

I'LL KEEP YOU IN MIND: THE INTIMACY FUNCTION OF  
AUTOBIOGRAPHICAL MEMORY IN ADULTHOOD

By

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This document is dedicated to loved ones and loving memories.

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By

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Chair: Susan Bluck  
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Humans remember an extraordinary amount of their lives, and use autobiographical memory (AM) in meaningful ways across adulthood. My study examined one function of AM: maintaining intimacy in social relationships. This function includes reflecting on relationship events to keep loved ones in mind, and to thereby strengthen intimate bonds. The influence of life-context variables (i.e., age and gender) and memory characteristics (i.e., quality and content) on how AM serves this function were examined.

There were 129 young ( $M$  age = 27.94) and old ( $M$  age = 74.66) men and women in romantic relationships in the study. A micro-analytic experimental design was used: intimacy (warmth and closeness separately) was assessed before and after participants remembered either autobiographical relationship events (e.g., a vacation with one's partner), or text passages about similar events (e.g., a couple on a vacation). Participants rated the quality of their memories for level of positive re-experiencing, personal

significance, and rehearsal. Memory narratives were also content-coded for themes of communion.

Autobiographical remembering fostered warmth in relationships, irrespective of life context: remembering AMs, as opposed to text passages, increased warmth, regardless of age and gender. For young and old women, closeness was also enhanced after autobiographical remembering. Participants also reported feeling more positive affect after remembering relationship events, but these gains in basic affect did not eliminate gains in closeness that women experienced. Further, personally significant memories predicted post AM-sharing feelings of warmth and closeness, regardless of who was remembering.

These results suggest that there is lifespan invariance in using AM to foster intimacy in relationships, and that women experience broader gains in intimacy than men as a function of autobiographical remembering. Such life context variability may reflect social goals valued by different ages and genders. The role of memory characteristics is highlighting in the current work by suggesting that not just any memory will foster intimacy in relationships: memories need to be about personally significant life events. The current study further suggests that AM fosters intimacy, and also serves an emotion regulatory function. Limitations of the study are reviewed, and directions for future scholarly work are suggested.

## CHAPTER 1 THEORETICAL OVERVIEW

### **Introduction**

Humans remember an extraordinary amount about the events and experiences of their lives. People vividly remember meaningful events in their personal lives (such as getting married and having children) even into advanced old age (Cohen & Faulkner, 1988). Why do individuals recall these events of long ago? What function or purpose does such remembering serve? My study empirically addressed this conceptual question by closely examining one theoretical function of autobiographical memory (AM) across adulthood: the intimacy function. The intimacy function of AM involves remembering relationship experiences or sharing memories with others to maintain or foster closeness in relationships. In essence, postulating an intimacy function of AM suggests that keeping others in mind, in turn, keeps them close in one's heart.

To introduce my study, two background chapters are presented. Chapter 1 provides an overview of the theoretical foundations that support this work: the ecological approach to memory, and the lifespan psychology framework. Chapter 2 provides an empirical literature review of research specifically related to the intimacy function of AM. Empirical work supporting the existence of the intimacy function, and possible variation by age and gender are reviewed. This is followed by speculations about whether memory characteristics (e.g., vividness) might influence the extent to which the intimacy function is served. Study aims and hypotheses are presented at the end of Chapter 2. Study methods (Chapter 3) highlight the micro-analytic experimental design used. Results of

the study are presented in Chapter 4. Chapter 5 provides an interpretation of the results; and suggests limitations of the study, and directions for future research on the functions of AM across adulthood.

### **Two Theoretical Foundations**

Two complimentary theoretical perspectives provide a foundation my study. One is the ecological approach to memory, as represented in cognitive psychology (Neisser, 1978). The other is the lifespan psychology framework (Baltes, 1987). Each theoretical perspective contributes uniquely to my study. Together these theories offer a foundation from which to begin exploring the intimacy function of AM across adulthood.

#### **Ecological Approach**

The ecological approach to cognition, first proposed by Ulrich Neisser in the 1970s, encouraged cognitive psychologists to being asking “important questions” about human memory after 100 years of research (Neisser, 1978). Such questions involve understanding memory as it occurs in everyday life and in everyday situations (Baddeley, 1987; Graumann, 1986; Neisser, 1988). Two questions from the ecological movement are relevant to the current work: What are the everyday forms of memory, and what functions does memory serve in everyday life?

Everyday forms: autobiographical memory. Identifying everyday forms of memory is at the center of the ecological approach (Gathercole & Collins, 1992). Such forms include remembering to make a doctor’s appointment (prospective memory; Kvavilashvili, 1992); remembering exceptional life events, such as identifying a perpetrator after witnessing a crime (eyewitness memory; Wagennar, 1996); and recalling information about shocking historical events (flashbulb memory; Brown & Kulik, 1977). People also remember the ordinary events from their day, and the most personally

significant events from their entire life. This latter form of everyday autobiographical memory is the focus here. AM is an area of everyday memory that has received considerable attention since the inception of the ecological movement (see Rubin, 1986, 1996). The term autobiographical memory includes memory for event-specific details and individual images, and complete memories of specific life events (i.e., episodes, Brewer, 1996). More recent models of AM (Bluck & Habermas, 2001) also consider AM to include memory for life periods and themes (Conway, 1996) and one's entire life story (Habermas & Bluck, 2000; McAdams, 1990). In this research, the more traditional conceptualization of AM is adopted: participants remembered specific relationship events.

Although AM researchers have now asked and answered some of Neisser's (1978) "important questions," most studies do not use the ecological research methods originally advocated. Instead, most research uses a word-cueing method that involves remembering autobiographical events in response to random cue words (Galton, 1879; Crovitz & Schiffman, 1974). Other work examines meaningful memories by asking individuals to self-select their most vivid life events (Cohen & Faulkner, 1988; de Vries & Watt, 1996) or produce memories from specific life periods (Holland & Rabbitt, 1990). Regardless of the methods used, many studies of AM still occur in the confines of the laboratory, for obvious reasons of experimental control. As a consequence, however, motivational and social forces involved in everyday remembering (Baumeister & Newman, 1994) are sometimes eliminated or ignored. My study, attempted to find a middle ground between scientific rigor and the meaningful use of (and expression of) AM in everyday life. To ensure rigor, my study used an experimental design, and interviews were conducted using

a standard script. In addition, all participants were asked to remember the same events: a vacation and a romantic evening. To ensure ecological validity, however, participants were allowed to self-select meaningful vacation and romantic evening memories to recall, and to share them as they would in everyday life: as a free narrative to an interested listener in a comfortable “living room” environment. The end result is a set of rich memory narratives about relationship events embedded in an experimental design.

Another shortcoming of previous AM research, in terms of embracing the ecological approach, was an almost exclusive focus on memory quantity and accuracy (i.e., remembering more and being “right”; Koriat & Goldsmith, 1994), at the expense of memory quality and content. In previous studies, events were simulated in the laboratory (packing a picnic lunch; Hashtroudi, Johnson & Chrosniak, 1990) so that the veridicality of the memory could be assessed. Remembering more and remembering it accurately constitutes “better” recall in the psychological literature, even if the events being remembered are not necessarily meaningful for participants. Without these simulated events, or documents to rely on (e.g., photographs, video tapes, diaries), the accuracy of such memories cannot be assessed. There is no way of knowing, for instance, whether an individual’s memory of meeting his or her spouse for the first time is accurate. In fact, for most AMs recalled by most people in everyday life, there is no record of how much or how well they are recalling. Thus, though memory performance and accuracy are clearly of some importance, the memories that we have and use in everyday life are usually not judged on performance criteria. Given that, what other aspects of AM might be important in everyday life?

Having a memory evoke provocative emotions that were felt at the time, or recognizing the content of the memory (i.e., what it is about) are characteristics of memory that are meaningful for people in everyday life. Work has shown that it is the phenomenological qualities of the memory (how it makes an individual feel at the time of recall and how vivid it is) that lets a person know that an event is being remembered and that it is their own (Brewer, 1996; Larsen, 1998). In fact, the content (i.e., topic) of the memory is likely to be the most important aspect of remembering in everyday life. Memory content, unfortunately, has been virtually ignored in the everyday memory literature (Robinson & Swanson, 1990). I adopt the generally accepted perspective that memory is partially reconstructed and is not usually completely accurate (Brewer, 1986), but does usually remain largely true to the gist (Neisser, 1981). Thus, the accuracy of personally meaningful memories is important, but not always as experimentally critical as their quality and content. In fact, from an everyday perspective, what seems most important about AMs is not that they behave like students (i.e., recall as much as possible, with great accuracy for sometimes-irrelevant details), but that they “do their job” by serving important psychosocial functions.

Functions of autobiographical memory. The second major question from the ecological approach relevant here is why people remember their life events, that is, the function of AM. Bruce (1989, p. 45) refers to memory function as the “real-world usefulness or adaptive significance of memory mechanisms.” What significance or purpose does remembering serve in everyday contexts? With regard to AM, Neisser (1978) simply stated the idea of function by asking, “What do we use the past for?” (p.

12). What function does remembering events that happened long ago serve in the present?

Researchers interested in the functions of AM suggest two conceptualizations of function: use and adaptation (Bluck & Alea, 2002; Bruce, 1989). Use involves identifying all the ways that individuals employ AM in everyday life. The uses of AM have been placed into broad conceptual categories (Bluck & Alea, 2002; Cohen, 1998; Pillemer, 1998), empirical taxonomies (Watt & Wong, 1991; Webster, 1993); and more recently represented as a circumplex model (Webster, 2003). Adaptation, on the other hand, refers to whether the uses of AM can be shown to have positive (adaptive) consequences. Autobiographical memory is used for adaptive reasons, like enhancing self-conceptions (Wilson & Ross, 2003) or aging successfully (Wong & Watt, 1991). Remembering life experiences may also be maladaptive, such as when it is used to revive bitter memories (Webster, 1993) or obsess about past events (Watt & Wong, 1991). Most work to date has focused on determining all possible instances in which individuals use the past, with almost no attention paid to whether and when it is beneficial or adaptive to do so. My study investigated whether there are adaptive social outcomes (i.e., increased intimacy) after remembering relationship events. This function of memory, the intimacy function, is only one of a set of functions that have been theoretically identified. Though the intimacy function was the focus of my study, it is embedded in a set of social and nonsocial functions, which are described briefly below.

Three broad theoretical functions of AM have been proposed in the literature: people use personal memories to serve social, self, and directive functions (Bluck, 2003; Bluck & Alea, 2002; Cohen, 1998; Pillemer, 1998; Robinson & Swanson, 1990). Table 1

describes each theoretical function. The social functions of AM (see Alea & Bluck, 2003 for a review) include using memories to initiate relationships, such as when introducing oneself to another by sharing stories from the past (Cohen, 1998; Pillemer, 1998). Another social function is using AM to elicit empathy or provide support to those in need (Robinson & Swanson, 1990). The intimacy function of AM (i.e., using AM to maintain or foster intimacy in relationships; Cohen, 1998), which is the focus of my study, is considered to be socially adaptive, and even necessary for social bonding to ensure species survival (Neisser, 1988; Nelson, 1993). The self functions of AM involve instances where memories are used to promote continuity or development of the self (Conway & Pleydell-Pearce, 2000; Wilson & Ross, 2003) and for regulating emotions (Pasupathi, 2003; Robinson & Swanson, 1990). Using memories to solve current problems, to guide future behaviors (Baddeley, 1987; Cohen, 1998), and to motivate and inspire (Pillemer, 2003) constitute the directive function of AM.

Table 1. Theoretical functions of autobiographical memory: social, self, and directive

Theoretical function	Description
Social	Using AM to initiate social bonding, to elicit empathy and provide support, and to maintain and foster intimacy in relationships
Self	Using AM to promote self-continuity and self-development self, and to regulate emotion
Directive	Using AM to solve current problems, to guide future behavior, and to motivate and inspire

A small number of empirical studies are beginning to substantiate the theoretical claims that AM serves social, self, and directive functions (Bluck, Alea, Habermas & Rubin, in press; Hyman & Faries, 1992; Pasupathi, Lucas & Coombs, 2002), but more work is obviously needed. Such work must examine whether these theorized functions of memory are actually those used by individuals in everyday life; and also whether such uses are adaptive. That is, does AM actually promote intimacy in relationships, enhance

self-concept, and direct behavior toward successful outcomes? My study began to address this question, starting with the intimacy function of AM: it addressed whether autobiographical remembering is an adaptive means for enhancing feelings of intimacy in long-term romantic relationships.

