. *Personality & Social Psychology Bulletin*, 27, 943–955.
- Moffitt, K. H., & Singer, J. A. (1994). Continuity in the life story: Self-defining memories, affect, and approach/avoidance personal strivings. *Journal of Personality*, 62, 21–43.
- Neisser, U. (1978). Memory: What are the important questions? In M. M. Gruneberg, P. I. Morris, & R. N. Sykes (Eds.), *Practical aspects of memory* (pp. 3–19). London: Academic Press.
- Pasupathi, M., & Carstensen, L. L. (2003). Age and emotional experience during mutual reminiscing. *Psychology & Aging*, 18, 430–442.
- Pillemer, D. B. (1992). Remembering personal circumstances: A functional analysis. In E. Winograd & U. Neisser (Eds.), *Affect and accuracy in recall: Studies of "flashbulb" memories* (4th ed., pp. 236–264). New York: Cambridge University Press.
- Pillemer, D., Wink, P., DiDonato, T. E., & Sanborn, R. L. (2003). Gender differences in autobiographical memory styles of older adults. *Memory*, 11, 525–532.
- Ross, M., & Holmberg, D. (1992). Are wives' memories for events in relationships more vivid than their husbands' memories? *Journal of Social & Personal Relationships*, 9, 585–604.
- Rubin, D. C., Burt, C. D. B., & Fifield, S. J. (2003). Experimental manipulations of the phenomenology of memory. *Memory & Cognition*, 31, 877–886.
- Rubin, D. C., Schrauf, R. W., & Greenberg, D. L. (2003). Belief and recollection of autobiographical memories. *Memory & Cognition*, 31, 887–901.
- Rubin, D. C., & Siegler, I. C. (2004). Facets of personality and the phenomenology of autobiographical memory. *Applied Cognitive Psychology*, 18, 913–930.
- Schumm, W. R., Paff-Bergen, L. A., Hatch, R. C., Obiorah, F. C., Copeland, J. M., Meens, L. D., et al. (1986). Concurrent and discriminant validity of the Kansas Marital Satisfaction Scale. *Journal of Marriage & Family*, 48, 381–387.
- Singer, J. A. (2004). A love story: Using self-defining memories in couples therapy. In R. Josselson, D. P. McAdams, R. Josselson, & A. Lieblich (Eds.), *Healing plots: Narrative and psychotherapy* (pp. 189–208). Washington, DC: American Psychological Association.
- Singer, J. A., & Blagov, P. S. (2004). Self-defining memories, narrative identity, and psychotherapy: A conceptual model, empirical investigation, and case report. In L. F. Angus & J. McLeod (Eds.), *The handbook of narrative and psychotherapy: Practice, theory, and research* (pp. 229–246). Thousand Oaks, CA: Sage Publications, Inc.
- Singer, J., Rexhaj, B., & Baddeley, J. (2007). Older, wiser, and happier? Comparing older adults' and college students' self-defining memories. *Memory*, 15, 886–898.
- Singer, J. A., & Moffitt, K. H. (1991–1992). An experimental investigation of specificity and generality in memory narrative. *Imagination, Cognition, Personality*, 11, 233–257.
- Singer, J. A., & Salovey, P. (1993). *The remembered self: Emotion and memory in personality*. New York: Free Press.
- Stevens, J. (1996). *Applied multivariate statistics for the social sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- SurveyMonkey. (1999). *SurveyMonkey software (professional subscription) for data collection*. Retrieved from <http://www.surveymonkey.com>
- Talarico, J. M., LaBar, K. S., & Rubin, D. C. (2004). Emotional intensity predicts autobiographical memory experience. *Memory & Cognition*, 32(7), 1118–1132.
- Talarico, J. M., & Rubin, D. C. (2007). Flashbulb memories are special after all; in phenomenology, not accuracy. *Applied Cognitive Psychology*, 21, 557–578.
- Vick, S. C., & Alea, N. (2008, August). *Recalling emotional relationship-defining memories may benefit marital quality*. Poster presented at the 116th Annual Convention of the American Psychological Association, Boston, MA.
- Webster, J. D., & Gould, O. (2007). Reminiscence and vivid personal memories across adulthood. *International Journal of Aging & Human Development*, 64, 149–170.
- Wood, W., & Conway, M. (2006). Subjective impact, meaning making, and current and recalled emotions for self-defining memories. *Journal of Personality*, 74, 811–845.

Copyright of Memory is the property of Psychology Press (UK) and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.