In summary, important questions about memory in everyday life have emerged from the ecological approach. Great strides have been made in understanding a meaningful form of everyday memory, autobiographical memory. Well-controlled, ecologically valid studies that address more than just memory performance, however, are still needed. My study addressed this need by examining the quality and content of meaningful relationship memories. Using an experimental design allowed examination of whether such memories function to foster intimacy in relationships. This question of AM's function has not fully been answered. The literature in this area has been largely theoretical, identifying the primary functions of AM. My study contributed by providing empirical evidence concerning one social function of AM: the intimacy function.

### **Lifespan Psychology Framework**

Using AM to foster intimacy in relationships can occur in a variety of contexts (Pasupathi, 2001) that may have consequences for the extent to which this function of AM is served. One context that is particularly relevant for studying variation in AM function is lifespan context. Paul Baltes first proposed the lifespan psychology framework in the late 1980s (Baltes, 1987). This approach is based on a number of propositions that jointly characterize developmental patterns and influences on development across the entire lifespan (Baltes & Baltes, 1990; Baltes, Staudinger & Lindenberger, 1998). Lifespan psychology pays special attention to development in adulthood and late life, to counterbalance the historical focus in developmental

psychology on child development (Piaget, 1983; Vygotsky, 1978). For example, the lifespan psychology framework emphasizes the ways that individuals compensate for declines in late life in order to optimize functioning and promote successful aging (Bäckman & Dixon, 1992; Baltes & Baltes, 1990; Marsiske, Lang, Baltes & Baltes, 1995). Though there are several propositions of lifespan psychology (e.g., multidimensionality, plasticity, reserve capacity; Baltes, 1987), two are particularly relevant to the study of AM across adulthood: the multidirectional and the contextual nature of human development.

### **Multidirectionality.**

The first proposition relevant to my study is unique to lifespan psychology. Multidirectionality refers to the notion that development involves an interplay between gains and losses in psychosocial functioning at each point in the lifespan (Baltes et al., 1999; Uttal & Perlmutter, 1989). This is different from traditional developmental psychology that characterizes development solely by gains in functioning: children acquire more sophisticated cognitive abilities with age (Piaget, 1983; Vygotsky, 1978). This proposition is also different from earlier theories of adult development, which largely characterized development in later life as involving loss and decrement (see Schaie, 1994, for a review of cognitive aging). Such theories make the notion of development across adulthood an oxymoron. It is true that the gains usually outweigh the losses in childhood, and that there are limits to gains, especially in very late life (Baltes & Smith, 2003). The notion of multidirectionality, however, challenges researchers to examine changes in the relation of gains to losses at different points across adulthood.

Approaching AM using this proposition of multidirectionality encourages investigators to identify the losses that occur with AM in adulthood and late life, and also

how AM remains stable or improves with age (see Cohen, 1998 for a review). When examining age-related biological influences (Baltes et al., 1999) on AM, developmental patterns appear to be quite similar to other fluid abilities, such as episodic memory (see Zacks, Hasher & Li, 2000 for a review). There are gains in the organization and expression of AM in childhood (Howe, Courage & Edison, 2003); a further organization of the life story in adolescence (Habermas & Bluck, 2000; McAdams, 1990); relative stability in midlife; and declines in the details, accuracy, and specificity of AM in late life (Cohen, 1998; Levine, Svoboda, Hay, Wimocur & Moscovitch, 2003). From the ecological perspective, however, autobiographical remembering is more than accurately recalling events from one's life. Research suggests that with age, individuals are more skilled at sharing life experiences with others in an enjoyable and useful fashion (Pratt & Robins, 1991). Other work has found that when remembering meaningful events from their lives, rather than more trivial events, there appears to be lifespan continuity even in AM performance and accuracy (Bluck, Levine & Lauthler, 1999; Cohen & Faulkner, 1988). Thus, unlike many other memory phenomena, AM is not always characterized by decline in late life. Stability and even gains are likely, depending on the aspect of memory under investigation. In the current study, meaningful relationship events were examined. Thus, lifespan continuity is possible, and even likely. Embracing multidirectionality in AM is essential: without the lifespan construct of multidirectionality, the documentation of stability or lack of decline in late life would simply be dismissed as a nonsignificant difference.

### **Contextualism.**

The second proposition, contextualism, dovetails nicely with the ecological approach to memory, providing continuity between the two theoretical foundations.

Contextualism refers to the notion that individuals are embedded in contexts, and that such contexts provide opportunities for or limit individual development (Marsiske et al., 1995). In particular, three contextual influences exist: age-graded influences (i.e., age and developmental tasks), history-graded influences (i.e., cohort and period effects), and non-normative influences (i.e., idiosyncratic events). Most relevant to the current work on AM across the lifespan are age-graded influences. These include the organismic and environmental aspects of life context that are normative for individuals of a particular age, and which impact the course of adult development (see Lerner & Kauffman, 1985 for a review).

From this perspective, age-graded life contexts (i.e., parenthood, retirement) and developmental tasks (i.e., generativity) associated with particular life phases (Erikson, 1980; Havinghurst, 1972; Neugarten, 1979) can shape how individuals look back on their life, what they see when they look back, and the reasons why they reflect on the past (Bluck & Habermas, 2001). For example, socioemotional contexts vary at different points in the lifespan (Antonucci & Akyama, 1995; Carstensen, 1993). Such differences might influence how essential the intimacy function of AM is, at any particular time in an individual's life.

Although age is the primary life-context variable of interest in this framework, there are multiple contexts in which an individual can be embedded (e.g., gender, cultural, economic). For example, developmental tasks are related to life phase, and also to gender: women's tasks tend to revolve around family, and men's tasks tend to revolve around their careers (Havinghurst, 1972; Neugarten, 1979). Thus, an individual's gender can also influence the reasons why an individual looks back on the past (Webster, 1995).

Autobiographical memory may serve an intimacy function only to the extent that serving that function is consistent with one's age and gender-graded roles and goals (i.e., life context). Thus, lifespan contextualism necessitates understanding AM in everyday context, as the ecological approach advocates, but goes beyond the ecological approach to particularly consider how life contexts are different for groups of people. Differences in life-context variables such as age and gender are likely to be related to differences in the relative importance of the various AM functions (e.g., intimacy function relative to identity-maintenance function).

In summary, the lifespan psychology framework highlights several possible trajectories of adult development: decline, stability, and growth. This is particularly important for studying AM, because declines may not be the norm, as individuals remain stable or become more adept at using AMs in meaningful ways (such as to maintain intimacy in relationships) as individuals move through life. This framework also highlights that individuals move through life embedded in contexts. The life-context variables of age and gender might be particularly relevant to how and why individuals reflect on their lives.

### **Summary**

The ecological approach and the lifespan psychology framework compliment each other, and provide a foundation for exploring the function of AM across adulthood. The nontraditional questions posed by the ecological approach suggest that remembering is not just about performing well (i.e., being highly accurate), but also about what individuals remember from their lives (i.e., the quality and content of their AMs) and why it is remembered (i.e., AM function). The lifespan psychology framework emphasizes that there is potential for losses, gains, and stability in AM; and that an

individual's current life context (their age and gender) must also be considered. These two theoretical foundations thus provide a rationale for exploring how meaningful memories are used to serve important psychosocial goals (like intimacy) in men and women across the adult lifespan.

## CHAPTER 2 EMPIRICAL LITERATURE REVIEW

The intimacy function is one of several theorized functions of AM (Table 1), but has been considered by prominent memory researchers as the most fundamental (Neisser, 1988; Nelson, 1993). Several AM researchers advocate studying specific functions of AM to move the field beyond the broad theorizing that characterized its inception (Alea & Bluck, 2003; Bluck, 2003; Conway, 2003). Independent empirical investigations of the theoretically predicted social (Fivush, Berlin, Sales, Mennuti-Washburn & Cassidy, 2003), self (Wilson & Ross, 2003), and directive functions (Pillemer, Wink, DiDonato & Sanborn, 2003) have recently begun. My study continued this new trend, adding to the small body of research on AM functions. It was the first study to focus exclusively on the intimacy function of AM across adulthood. In this Chapter, I thus provide evidence for the intimacy function of AM, and review studies suggesting that there are differences based on life-context variables (i.e., age and gender) and memory characteristics (i.e., quality and content). At the end of this Chapter, my study is further described, and specific study aims and hypotheses are outlined. Beyond extending the limited amount of work in the AM literature on memory function, my study is also poised to make a contribution to the already considerable literature on the importance of social ties across the adult lifespan.

### **Social Relationships across Adulthood: Mechanisms for Fostering Intimacy**

Maintaining and fostering intimate relationships is critical across the adult lifespan (for a review see Antonucci & Akyama, 1995). Several studies suggests that having

strong social ties is important for mental (Antonucci, Lansford, Akiyama, Smith, Baltes, Takahashi, Fuhrer, Dartigues, 2002; Newson, Nishishibaa, Morgan & Rook, 2003) and physical health (Penninx, van Tilburg, Deeg, Kriegsman, Boeke & van Eijk, 1997). For example, Antonucci and colleagues (2003) found that having higher-quality social exchanges (i.e., more positive) was related to lower reported depressive symptoms in men and women across four different cultures. Thus, the relation between strong social ties and well-being seems pervasive. This may be especially true in late life as social resources become critical for both socio-emotional support and care-giving needs (Thompson & Heller, 1990).

As the need for tight social networks increases in late life, there is a well-documented gradual decrease in the actual number of social relationships. On average, older adults have half as many social relationships as adults in their twenties and thirties (Lang, 2001). Some of the age-related attrition in the number of social partners is due to uncontrollable losses associated with the aging process (e.g., widowhood, loss of friends due to late-life illnesses; Fingerman & Birditt, 2003). There is also evidence, however, that older adults choose to narrow their social networks by discontinuing peripheral relationships that are less meaningful, and nurturing those relationships that enhance positive emotional experiences (Carstensen, Isaacowitz & Charles, 1999). Despite the decrease in the size of their social networks, older adults report having meaningful and emotionally close social relationships well into late life (Akiyama et al., 2002; Lang, 2001). Many of these relationships are not new, but rather are relationships that have been fostered and nurtured over years, or over a lifetime.

One relationship, the marital relationship, seems particularly salient in late life. At least in Western cultures, marital relationships are one of the closest and most enduring relationships that adults experience (see Carstensen, Graff, Levenson & Gottman, 1995 for a review). In fact, older adults are as satisfied in their marital relationships as young newly-weds are, if not more so (Gilford & Bengtson, 1979; Markides, Roberts-Jolly, Ray, Hoppe & Rudkin, 1999). Gilford and Bengtson (1979) found, for example, that negative sentiment declines steadily in marriages over the years. Positive sentiment seems to follow a curvilinear U-shaped pattern, with high points both early and late in marriages. Given the importance of this relationship over the lifespan, my study focused on the role that AM might play in how intimacy is maintained in long-term romantic relationships. This adds to explanations provided by other researchers concerning non-memory mechanisms by which relationships are maintained over time.

Mechanisms by which relationships are maintained and fostered in late life have been suggested in social developmental theories of aging. Socioemotional selectivity theory (SST; Carstensen, 1993; Carstensen et al., 1999), for example, suggests that emotional motivations are central. Individuals are motivated to narrow their social networks to enhance positive emotional states in late life, because future time (i.e., time left to live) is seen as limited. Lifespan theorists (Erikson, 1980; Neugarten, 1979), alternatively, look to age periods and life phase contexts as a potential mechanism for late-life relationship satisfaction. That is, each life period is characterized by specific social developmental tasks: in young adulthood, social tasks revolve around developing intimate relationships (e.g., finding a spouse; Havigurst, 1972) and late-life tasks involve maintaining established relationships and gaining social support necessary to deal with

the losses that occur in old age (Neugarten, 1979). From these theoretical perspectives, socioemotional goals and lifespan developmental tasks encourage the development of intimate relationships early in life, and the maintenance of such relationships in late life.

Other theories suggest that the mechanisms responsible for older adults' meaningful, high-quality relationships are not unique to old age. Adult attachment theory, for example, proposes that early in life, individuals develop internal working models of what social relationships are supposed to be like (see Koski & Shaver, 1997 for a review). These mental models of social interaction have been found to predict the quality of relationships later in life (Bradley & Cafferty, 2001; Magai, Cohen, Milburn, Thorpe, McPherson & Peralta, 2003). Similarly, the convoy model of social relationships (Kahn & Antonucci, 1980) suggests that individuals move through life with a network or "convoy" of social partners, and past experiences and interactions influence relationships in the present. As explicated by Antonucci and Akiyama (1995, p. 357), "A relationship with a relative could be forever marred or cemented by an event that took place many years earlier."

Not explicitly mentioned in most social developmental theories, though alluded to in some (i.e., the convoy model), the role of memory for past relationship experiences in fostering intimacy in relationships seems evident. That is, after living a lifetime with someone, as would be the case in long-term marriages, individuals accumulate a large number of shared AMs (e.g., a shared history), some good and some bad. The intimacy function of AM suggests that individuals can rely on such memories as a resource (Staudinger, Bluck & Hertzog, 2003), and use these memories to foster intimacy in relationships. Thus, my study tested whether AM is a mechanism by which relationships

are maintained and fostered across adulthood. Though a novel proposition, evidence suggests that AM may serve such an intimacy function.

### **Intimacy Function of Autobiographical Memory**

Some empirical work exists examining the intimacy function of AM. Most of this work uses self-report measures, rather than experimental methods, and the intimacy function of AM is assessed in relation to other potential functions of AM (Bluck et al., in press; Hyman & Faries, 1992; Watt & Wong, 1991; Webster, 1995, Webster, 1997). Though related work exists, only two studies have overtly asked adults why they use AM in everyday life. In a series of studies, Hyman and Faries (1992), asked younger adults to identify frequently talked-about and thought-about events either in an open-ended format, or in response to cue words. Individuals were then asked to self-report the purpose of accessing each memory (i.e., the memory's function). Participant's spontaneously generated social functions of memory. Sharing personal memories for social bonding purposes (i.e., intimacy) was mentioned 47% of the time by participants as a reason why they talk about the past.

The intimacy function of memory also emerges in research using self-report questionnaires, such as the Thinking About Life Experiences questionnaire (TALE; Bluck et al., in press) and the Reminiscence Functions Scale (RFS; Webster, 1995, 1997). The TALE questionnaire was recently given to a group of young adults who responded to a series of questions about how frequently they reflected on or talked about their past for a variety of social, self, and directive purposes. The social function emerged as representing two distinct factors: using memory to develop new relationships, and using memory to nurture existing relationships. Each involves using memory for intimacy purposes relevant to different points in a relationship. Using memories to nurture current

relationships (i.e., maintaining intimacy) was reported as being more frequently used than any other function of memory (Bluck et al., in press).

My study went beyond this existing self-report data by using an experimental design. Intimacy was assessed both before and after remembering, to investigate whether independently measured feelings of intimacy increased after remembering pleasant relationship events, in comparison to control events (i.e., narrative text passages about relationship events). If intimacy increased after remembering relationship events, what life-context variables might influence the extent to which this occurs? The lifespan psychology framework (Baltes, 1987) suggests that age and gender are two possibilities.

### **Life Context Variables: Age and Gender**

The narrowing of social networks in late life to fewer but more meaningful relationships (Carstensen, 1993), and gender differences in how men and women conceptualize satisfaction in relationships (Antonucci et al., 2002; Levenson, Carstensen & Gottman, 1993), suggest that there may be both age and gender variation in the use of AM for maintaining intimacy. Several recent studies support this assertion (Cully, LaVoie & Gfeller, 2001; Webster, 1993; Webster, 1995).

Age differences have been found, for example, using the Reminiscence Functions Scale (RFS; Webster, 1993, 1997), which consists of eight subscales that measure reasons why people reflect on their life (e.g., teach and inform, identity, problem-solving, death preparation). Relevant to my study, Webster found that older adults and women report reflecting on the past to maintain intimacy in relationships more often than younger adults and men (Webster, 1995). This is not surprising given that the intimacy maintenance function of the RFS involves primarily thinking about loved ones who have passed away, and older adults are more likely to have experienced such loss (i.e.,

widowhood, Fingerman & Birditt, 2003). Webster (1995) interpreted the gender difference in light of other work showing that women of all ages are more relationship-oriented than men. Another RFS subscale, the conversation function, includes sharing memories with others to create common bonds and fellowship. This social function is used equally across the lifespan: young, middle-aged, and older adults use AM to promote intimacy in conversations with others (Webster, 1995; Webster & McCall, 1999). Women sometimes (Webster, 1995), though not always (Webster & McCall, 1999), report using AM to develop rapport in conversations more frequently than men. In sum, based on the limited empirical work, there is not a completely clear picture of how life-context variables are related to the intimacy function of AM. If it involves keeping distant loved ones in mind, age and gender differences emerge congruent with life experiences and tasks. All adults however report using AM for social bonding purposes when actively sharing memories with others in conversation.

One reason for the mixed findings in the literature with regard to using AM for intimacy might be that life-context variables, such as age and gender, are conceptually empty as psychological constructs. These variables do not have proximal explanatory power, but reflect an array of rather distal life-context influences on an individual at any particular time. For example, a younger adult might be just as likely as an older adult to reflect on the past to maintain intimacy with a loved one who has passed away if both are recently bereaved. An individual's age is not determining whether memory is being used to maintain intimacy, rather the persons' current experience is. Thus, life-context variables like age and gender are relevant to but not exactly explanatory of how adults might use AM in everyday life. They may show interesting variation, but are not

mechanisms for determining how AMs are used to foster intimacy in relationships. Thus, psychological variables, more integral to the act of remembering, need to be considered to fully understand how AM serves psychosocial functions. What variables are involved in remembering in everyday life that might influence the extent to which a function of AM is served? The quality of a memory (e.g., how vivid it is, how emotionally laden it is, how frequently it has been rehearsed) and the content of what is being remembered (e.g., what the memory is about) are two memory variables with potential explanatory power.

### **Memory Characteristics: Quality and Content**

Examining the quality and content of AM is a core feature of the ecological approach. It is the subjective qualitative characteristics of memory that give individuals a sense that a memory belongs to them (Brewer, 1996; Larsen, 1998), yet discussion of how memory quality and content relate to AM function has been virtually ignored. One might speculate that only those memories that have certain qualities (e.g., are particularly vivid) or are about particular material (e.g., positive relationship events) would serve to maintain or increase intimacy. Pillemer (1998), for example, suggests that personal event memories that are vivid and emotional will likely serve interpersonal goals such as intimacy maintenance to a greater degree than memories that are less qualitatively rich. This assertion has not been tested. My study made an exploratory attempt to connect the quality and content of specific AMs with how well a particular memory function (i.e., intimacy maintenance) was served.

### **Memory quality.**

Several qualitative characteristics of AM have been identified (see Larsen, 1998 for a review). Most of the work in this area has investigated the vividness and the emotion associated with remembering surprising events (flashbulb memories; Brown & Kulik,

1977). Generally, this work finds that vivid, emotional memories are associated with better recall performance (Bohannon, 1988). How often memories are rehearsed (thought and talked about) also influences how well and for how long events are remembered (Bluck & Li, 2001; Bohannon, 1988; Brown & Kulik, 1977). Memory vividness, emotionality, and amount of everyday rehearsal thus seem to be influential characteristics for memory performance. It is likely that these same memory qualities might influence the extent to which the intimacy function of AM is served.

If it is the case that memory quality matters, then differences in how young and old men and women remember events might be influencing the extent to which the intimacy function of AM is differentially served for these groups of adults. The quality of AM appears to be rather well-preserved in late life (Anderson, Cohen & Taylor, 2000; Bluck et al., 1999; Bluck & Li, 2001; Cohen, Conway & Maylor, 1994; Pasupathi & Carstensen, 2003). Several studies report no age differences in the vividness and emotional quality of young and older adult's AMs (Bluck et al., 1999; Cohen & Faulkner, 1988), especially when participants recall self-selected emotionally-charged events. Some studies have even found that older adults report their memories to be more vivid (Cohen & Faulkner, 1988) and emotional (Alea, Bluck & Semegon, in press; Hashtroudi et al., 1990; Pasupathi & Carstensen, 2003) than younger adult's memories. Women also appear to have more vivid and emotional memories than men (Bauer, Stennes & Haight, 2003; Pillemer, 2003), particularly of relationship events (Ross & Holmberg, 1992). Older adults have a set of AMs that are well-rehearsed (Anderson et al., 2000), and women reflect on the past more frequently overall (i.e., rehearsal) than men (Davis, 1999; de Vries & Watt, 1996; Pillemer et al., 2003). Thus, there appears to be core qualitative

characteristics of memory (i.e., vividness, emotion, rehearsal) and there is some evidence that these qualitative characteristics vary by age and gender. In my study, I explored how such characteristics might influence the degree to which social functions of AM, like intimacy, are served.

### **Memory content.**

Beyond memory quality, people recall and choose to share different types of information (i.e., memory content). The content of an AM conveys information about an event (i.e., what happened or what the event entails). Studies have looked at the emotional content of adults' memories (Kennedy, Mather & Carstensen, 2004; Walker, Skowronski & Thompson, 2003), the self-descriptors evident in memories of significant life events (Singer & Salovey, 1996), and themes in adult's life stories (Mills, 2003). Researchers have also examined the extent to which adult's memory narratives contain intimate content (McAdams, 1984). The expression of intimacy in AM is clearly relevant here: sharing memories that contain intimate themes might be more likely to foster intimacy in relationships (i.e., serve an intimacy function). The idea is that simply sharing memories about one's partner might not suffice to promote intimacy. Rather, only memories that are recalled and expressed with high levels of intimate content are likely to do so.

A large body of work has extensively examined the levels of intimacy expressed in adult's narratives (McAdams, 1984; McLean & Thorne, 2003; Woike, Gershkovich, Piorkowski & Polo, 1999). Intimate memories contain themes of communion (McAdams, 2001) which include: expressing love and friendship, instances of intimate dialogue, events that involve caring for and helping others, and expressing the need to connect with others (McAdams, Hoffman, Mansfield & Day, 1996). Themes of communion are

expressed in autobiographical memories about significant events (McAdams et al., 1996; Woike et al., 1999), and when making up fictitious stories (Woike, Lavezzary & Barsky, 2001). These studies on themes of communion are rooted in the personality and motivation literature. They are largely designed to show that the themes individuals express in their memory narratives are related to more stable personal motives: people with a high need for intimacy (i.e., need to connect with others) express more themes of communion when remembering events.

Although this link to overarching personality is likely, in my study, I took the expression of communal themes in AM as a proximal memory variable: that is, it was the content of the memory. The content of memory, however, is likely to be related to the person doing the remembering, whether they are young or old, male or female. The limited amount of work available suggests that older adults and women include more communal themes when listing self-attributions than younger and middle-aged adults and men (Diehl, Owen & Youngblade, 1996). Women also tend to express more communal themes than men in their autobiographical narratives about relationship events (McLean & Thorn, 2003). Thus, the content of the memory, specifically the extent to which themes of communion are expressed in autobiographical narratives, can vary across individuals. My study took previous work a step further by examining whether the presence of themes of communion in AM facilitated the use of AM to foster intimacy in relationships, and the role that age and gender might have.

In sum, people remember the events from their life in qualitatively different ways. For example, some memories are extremely vivid, and others are less so. Some events we barely remember: there is no content to the memory. What do these differences in

memory quality and content suggest about how adults might use AM to promote intimacy? Remembering events in a qualitatively rich manner, that is, with high vividness and associated emotion, might lead to greater changes in felt intimacy after autobiographical remembering. Related, it may be that memories need to contain some intimate content (i.e., contain more communal themes) to foster intimacy in relationships. My study addressed these speculations.

### **A Micro-level Analysis**

My study used an experimental design to examine the intimacy function of AM. This examination was innovative for this field: it moved beyond traditional self-report measures of memory functions (Bluck et al., in press; Hyman & Faries, 1992; Webster, 1995) to the independent assessment of changes in relationship intimacy after autobiographical remembering. The changes assessed were at a micro-level. That is, the assessment of intimacy occurred not after individuals remembered the events surrounding their entire relationship, or after multiple sharing sessions across time, but after remembering only two relationship events (as might occur in a spontaneous conversation in everyday life). Intimacy in the relationship was assessed both before and immediately after remembering. Large changes in intimacy from pre to post memory-sharing were not expected; after all, only two events were remembered! This was thus a conservative test of the ability of AM to produce changes in intimacy, that is, for AM to serve an intimacy function. For experimental purposes, a novel comparison condition was used to control for the act of remembering and the topic being remembered: half of the participants listened to and then recalled narrative text passages about relationship events. The study had three specific aims:

- The first study aim was to investigate whether sharing two meaningful relationship memories in a short time period would result in immediate, measurable differences in ratings of felt intimacy assessed as both warmth and closeness in the relationship. That is, would warmth and closeness be enhanced after participants in long-term relationships remembered personally meaningful autobiographical events?
  - **Hypothesis 1:** It was expected that warmth and closeness would be enhanced after remembering autobiographical relationship events. These intimacy variables were not expected to increase from pre to post memory-sharing after recalling narrative text passages about non-autobiographical relationship events. Thus, the intimacy function was expected to be apparent only when AMs were shared.
  
- The second study aim was to examine whether life-context variables, specifically age and gender, would influence the extent to which warmth and closeness were enhanced after memory-sharing.
  - **Hypothesis 2a:** The age hypothesis was that both young and older adults would use AM to foster intimacy in meaningful relationships. That is, regardless of their age, adults would report more warmth and closeness in their relationships after autobiographical remembering. Based on self-report measures and the necessity of maintaining social ties in late life, however, it seemed plausible that older adults would report greater changes in warmth and closeness from pre to post memory-sharing than would younger adults.
  - **Hypothesis 2b:** There was also a gender hypothesis based on previously shown differences in the way that men and women remember relationship events and reasons reported for recalling the past. It was expected that women would show larger changes in warmth and closeness after autobiographical remembering than men.
  
- The third aim of the study was exploratory and involved examining memory quality and content. The aim was to investigate whether memory characteristics were driving quantitative increases in intimacy after autobiographical remembering (if such changes occurred). Thus, memory quality and content were examined as predictors of post memory-sharing levels of warmth and closeness. There were three memory quality indices: positive re-experiencing, personal significance, and rehearsal. The content of the memory was the extent to which themes of communion (McAdams, 2001) were expressed in participants' narratives. A related aim involved examining the relative influence of memory characteristics in comparison to life-context variables that were identified as important based on the second study aim. Although this study aim was exploratory, hypotheses about the influence of memory characteristics could be made based on previous AM literature.

- **Hypothesis 3a:** There was a clear hypothesis for two of the memory quality variables. It was expected that memories that had high levels of positive emotional re-experiencing during recall and personally significant memories (i.e., meaningful, vivid memories) would be the best predictors of post memory-sharing levels of intimacy. Although the effects of rehearsal on memory performance is clear (i.e., more rehearsal leads to better performance), it was unclear whether having well-rehearsed memories would be necessary to serve the intimacy function of AM. Thus, no hypothesis was made concerning rehearsal.
- **Hypothesis 3b:** The hypothesis for memory content was clear. It was expected that memories that contained more communal themes would predict greater changes in intimacy after autobiographical remembering.
- **Hypothesis 3c:** The third hypothesis involved exploring the relative influence of these memory characteristics in comparison to life-context variables (i.e., age and gender) on changes in intimacy after AM-sharing. It was expected that these proximal memory characteristics would be better predictors of post memory-sharing levels of intimacy than more distal life-context variables. That is, the way an event was remembered would be more important to the function being served, than the age or gender of the person remembering.

## CHAPTER 3 METHODS

### **Design**

The study is a 2 (Age group: young, old) X 2 (Gender: men, women) X 2 (Memory condition: autobiographical memory, narrative text) X 2 (Time: pre, post) mixed design. Memory condition is a between-subjects factor: half of the participants remembered and then shared autobiographical memories about meaningful relationship events. The other half listened to and then recalled narrative text passages about similar relationship events. Despite the loss of statistical power by having Memory Condition as a between-groups factor rather than within-groups, the choice was made to avoid nonsymmetrical carry-over effects (Heiman, 2001): the likelihood that intimacy gained by remembering an autobiographical event would carry-over when remembering a narrative text passage, but not vice-versa. The major dependent variable in the study was self-rated intimacy, which was assessed in terms of both warmth and closeness. It was assessed at both pre and post memory-sharing. Other variables of principle interest were self-rated memory quality and the presence of themes of communion content-coded from participant's memory narratives.

### **Participants**

There were 129 community participants in two age groups. Young adults ( $n = 32$  men, 32 women) ranged in age from 19 to 39 years old ( $M = 27.94$ ;  $SD = 4.84$ ). Older adults ( $n = 33$  men, 32 women) ranged in age from 64 to 86 years old ( $M = 74.66$ ;  $SD = 6.05$ ). Most of the younger adults were recruited from on-campus married housing, and

from university graduate and professional programs (e.g., veterinary students, law students) at the University of Florida. Others were recruited from various settings in the local community. They were compensated with \$10 cash, a \$10 gift certificate, or course credit. Older adults were recruited through local community organizations, senior events, and notices in local newspapers. They were not compensated for participation.

All participants spoke fluent English. Seventy percent of the younger adults were Caucasian, 7.8% were Black, 10.9% were Hispanic, 9.4% were Asian, and 1.6% reported their race as “other.” The older adults were less ethnically diverse: 97% of the participants were Caucasian, 1.5% were Black, and 1.5% were Asian. An Analysis of Variance (ANOVA) showed that there were no ethnic differences for the major intimacy dependent variables (warmth, closeness), or the memory quality and content variables. Thus, ethnic differences are not further examined.<sup>1</sup>

### **Education**

Young adults had an average of 17.89 ( $SD = 2.40$ ) years of education, and older adults had an average of 16.42 years ( $SD = 3.20$ ),  $t(126) = 2.94$ ,  $p < .05$ . Eighty-eight percent of the younger adults and 75% of the older adults had a college degree. Although over half of the younger adults (70%) and none of the older adults were in school full time, about the same percentage were in school part time (young = 6%, old = 8%).

Twenty-three percent of the younger adults were not students, and were working either

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<sup>1</sup> It is noted that ethnic differences may exist, but did not emerge due to the relatively small sample size in some ethnic groups. Thus, to provide additional assurance that there were no ethnic differences, the non-Caucasian groups were collapsed and compared to Caucasians. Although this incorrectly characterizes individuals from ethnic backgrounds as a single group, it also statistically increases the likelihood that if differences exist, they would emerge. Analyses were re-run, but again no differences were found, suggesting that there are at least no large effects due to ethnicity.

full (39%) or part time (42%). Older adults were mostly retired (88%), but some worked full (3%) or part time (9%).

### **Health**

There were no age differences on a self-report measure of physical health (Maddox, 1962),  $t(127) = .19, p > .05$ . On a Likert-scale ranging from 1 (*very good*) to 6 (*very poor*), young and older adults both reported being in “good” to “very good” health relative to their same-aged peers (young:  $M = 1.83, SD = .78$ ; old:  $M = 1.80, SD = .88$ ). There were differences between young and older adults, however, on more objective indicators of health. For example, 9% of the younger adults were in treatment for physical conditions; this was true for only 55% of the older adults,  $\chi^2(1, 129) = 31.09, p < .05$ . Older adults were mostly being treated for age typical physical conditions such as hypertension and arthritis.

### **Relationship**

All participants were in long-term romantic relationships, operationally defined as having lived together for at least two years. As would be expected, older adults had been in their relationship longer ( $M = 46.52; SD = 13.33$ ) than younger adults ( $M = 5.44, SD = 2.79$ ),  $t(127) = 24.64, p < .001$ . For 86% of the older and 88% of the younger adults, this was their first marriage. Although almost all of the older adults had children (97%), only 21% of the younger adults did.

### **Cognitive Functioning**

To determine whether this sample is typical with regard to age-related differences in cognitive functioning (see Schaie, 1994 for a review), measures of verbal, reasoning, and memory ability were given. Verbal ability was assessed with the vocabulary subscale of the Wechsler Adult Intelligence Scale – Revised (WAIS-R; Wechsler, 1981). Two

coders reached 90% agreement ( $n = 24$ ), with Cohen's (1960) kappa at .80. As is typical, older adults ( $M = 30.65$ ,  $SD = 5.00$ ) had better vocabulary scores than younger adults ( $M = 27.61$ ,  $SD = 4.66$ ),  $t(127) = 3.57$ ,  $p < .001$ . Reasoning ability was assessed using a timed letter series task from Thurstone's (1962) primary mental abilities test.

Performance was also typical: younger adults correctly completed more problems ( $M = 14.53$ ;  $SD = 5.24$ ) than older adults ( $M = 8.09$ ;  $SD = 3.73$ ),  $t(125) = 7.95$ ,  $p < .001$ , and made fewer errors (young:  $M = 1.53$ ,  $SD = 3.07$ ; old:  $M = 3.13$ ,  $SD = 2.68$ ),  $t(125) = 3.12$ ,  $p < .01$ . Note that two older adults did not complete the reasoning task due to time constraints. The Auditory Verbal Learning Task (AVLT; Rey, 1941) was used to assess immediate memory span after a single trial: younger adults correctly remembered more words ( $M = 8.91$ ;  $SD = 2.12$ ) than older adults ( $M = 7.23$ ;  $SD = 1.94$ ),  $t(127)$ ,  $p < .001$ . There were no age differences for the number of errors of commission or repetitions,  $t(127) = 1.54$  and  $.83$ ,  $p > .05$ . These cognitive variables were used to show that a typical age sample was obtained, and were not used in further analyses.<sup>2</sup>

## Measures

### Screening

The telephone version of the Mini-Mental State Examination developed as part of the Adult Lifestyles and Function Interview (ALFI-MMSE; Roccaforte, Burke, Bayer & Wengel, 1992) was used to exclude older adults with cognitive impairment. Individuals scoring at least 16 out of 21 were invited to participate.

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<sup>2</sup> Major intimacy analyses were run with cognitive functioning variables (verbal ability, number of reasoning problems correct, number of words remembered) as covariates. Including cognitive variables as covariates did not change the intimacy findings.

### **Relationship Satisfaction**

General relationship satisfaction was measured and selected a priori to be a covariate in the major intimacy analyses so as to determine whether AM would function to enhance intimacy, regardless of whether individuals were in a good or less satisfying relationship. The Quality Marriage Index assesses global relationship satisfaction (QMI; Norton, 1983). Directions were revised to assess satisfaction not just in marriages, but also in long-term romantic relationships. The measure consists of five items (e.g., “We have a good relationship”, “Our relationship is strong”), with responses made on Likert-scales ranging from 1 (*very strong disagreement*) to 7 (*very strong agreement*). The sixth item is a measure of overall relationship satisfaction (“All things considered, how happy are you in your relationship?”) assessed on a 10-point Likert-scale ranging from *very unhappy* to *perfectly happy*. Possible scores range from 6 to 45. Individuals were quite satisfied with their relationships ( $M = 39.62$ ,  $SD = 6.50$ , range 14 to 45). The QMI showed high internal consistency (Cronbach’s  $\alpha = .94$ ). A 2 (Age: young, old) x 2 (Gender: men, women) ANOVA revealed that young (men:  $M = 39.65$ ,  $SD = 5.21$ ; women:  $M = 40.17$ ,  $SD = 6.26$ ) and older (men:  $M = 39.73$ ,  $SD = 6.77$ ; women:  $M = 38.94$ ,  $SD = 7.75$ ) men and women were equally satisfied with their relationship,  $F_s < 1.00$ .

### **Intimacy: Warmth and Closeness**

Two different measures of intimacy were administered: a semantic differential scale assessed warmth in the relationship (SMD, Osgood, Suci & Tennenbaum, 1957), and the Personal Assessment of Intimacy in Relationships questionnaire assessed closeness (PAIR, Schaefer & Olson, 1981). These measures were chosen because they are reliable (Osgood et al., 1957; Schaefer & Olson, 1981), yet sensitive enough to detect

changes in intimacy after short-term interventions (Hickmon, Protinsky & Singh, 1997) and over more extended periods of time (Karney & Bradbury, 1997).

The first intimacy measure was a semantic differential scale (SMD; Osgood et al., 1957). Researchers have used the SMD to tap a variety of constructs by changing the instructional set accordingly. In this study, directions were tailored to assess current relationship warmth. Fifteen adjective-pairs are listed as oppositions (e.g., empty – full, sad – happy), and responses are made on a 7-point Likert-scale positioned between the adjectives. Participants answer each item by focusing on their current feelings about their relationship, basing their responses on first impressions to items. The scale ranges from 15 to 105. The SMD showed excellent internal reliability: Cronbach's  $\alpha$  was .95 at pre memory-sharing and .97 at post memory-sharing.

The PAIR (Schaefer & Olson, 1981) is a 24-item measure that assesses closeness in relationships. Subscales include Emotional, Social, Intellectual, and Recreational closeness; and a Conventuality scale to determine the extent to which individuals are idealizing their relationship. Participants respond to statements about the closeness in their relationships on a Likert-scale, ranging from 1 (*very strong disagreement*) to 5 (*very strong agreement*). Modified directions encouraged participants to focus on how they were currently feeling and thinking so as to be sensitive to changes in closeness from pre to post assessment. The scale ranges from 24 to 120 (Conventuality is not included in the scale range).<sup>3</sup> The PAIR had very high internal consistency in the current sample at both times of measurement, with Cronbach's  $\alpha$  at or above .90.

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<sup>3</sup> Analyses of the Conventuality scale at pre memory-sharing indicate that the young and old men and women were not attempting to idealize their relationships ( $M = 21.24$ ,

### **Basic Affect**

A measure of basic affect was also administered before and after memory-sharing. This measure was included to determine the extent to which remembering was enhancing basic affect, like happiness and sadness (Magai, 2001). These emotions are different from the social emotion of intimacy. They are basic personal emotions. To offer a stringent test of the initial intimacy hypothesis, it would be of value to know whether autobiographical remembering specifically and exclusively increases feelings of intimacy or whether it also makes people feel more positive. If so, then changes in intimacy after AM-sharing could be evaluated in relation to changes in basic affect. The Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988) was thus given. The directions focused on current feelings, so that immediate personal affective state was being assessed. The Positive Affect (PA) subscale reflects the extent to which a person feels enthusiastic and alert, and Negative Affect (NA) assesses distress and unpleasurable affect. Participants indicate on a 5-point Likert-scale, ranging from *not at all* to *extremely*, the extent to which each of 20 adjectives (10 positive, 10 negative) describes how they feel. Each subscale can range from 10 to 50. The PANAS had good internal consistency averaging across both times of measurement (positive affect: Cronbach's  $\alpha = .87$ ; negative affect: Cronbach's  $\alpha = .87$ ).

### **Memory Quality**

To explore the relation between memory quality (e.g., vividness, emotion) and changes in intimacy after remembering, participants completed the Memory Quality

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out of a total of 30), nor did an ANOVA show any age or gender differences. This is not considered to be a “high” rate of idealizing (Schaefer & Olson, 1981).

Questionnaire (MQQ, adapted from Bluck et al., 1999; Ross & Holmberg, 1992). There were two versions of the MQQ, one for individuals remembering autobiographical events and one for those remembering narrative text passages. The questions were altered slightly, where needed, so that items reflected the appropriate type of memory. Only the qualities of participant's memories in the AM condition are examined here ( $n = 65$ ). The MQQ for those who remembered AMs is presented in Appendix A.

Mean scores were created for each variable across the two autobiographical events.<sup>4</sup> To create parsimonious memory quality indices, exploratory factor analysis with a Promax rotation was conducted. Kaiser's rule (Kaiser, 1960) of extracting factors with Eigen values  $> 1$  suggested a three-factor solution, accounting for 67% of the variance. A  $> .50$  criterion was used to identify meaningful factor loadings. This conservative criterion was used, rather than the typical .40, because the sample size is less than ideal (Cliff & Hamburger, 1967). Examination of the residual variances further revealed that only 20 out of 68 of the residual correlations were above .05. Calculation of the root mean square residual (*RMR*) further shows that the model provides a good fit (i.e., less than .05), as the *RMR* was .04. The factor loadings for the rotated pattern matrix and the factor intercorrelations are reported in Table 2. Two items did not load on any factor, and were not considered in interpretations. Factors were interpreted to represent three

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<sup>4</sup> Paired sample t-tests were conducted to examine whether there were differences between the two events (vacation and romantic evening) for items on the MQQ. Using the Bonferroni correction ( $p < .01$ ), there was one significant difference. Vacations had been previously talked about more frequently than romantic evenings,  $t(63) = 3.64$ ,  $p < .01$ . Given this small difference, the MQQ was collapsed across events.

memory quality indices (further described below): positive re-experiencing, personal significance, and rehearsal.<sup>5</sup>

Table 2. Factor loadings and intercorrelations for the memory quality variables: positive re-experiencing, personal significance, and rehearsal indices ( $N = 65$ )

Memory Quality Questionnaire (MQQ) Item	Factor Loadings		
	Factor 1: Positive Re-experiencing	Factor 2: Personal Significance	Factor 3: Rehearsal
“Did this memory make you feel angry?”	.96	-.17	.06
“Is your memory of this event...” (negative, neutral, positive)	.80	.02	.06
“Did this memory make you feel sad?”	.73	.05	-.17
“Did this memory make you feel happy?”	.65	.28	.21
“How memorable was this event for you?”	.02	.96	-.11
“How significant or important is this memory to you?”	.00	.84	.02
“Overall, how emotional was this event for you?”	-.05	.75	-.11
“How vivid (or clear in your mind) is the memory you have for this event?”	.00	.55	.21
“How frequently do you talk about or share this memory with others?”	.02	-.14	.78
“How frequently do you think about this memory?”	-.08	.08	.69
“Did this memory make you feel afraid?”	.49	-.11	-.27
“Did this memory make you feel surprise?”	.00	.41	.29
	Factor Intercorrelations		
Factor 1: Positive Re-experiencing	1.00		
Factor 2: Personal Significance	-.02	1.00	
Factor 3: Rehearsal	-.09	.58	1.00

Note: Only loadings above .50 were interpreted. All ratings were made on 1 to 5-point Likert scales (negative emotion items were reverse scored). To items did not load on any factor.

The first factor accounted for 32% of the variance. It was labeled *positive re-experiencing* and represents the extent to which individuals reported being able to re-experience the positive emotion they felt at the time of the event during autobiographical

<sup>5</sup> One item on the MQQ asked participants when the event took place (i.e., age of the memory). It was not included as an independent memory quality because it was strongly related to an individual’s chronological age ( $r = .78, p < .001$ ). Even when included it did not load significantly on any factor.

remembering. Three items asking participants the extent to which they felt basic emotions (i.e., happiness, sadness, anger) loaded on this factor. Items were rated on a Likert-scale ranging from 1 (*not at all*) to 5 (*extremely*). To equate for valence of emotion and to ensure that high scores equaled more positive affect, the negative emotion items (sadness, anger, fear) were reverse coded. Another item assessing the overall valence of the memory, ranging from *negative* (1) to *positive* (5) on a Likert-scale, also loaded on this factor. Thus, higher scores represent greater emotional re-experiencing of positive affect. The positive re-experiencing index had good internal consistency, Cronbach's  $\alpha = .80$ .

The second factor was labeled *personal significance*, as it was clearly about how meaningful, significant, and vivid the memory was for participants. This factor accounted for 25% of the variance. Items loading on this factor included questions about how memorable the event was, how important the memory was for the person, how emotional the experience was overall (with no regard to valence), and how vivid the memory was. Responses for all items were made on a Likert-scale range from 1 (*not at all*) to 5 (*extremely*). The personal significance index also had good internal consistency, Cronbach's  $\alpha = .85$ .

The third factor accounted for 10% of the variance, and represents *rehearsal*. Two questions about frequency of thinking and talking about the past loaded on this factor. Responses ranged from 1 (*very infrequently*) to 5 (*very frequently*) on a Likert-scale. It is recognized that factors with fewer than 4 loadings are usually not interpreted (Gorsuch, 1983). This factor, however, was clearly a rehearsal index, which was of theoretical

significance. Thus, an interpretation of the factor seemed warranted. The internal consistency for the rehearsal index was adequate, Cronbach's  $\alpha = .65$ .

### **Memory Content: Themes of Communion Coding Scheme**

Memory content was coded from participant's narratives using a modified version of McAdam's (2001) themes of communion coding scheme for autobiographical episodes. Audiotapes of the memory interviews (AMs and memories for NT passages) were transcribed verbatim. The narratives were blinded for age and gender to the extent possible, and coders were blind to study hypotheses. Coders were trained using pilot protocols. Reliability was established with both young and older adult's narratives for the two types of memory from the actual dataset ( $n = 48$ ). After reliability was obtained, each coder coded half of the AM narratives and half of the NT narratives. Although both types of memories were coded, only the themes of communion expressed in participant's autobiographical narratives are used in the present study.

Four communal themes (see McAdams, 2001 for a complete description) including, love and friendship (LF), dialogue (DG), caring and helping (CH), and unity and togetherness (UT) were coded as being *present* (1) or *absent* (0). Examples for each communal theme are reported in Table 3. A conservative criterion was used so that a 1 was not given unless the theme was clearly and explicitly evident. The UT code stands alone, but where other communal themes were present (LF, DG, CH), there is also a referent code indicating whether the theme refers to a partner/couple in the narrative (coded as "partner"), or to some other person (coded as "other"). In instances where both were mentioned, the coders determined who the primary referent was. Eighty-four percent of participants in the AM condition did not mention an "other" referent. For the people who mentioned others, they also mentioned at least one communal theme related

to a partner: no one talked just about other people. LF, DG, and CH codes related to the partner, and UT codes were summed to create an indicator of the AM content. Possible scores ranged from 0 to 8 across the two events. The codes are described below.

Table 3. Themes of communion: examples from autobiographical memory narratives

Theme of Communion	Example
Love and Friendship (LF)	“I always just really have a good time. Always think about how incredibly lucky I am, and just how lucky we are that we found each other.”
Dialogue (DG)	“At the time we just reflected back on our marriage, and our children, and things that we have done, and how far we came, and things that we’ve overcome. So, it was a good time for reflection and being together.”
Caring and Helping (CH)	“During (the evening we were) relaxing and having a good time, laughing and talking. (I was) watching to make sure she was enjoying herself.”
Unity and Togetherness (UT)	“Well our children had this party for us up in North Carolina, and some of our old friends that were in our wedding originally (were there). We had music, drinks, and food and (it was) just fun and good to get everybody together.”

Note: For a full description of the coding scheme see McAdams (2001). Fillers (e.g., um, uh, you know) were removed, and information was inserted in parentheses for clarity.

The Love and Friendship (LF) code indicates the development or maintenance of love or friendship with another person. Simply having fun in the presence of another person does not qualify as LF. Coders reached 83% agreement for the LF code, and 82% agreement for the LF referent code (partner, other).<sup>6</sup>

The Dialogue (DG) code indicates reciprocal, noninstrumental dialogue between people. The dialogue does not necessarily need to be romantic, but can entail simple conversations among people in a relationship. Narrative mentions of written

<sup>6</sup> Cohen’s (1960) kappa is not reported as a criterion for inter-rater reliability because, at times, one variable in the two-way table upon which measures of association were computed was a constant. In instances where kappa was computed, it was good ranging from .65 to .80.

communication undertaken for communal or intimate reasons (e.g., love letters) are also coded as DG. Coders reached 92% agreement for the DG code, and 88% agreement for the DG referent code.

Caring and Helping (CH) is coded when the narrative involves providing emotional care, assistance, nurturance, or support for another person. Receiving care does not qualify as CH, nor does mere technical assistance. Coders reached 98% agreement for the CH code, and 99% agreement for the CH referent code.

The above themes concern specific relationships, whereas the theme of Unity and Togetherness (UT) implies being part of a larger community. UT is coded when the participant expresses experiencing a sense of oneness, unity, or belongingness with a group. There is no referent code for UT, since the referent is always a group. Coders reached 92% agreement.

### **Debriefing Questionnaire: Thought Intrusion**

All participants filled out a debriefing questionnaire to identify possible confounds. Of relevance here, is a question that asked participants who were assigned to the NT memory condition whether they thought of their own partner when recalling the fictional passages; that is, whether they experienced intrusive thoughts (yes, no).

### **Procedure**

The order of the study measures and the procedure are outlined in Figure 1. All participants were tested individually in a quiet comfortable room. All measures given at both pre and post memory-sharing had multiple versions, and no participant received the same version at both times of measurement. Order of administration of the measures was carefully considered so that there was a reasonable amount of time between pre and post memory-sharing assessments. After participants signed an Informed Consent, preliminary

measures were administered, which included the (pretest) intimacy and basic affect measures.

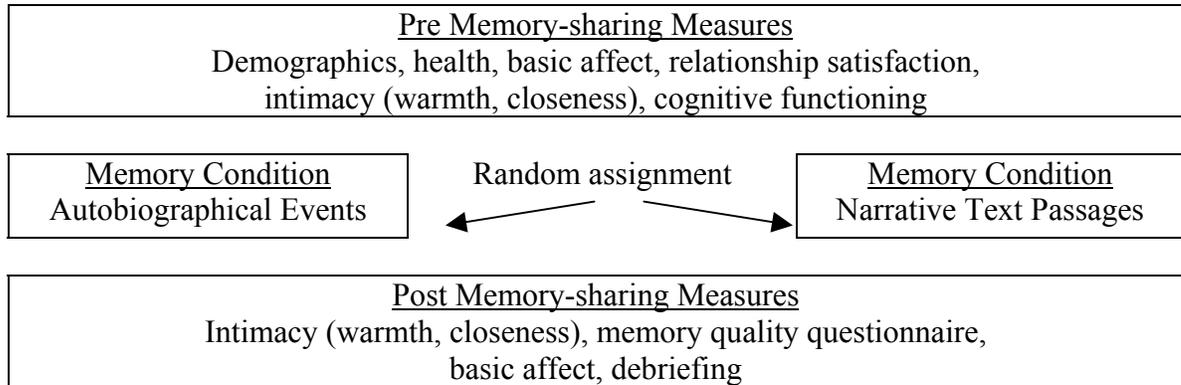


Figure 1. Order of administration of study measures, and study design ( $N = 129$ )

Participants were randomly assigned to a memory condition to remember either autobiographical events or NT passages. The memory interview portion of the session was audio taped. Regardless of the memory condition (AM, NT), two relationship events were remembered: a positive vacation and a romantic evening. These scenarios have been used in both AM and narrative text research (Dixon, Hultsch & Hertzog, 1989; Ross & Holmberg, 1992), and are events likely to have been experienced by both young and older couples. The order of events was counterbalanced across participants and within age groups: half remembered the vacation first and half remembered the romantic evening first.<sup>7</sup>

The interviewers were four young females. Using women as interviewers enhances the possibility that participants disclose personal information (Shaffer, Pegalis & Bazzini,

<sup>7</sup> Analyses were conducted to examine whether the order in which individuals remembered the two relationship events (i.e., recalling the romantic evening versus the vacation last, just before filling out the post memory-sharing intimacy questionnaires) influenced the major intimacy analyses or the quality and content of participant's memories. There were no order effects.

1996). Given that characteristics of the listener (e.g., responsiveness, familiarity) can influence what is shared during remembering (Alea & Bluck, 2003; Pasupathi, 2001), interviewers followed a structured script for the entire interview, including the memory-sharing portion. Interviewers were trained to respond similarly, with interested eye contact and facial expressions (e.g., slight smiles) but no verbal responses. The interview scripts for both memory conditions are in Appendix B.

In the AM condition, participants were given a 2-minute period to think about the first autobiographical event. They were instructed to continue reflecting on that memory until the time period was over. This recall period was used to equate the two groups: the narrative text passages took approximately 2-minutes to play. After the recall period, participants were asked to tell the experimenter everything they could remember about that relationship event. The entire procedure, beginning with the recall period, was then repeated for the second autobiographical event.

For the NT memory condition, participants listened to a narrative passage about one of the events for approximately 2-minutes. They were then immediately asked to remember everything they could about the passage. Directions were identical to the ones given to participants remembering autobiographical events, but referred to the NT passage. After participants finished remembering one of the passages, the procedure was repeated for the other passage.

Two narrative passages, one about a couple on a vacation and the other about a couple having a romantic evening, were used as memory materials (Appendix C). These passages were developed for use in narrative memory research with older adults (Dixon et al., 1989). They were modified slightly so that the age of the couple was ambiguous.

Such narrative text passages are considered analogous to AM narratives (Carstensen & Turk-Charles, 1994), in that they are long, personal texts in colloquial style that describe a single event, and involve information about characters intentions, plans, evaluations, behavior, outcomes, and ruminations. They are moderately emotional stories that illicit positive feelings, and are somewhat interesting and true-to-life (Dixon et al., 1989). The narrative text passages are thus a suitable control for AMs because they require the use of open-ended free recall, contain narrative structure, and were about the same event, but are non-autobiographical. The narrative text passages were prerecorded in a clear voice, and played for participants via audiotape at a suitable pace and loudness.

In both memory conditions and for both events the participant's memories were probed to exhaustion using standard probes until the participant suggested that they could remember nothing more, or until 10 minutes had expired. After the memory-sharing portion of the session, participants were immediately given the intimacy measures (post memory-sharing warmth and closeness), completed the MQQ, and the post memory-sharing PANAS. Participants were thanked for their time. The session took approximately an hour.

## CHAPTER 4 RESULTS

The results are divided in three major sections. Preliminary analyses, conducted in the first section, identify possible methodological confounds. The second section uses analysis of variance to examine whether AM fosters intimacy (warmth, closeness) in relationships, in comparison to remembering NT passages. The influence of life-context variables (age and gender) is examined, as well as the role of basic affect. The third set of analyses uses a regression approach to examine the extent to which the quality and content of participants' autobiographical memories predicts intimacy levels after remembering personally meaningful relationship events. The relative strength of life-context and memory variables in predicting intimacy is also examined.

### **Preliminary Analyses**

#### **Verbosity**

It was thought that verbosity (i.e., how much an individual spoke), might differ across groups of people. Verbose individuals might be at an advantage when using memories to foster intimacy in relationships simply because they talk more. If verbosity were confounded with age or gender, this could lead to misinterpretation of life-context effects. A word count, averaged across the two events, was used as an indicator of verbosity ( $M = 480.35$ ,  $SD = 420.54$ , ranging from 77 to 2072). A 2 (Age: young, old) x 2 (Gender: men, women) ANOVA revealed that young (men:  $M = 470.58$ ,  $SD = 425.55$ ; women:  $M = 426.75$ ,  $SD = 312.56$ ) and old (men:  $M = 463.36$ ,  $SD = 377.59$ , women:  $M = 561.25$ ,  $SD = 542.35$ ) men and women did not differ with respect to the number of words

used in their narratives,  $F_s < 1.00$ . A partial correlation was conducted to determine the extent to which verbosity was related to warmth and closeness at post memory-sharing, controlling respectively for pre memory-sharing levels of warmth and closeness in the relationship. Verbosity was not significantly related to post memory-sharing warmth ( $r = .15$ ) or closeness ( $r = .14$ ),  $p_s > .05$ . Thus, verbosity was not used as a covariate in analyses examining the intimacy function of AM across adulthood.

Verbosity, however, was related to some of the memory variables. How much an individual said when remembering an autobiographical relationship event was positively related to the personal significance index,  $r(65) = .30, p < .05$  and the content of the memory,  $r(65) = .26, p < .05$ . People talked more about events that were more personally significant. The more verbose individuals were, the more likely they were to express themes of communion in their autobiographical narratives. Verbosity is thus included as a control variable in regression analyses.

### **Intrusive Thoughts**

Preliminary analyses were also conducted to examine whether participants in the NT memory condition reported thinking about their own partner while remembering fictional stories about a couple. Having such intrusive thoughts could lead to increases in intimacy at post memory-sharing even after remembering non-autobiographical NT passages. In fact, half (52%) of the individuals said that their own partner came to mind while they were remembering the narrative text passages. In order to examine whether AM intrusion should be used as a control in the major intimacy analyses, an ANCOVA was conducted with thought intrusion (yes or no) as the independent variable, post memory-sharing warmth as the dependent variable, and pre memory-sharing levels of warmth as a covariate. The same analysis was conducted for closeness in the relationship.

Both analyses show that individuals who report having intrusive thoughts of their partner did not report greater warmth or closeness toward their own partner after remembering narrative passages than those who did not have such intrusions, warmth:  $F(1, 60) = 1.82$ ,  $MSE = 98.46$ ,  $p > .05$ ; closeness:  $F < 1.00$ .<sup>8</sup> Thus, although intrusive thoughts occurred in about half of the participants, they did not impact the extent to which intimacy was enhanced after remembering. Thought intrusion will thus not be examined further in the major intimacy analyses.

### **Intimacy Function of Autobiographical Memory**

This set of analyses corresponds to the first two aims of the study. In order to examine the first study aim, whether remembering autobiographical events fosters warmth and closeness in relationships, these analyses investigate changes in intimacy after remembering autobiographical relationship events, in comparison to remembering NT passages about the same type of events. These analyses also address the second study aim: whether life-context variables (i.e., age and gender) influence the extent to which the intimacy function of AM is served. The final set of analyses examines the relation between basic affect and changes in warmth and closeness in relationships.

For all analyses results were reported separately for the two intimacy variables: warmth and closeness. There are two possible ways that this data could have been analyzed. One involves using Time (pre, post memory-sharing) as a repeated measure: that is, looking at how intimacy variables changed from pre to post memory-sharing. This

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<sup>8</sup> These analyses were also conducted with three groups of participants: autobiographical memory only, narrative text only with no intrusive thoughts, and narrative text plus intrusive thoughts. There were no significant differences among the groups for either warmth or closeness after remembering.

is the more traditional means of analyzing data when both pre and post measures are given because it allows the researcher to examine group by time interactions. The other approach involves using pre memory-sharing levels of warmth or closeness as a covariate, and post memory-sharing levels of intimacy (warmth, closeness) as the dependent variable. Though less traditional, this approach increases statistical power because an individual's pre memory-sharing levels on a given variable are controlled for. Importantly, this controls for any differences between the groups at initial assessment.<sup>9</sup> Analyses were conducted using both approaches and similar results for changes in intimacy after remembering meaningful relationship events were found. Using pre memory-sharing levels of intimacy as the covariate, however, yielded clearer and more parsimonious results, and these are reported below.

### **Warmth**

A 2 (Age: young, old) x 2 (Gender: male, female) x 2 (Memory Condition: AM, NT) analysis of covariance (ANCOVA) was conducted to examine post memory-sharing levels of warmth in the relationship. Pre memory-sharing levels of warmth and general relationship satisfaction were used as covariates. Cell means and standard deviations by age and gender are reported in Table 4.<sup>10</sup>

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<sup>9</sup> Note that there were no overall differences for warmth or closeness at pre memory-sharing by memory condition (AM, NT). That is, there was no memory condition by occasion interaction (Time: pre, post). Men and women, however, started at different levels of both warmth and closeness in their relationship: women were higher at initial assessments. Despite this, women still showed gains in intimacy as a function of AM-sharing. This initial difference between men and women is an additional reason that the nontraditional use of pre memory-sharing levels of intimacy as a covariate seems useful.

<sup>10</sup> Note that the total sample size for warmth analyses is 128, as one person did not fill out the measure of relationship warmth.

There was a main effect for Age,  $F(1, 118) = 4.14$ ,  $MSE = 228.74$ ,  $p < .05$ ,  $\eta_p^2 = .03$ .<sup>11</sup> Older adults reported more warmth in their relationships ( $M = 92.82$ ,  $SD = 12.94$ ) after remembering AMs or NT passages than younger adults reported feeling after remembering ( $M = 90.55$ ,  $SD = 18.17$ ). There was no main effect for Gender,  $F(1, 118) = 1.914$ ,  $MSE = 107.23$ ,  $p > .05$ . Though informative, this main effect is not the result of interest. A Memory Condition main effect is necessary to show that remembering autobiographical relationship events enhances closeness in relationships while remembering narrative text passages does not (i.e., the intimacy function of AM).

Table 4. Cell means and standard deviations for warmth at post memory-sharing by age, gender, and memory condition ( $N = 128$ ).

Memory Condition	Male		Female	
	Young	Old	Young	Old
Autobiographical memory	90.02 (16.99)	91.66 (9.21)	94.71 (4.85)	95.44 (13.82)
Narrative text passages	89.71 (17.83)	93.82 (12.17)	89.11 (24.75)	90.36 (16.32)

Note: Estimated marginal means are reported. Covariates in model: pre memory-sharing warmth,  $M = 87.48$ , and relationship satisfaction,  $M = 39.58$ . Standard deviations are reported in parentheses. Scale ranges from 15 to 105.

For the measure of warmth there is evidence for the intimacy function of AM: the Memory Condition main effect was significant,  $F(1, 118) = 4.99$ ,  $MSE = 275.48$ ,  $p < .05$ ,  $\eta_p^2 = .04$ . After controlling for both pre memory-sharing levels of warmth and general relationship satisfaction, individuals who remembered autobiographical relationship events reported feeling more warmth in their relationship than those who remembered narrative text passages (Figure 2). Thus, after remembering only two autobiographical

<sup>11</sup> Partial eta squared ( $\eta_p^2$ ) was used as a measure of effect size rather than eta squared ( $\eta^2$ ) because the two differ by very little when the sample size is greater than 50, as is the case here. Standard interpretation of  $\eta^2$  was used: small = .01, medium = .06, large = .17 (Green & Salkind, 2003).

relationship events individuals reported feeling more warmth in their relationship. It should be noted that this results is significant even when controlling for general relationship satisfaction, which is highly related to warmth (pre:  $r = .85$ ; post:  $r = .79$ ) indicating that there is an effect independent of whether one is in a satisfied or less satisfying relationship. Does this intimacy function of AM for warmth in the relationship hold for individuals of different ages and gender?

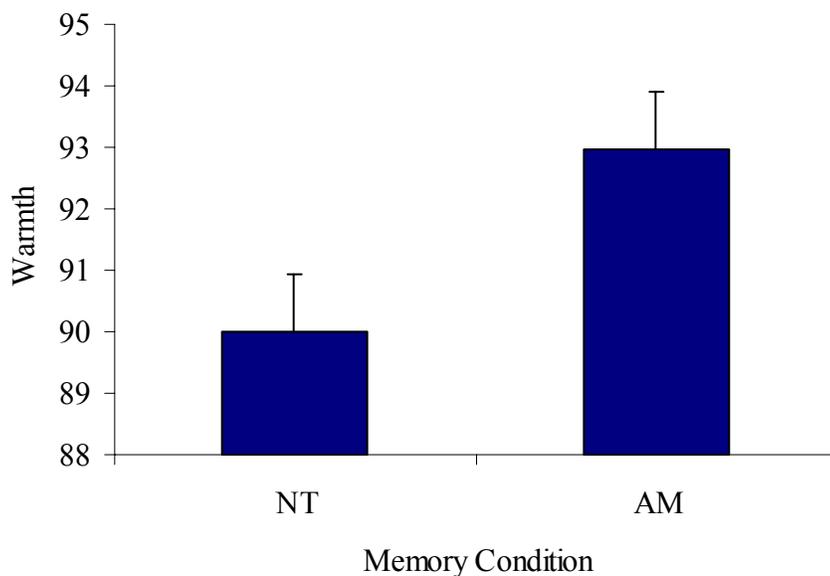


Figure 2. Warmth in relationships post memory-sharing by memory condition. Note: Estimated marginal means are reported. Covariates in model: pre memory-sharing warmth,  $M = 87.48$  and relationship satisfaction,  $M = 39.58$ .

Neither the Age x Type of Memory,  $F(1, 118) = 1.28$ ,  $MSE = 70.68$ ,  $p > .05$ , or the Gender x Type of Memory interactions,  $F(1, 118) = 3.27$ ,  $MSE = 180.64$ ,  $p > .05$ , were significant. The three-way interaction was also not significant. Thus, autobiographical memory can foster warmth in relationships, regardless of life-context variables such as age and gender.

In sum, AM-sharing seems to serve the function of increasing warmth in relationships. Individuals felt more warmth toward their partner after remembering

autobiographical relationship events than after they remembered non-autobiographical events about similar topics. This effect holds for the entire sample, regardless of age and gender.

### Closeness

A 2 (Age: young, old) x 2 (Gender: male, female) x 2 (Memory Condition: AM, NT) ANCOVA was conducted to examine changes in closeness in the relationship. Covariates include pre memory-sharing closeness and general relationship satisfaction. Cell means and standard deviations by age and gender are reported in Table 5.

Table 5. Cell means and standard deviations for closeness at post memory-sharing by age, gender, and memory condition ( $N = 129$ ).

Memory Condition	Male			Female		
	Young	Old	Total	Young	Old	Total
Autobiographical memory	93.96 (15.12)	93.09 (14.07)	93.53 (14.36)	95.96 (10.04)	98.71 (13.87)	97.34 (12.35)
Narrative text passages	94.27 (13.71)	94.34 (16.40)	94.31 (14.87)	94.76 (19.08)	94.06 (16.90)	94.41 (18.15)

Note: Estimated marginal means are reported. Covariates in model: pre memory-sharing closeness,  $M = 93.72$ , relationship satisfaction,  $M = 39.62$ . Standard deviations are reported in parentheses. Scale ranges from 24 to 120.

There was no Age main effect. There was a main effect for Gender,  $F(1, 119) = 3.94$ ,  $MSE = 118.26$ ,  $p < .05$ ,  $\eta_p^2 = .03$ . Women ( $M = 95.87$ ,  $SD = 15.47$ ) reported more closeness in their relationship than men ( $M = 93.92$ ,  $SD = 14.50$ ). Though informative, it is not this main effect that shows whether AM fosters closeness in relationships: a Memory Condition main effect is necessary. This effect, however, was not significant for closeness in the relationship,  $F(1, 119) = 1.22$ ,  $MSE = 36.50$ ,  $p > .05$ . Thus, when ignoring life-context variables it does not appear that AM fosters closeness in relationships.

When age and gender are considered, however, a slightly different picture emerges. Although age does not matter (Age x Memory Condition:  $F < 1.00$ ), an individual's gender does. The Gender x Memory Condition interaction approached significance,  $F(1, 119) = 3.69$ ,  $MSE = 110.62$ ,  $p = .057$ ,  $\eta_p^2 = .03$ . Since this effect was not significant, no follow-up analyses were conducted. Examination of the means in Table 5, however, suggests that although there is no difference between men and women in closeness after remembering NT passages, women report higher levels of post-memory-sharing closeness after remembering autobiographical relationship events.

In sum, these results suggest that for one type of intimacy, relationship closeness, the intimacy function of AM is weakly evident, but only when considering life-context variables. Women in this study report significantly more closeness after remembering, in general. The marginally significant interaction suggest that this is especially true after they remember personally meaningful relationship events as opposed to narrative text passages.

### **Intimacy Function: Beyond Basic Affect**

The current set of analyses was conducted to determine whether AM functions to specifically enhance intimacy in relationships or whether it also improves mood. An a priori decision was made to measure basic affect both before and after memory-sharing. By doing so, it is possible to examine whether remembering personally meaningful relationship events makes individuals feel more positive in general (not particularly about their remembered spouse), and if it does, whether gains in basic affect account for changes in intimacy. Thus, two sets of analyses were conducted: one to determine if basic

affect changes after remembering, and the other to rerun the major intimacy analyses using changes in basic affect as a covariate.

The first analysis was a 2 (Age: young, old) x 2 (Gender: male, female) x 2 (Memory Condition: AM, NT) multivariate analysis of covariance (MANCOVA) to examine post memory-sharing levels of positive and negative affect after remembering, with pre memory-sharing levels of positive and negative affect and relationship satisfaction as covariates. There were two multivariate effects: a Memory Condition main effect, Wilke's  $\Lambda$ ,  $F(1, 117) = 3.49, p < .05$ , and a Gender x Memory Condition interaction, Wilke's  $\Lambda$ ,  $F(1, 117) = 3.81, p < .05$ . Only these significant multivariate effects were further examined with univariate analyses for positive and negative affect separately. None of the univariate analyses were significant for negative affect. Only those related to positive affect are reported.

The Memory Condition main effect revealed that positive affect was higher after remembering meaningful relationship events ( $M = 35.57, SD = 6.41$ ) than after remembering NT passages ( $M = 33.26, SD = 7.31$ ),  $F(1, 118) = 7.01, MSE = 167.21, p < .01, \eta_p^2 = .06$ . Thus, autobiographical remembering enhances positive affect. There was also a significant Gender x Memory Condition interaction for post memory-sharing levels of positive affect,  $F(1, 118) = 6.37, MSE = 152.05, p < .05, \eta_p^2 = .05$ . All possible follow-up comparisons were made.<sup>12</sup> Univariate ANCOVAs were conducted for men and women separately to determine whether both groups show higher post memory-sharing positive affect after remembering autobiographical relationship events in comparison to

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<sup>12</sup> Significant results for follow up analyses do not change when using the Bonferroni correction,  $p < .01$ .

narrative text recall. Covariates were pre memory-sharing levels of positive affect and general relationship satisfaction. For men, there were no differences in post memory-sharing positive affect for individuals who remembered autobiographical relationship events ( $M = 34.49$ ;  $SD = 6.02$ ) versus those who remember NT passages ( $M = 34.36$ ;  $SD = 7.01$ ),  $F(1, 60) < 1.00$ . Women's post memory-sharing positive affect, however, depended on the type of event being remembered,  $F(1, 60) = 11.42$ ,  $MSE = 359.65$ ,  $p < .05$ ,  $\eta_p^2 = .16$ . Positive affect was higher after remembering meaningful relationship events ( $M = 36.64$ ;  $SD = 6.17$ ) than it was after remembering NT passages ( $M = 32.16$ ;  $SD = 7.70$ ). Further, there were no gender differences after individuals remembered narrative text passages,  $F(1, 60) = 2.50$ ,  $MSE = 83.06$ ,  $p > .05$ , but gender differences exist after remembering AMs,  $F(1, 60) = 6.47$ ,  $MSE = 103.84$ ,  $p < .05$ ,  $\eta_p^2 = .10$ . Thus, after remembering meaningful relationship events, women in this sample reported higher positive affect than men. These analyses show that increases in intimacy and positive affect are both occurring after autobiographical remembering and need to be further disentangled.

To examine whether intimacy in relationships was changing independent of changes in positive affect, separate 2 (Age: young, old) x 2 (Gender: male, female) x 2 (Memory Condition: AM, NT) ANCOVAs were conducted for the two intimacy variables: warmth and closeness. In addition to the covariates that were used in previous analyses (pre memory-sharing levels of intimacy and general relationship satisfaction), the difference in positive affect from pre to post memory-sharing was also included as a covariate. That is, the major intimacy analyses were rerun controlling for change in positive affect from pre to post memory-sharing.

For the measure of warmth in the relationship, the results change when controlling for positive affect. Most notably, the Memory Condition main effect, which previously showed that AM fosters warmth in relationships becomes nonsignificant,  $F(1, 118) = 3.12$ ,  $MSE = 166.95$ ,  $p > .05$ . The previous Age main effect remains significant even after controlling for change in positive affect from pre to post memory-sharing,  $F(1, 117) = 5.70$ ,  $MSE = 305.40$ ,  $p < .05$ ,  $\eta_p^2 = .05$ . Thus, change in basic affect from pre to post memory-sharing accounts for some of the previously seen changes in warmth as a function of autobiographical remembering.

For the measure of closeness in the relationship, controlling for change in positive affect from pre to post memory-sharing eliminated the previously significant gender main effect,  $F(1, 118) = 3.54$ ,  $MSE = 105.35$ ,  $p > .05$ . The previously marginally significant Gender x Memory Condition interaction ( $p = .057$ ), however, becomes significant when controlling for change in positive affect,  $F(1, 118) = 4.76$ ,  $MSE = 141.79$ ,  $p = .03$ ,  $\eta_p^2 = .04$  (Figure 3). All possible follow up comparisons were made. ANCOVAs were conducted for men and women separately to determine if only one gender or both were using AM to enhance closeness.<sup>13</sup> For women, feelings of closeness in the relationship were higher after autobiographical remembering than after remembering narrative text passages,  $F(1, 59) = 4.75$ ,  $MSE = 132.93$ ,  $p < .05$ ,  $\eta_p^2 = .07$ . For men, however, there is no difference between the two types of memory for post memory-sharing feelings of

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<sup>13</sup> Significant results for follow up analyses change slightly when using the Bonferroni correction,  $p < .01$ . Women's level of closeness is still higher than men's after remembering autobiographical relationship events. For women though there is no longer a significant difference between those remembering AMs and those remembering NT passages.

closeness,  $F < 1.00$ . There is also no difference between men and women after remembering narrative text passages,  $F < 1.00$ , but a significant difference between them exists after autobiographical remembering,  $F(1, 60) = 7.16$ ,  $MSE = 240.83$ ,  $p < .05$ ,  $\eta_p^2 = .11$ . Thus, AM serves to foster closeness in relationships for women in this sample, regardless of age.

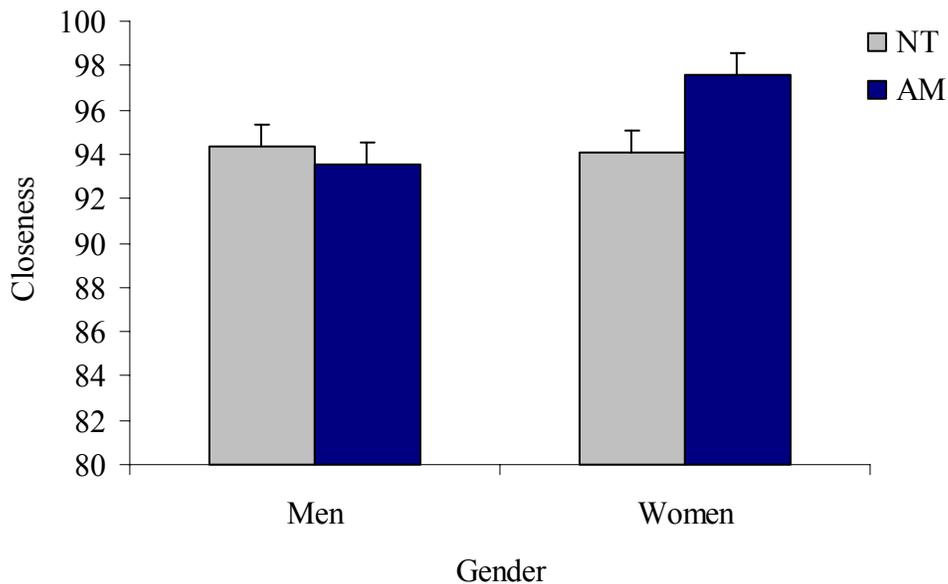


Figure 3. Closeness in relationships post memory-sharing by gender and memory condition, controlling for change in positive affect. Note: Estimated marginal means are reported. Covariates in model: pre memory-sharing closeness,  $M = 93.72$ , relationship satisfaction,  $M = 39.62$ , and change in positive affect,  $M = .85$ .

### Summary

The above results show that the intimacy function of AM can be served: warmth in relationships increased after autobiographical remembering. The extent to which it is served also depends on changes in basic positive affect that are simultaneously occurring after remembering relationship events: people also felt more positive affect after AM-sharing. Thus, warmth can be enhanced in relationships as a function of autobiographical remembering, but not independently of corresponding changes in basic affect: the two are

closely related (post memory-sharing:  $r = .21, p < .05$ ). The pattern of results for closeness is different. Evidence for the intimacy function of AM emerged only when life context is considered: women, regardless of age, report feeling closer to their partner after remembering meaningful relationship events. This finding, however, was only marginally significant before taking into account changes in basic positive affect. Once positive affect is considered, the intimacy function of AM (i.e., increasing closeness) is served for this sample of women, and is occurring independent of changes in their personal affective state. What is it about AM that serves this intimacy function? Is it simply the act of remembering and bringing a loved one to mind, or do memories need to be of a particular quality or content to serve the intimacy function of autobiographical memory?

### **Memory Quality and Content and the Intimacy Function**

This set of analyses addresses the third aim of the study: to examine whether the characteristics of AM (i.e., quality and content) influence the extent to which the intimacy function of AM is served. That is, does remembering autobiographical relationship events generally lead to changes in intimacy, or does the memory that is recalled need to be of a particularly quality (e.g., personally meaningful) or content (i.e., include intimacy-oriented information)? These analyses also explore whether memory characteristics are better predictors of gains in intimacy after remembering than are life-context variables, such as gender, identified in previous analyses.<sup>14</sup> The current set of analyses examining the role of memory characteristics only includes individuals in the

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<sup>14</sup> Analyses were also run using age as a life-context predictor, even though it was not interacting with Memory Condition in the major intimacy analyses. Age did not emerge as a significant predictor of post AM-sharing intimacy, whether it was entered before or after memory characteristics.

AM condition ( $n = 65$ ), as the aim is to understand how the quality and content of meaningful AM fosters intimacy in relationships.

Two broad memory characteristics were of interest: quality and content. Quality of the memory was assessed via three indices: re-experiencing of the positive emotion associated with the original event (positive re-experiencing), the meaningfulness and memorability of the event (personal significance), and the extent to which the memory had been thought about or talked about (rehearsal). The particular memory content examined was the extent to which themes of communion were expressed in individuals' autobiographical narratives.

To address the relation between memory characteristics and changes in intimacy as a function of autobiographical remembering, a series of hierarchical regression analyses were conducted. The first set of analyses was conducted to identify the memory characteristics that predict post AM-sharing feelings of intimacy (warmth and closeness). The second set of analyses examines the extent to which the memory characteristics identified as important predictors are relevant in comparison to the life-context variable gender.

Analyses were always conducted separately for the two aspects of intimacy, warmth and closeness. Several control variables were always entered into the models first: pre AM-sharing levels of intimacy (warmth or closeness), general relationship satisfaction, changes in positive affect from pre to post memory-sharing, and verbosity. Verbosity was included as a control variable so that the content of the memory could be examined independent of how much individuals had talked during memory recall.

Descriptive statistics for and correlations among the control variables, predictor variables, and post AM-sharing intimacy levels are reported in Table 6.

### **Identifying Memory Characteristics**

These regression analyses were conducted to identify the memory characteristics that best predict post AM-sharing feelings of intimacy. Since there is very little data and theory to allow a priori selection of important predictors, a forward selection procedure was used (entry criterion =  $p < .05$ ). Forward selection offers a good method of initial variable selection by statistically determining the most meaningful predictors (Darlington, 1990). Another benefit of the forward selection procedure, rather than alternatives (e.g., entering all variables simultaneously), is that only the memory characteristics that best predict post AM-sharing intimacy are selected for inclusion. Those that do not make a contribution can be reasonably eliminated from the model (Stevens, 2002).<sup>15</sup> The predictors entered in the forward regression model after the control variables were the three memory quality indices (positive re-experiencing, personal significance, and rehearsal) and memory content (themes of communion).

Warmth. Summary of the regression analyses to examine which memory characteristics were important predictors of post memory-sharing feelings of warmth in the relationship are reported in the top portion of Table 7. As expected, the control variables (pre memory-sharing levels of warmth, general relationship satisfaction,

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<sup>15</sup> Since there is disagreement about the use of stepwise methods, regression analyses were also done entering all memory characteristic predictors simultaneously. For warmth, the results were identical: only personal significance predicted post AM-sharing levels of warmth. For closeness, the results were slightly different: personal significance only approached significance,  $p = .058$ . Thus, the pattern of results is basically the same using either method.

changes in positive affect, and verbosity) accounted for a large percentage of the variance in the model,  $R^2 = .70$ ,  $F(4, 59) = 33.22$ ,  $p < .001$ . The central question, however, was to identify whether memory quality and content variables would add to these rather obvious predictors. One memory quality was influential.

Personal significance of the event being remembered was statistically chosen as the best, and only, predictor of post memory-sharing feelings of warmth,  $R^2 = .75$ ,  $F(1, 57) = 10.84$ ,  $p < .01$ . Remembering and sharing relationship events that were personally significant (i.e., meaningful and vivid) led to higher post memory-sharing feelings of warmth in the relationship. Accounting for how personally significant the event was increased the variance explained by 5%. This is 5% beyond the 70% that was already accounted for by the control variables.<sup>16</sup> Neither of the other memory quality variables (positive re-experiencing and rehearsal) or the content of participant's narratives (themes of communion) were statistically selected for inclusion as important predictors of warmth in the relationship after memory-sharing. Thus, it appears that the extent to which the intimacy function of AM is served, in terms of increased warmth, depends on how personally significant the events shared are.

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<sup>16</sup> To examine the meaningfulness of the 5% variance explained by personal significance, analyses were rerun using the difference between pre and post memory-sharing warmth as the dependent variable. This removed the large amount of variance accounted for by using pre memory-sharing warmth as a control. Beyond the variance explained by the control variables (relationship satisfaction, difference in positive affect, verbosity: 20%), personal significance now accounted for an additional 20% of variance. In essence then the 5% of the variance explained above suggests that personal significance accounts for one-fourth of the variance remaining after control variables are considered. This is quite substantial. Difference scores were not used in the major analyses because they are typically not reliable, psychometrically sound variables (Nunnally & Bernstein, 1994).

Table 6. Descriptive statistics and correlations for control variables, predictors, and post AM-sharing warmth and closeness ( $N = 64$ ).

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
Control														
1. Warmth pre	88.24	15.70	-											
2. Closeness pre	93.69	14.01	<b>.67</b>	-										
3. Relationship satisfaction	40.29	5.70	<b>.83</b>	<b>.58</b>	-									
4. Positive affect $\Delta$	2.03	4.82	.08	.06	.01	-								
5. Verbosity	727.23	475.30	.12	.09	.24	.02	-							
Memory characteristics														
6. Emotional re-experiencing	4.78	.36	.25	.28	.10	.17	.14	-						
7. Personal significance	4.29	.51	.07	.15	.25	.16	<b>.30</b>	.11	-					
8. Rehearsal	2.85	.64	.19	.19	.32	.04	.14	-.01	<b>.44</b>	-				
9. Themes of communion	2.70	1.44	-.19	-.22	-.11	-.08	.26	-.26	.20	.07	-			
Life context variable														
10. Gender	1.50	.50	.13	.12	.01	.12	.03	.07	.29	.03	.03	-		
Intimacy														
11. Warmth post	93.86	12.66	<b>.82</b>	<b>.63</b>	<b>.74</b>	.17	.16	<b>.30</b>	<b>.31</b>	.25	-.06	.27	-	
12. Closeness post	95.60	13.83	<b>.65</b>	<b>.90</b>	<b>.58</b>	.09	.14	.20	<b>.32</b>	<b>.34</b>	-.06	.26	<b>.72</b>	-

Note: Correlations significant at the  $p < .01$  level are in bold. Only individuals remembering autobiographical relationship events are included in regression analyses ( $N = 65$ ). The sample size is 64 for all correlations, except those related to warmth, where the sample size is 63. One individual did not complete the MQQ and another did not answer the post-memory sharing warmth questionnaire. They were excluded from analyses.

Table 7. Summary of forward regression analyses for memory quality and content variables predicting post AM-sharing feelings of warmth and closeness ( $N = 64$ ).

	<i>B</i>	<i>SEB</i>	<i>Beta</i>	<i>t</i>
Warmth				
Step 1				
Pre memory-sharing warmth	.53	.11	.66	4.80***
Relationship satisfaction	.40	.30	.18	1.33
Positive affect $\Delta$	.29	.19	.11	1.53
Verbosity	.00	.00	.04	.54
Step 2:				
Pre memory-sharing warmth	.61	.10	.76	6.03***
Relationship satisfaction	.11	.29	.05	.37
Positive affect $\Delta$	.17	.18	.07	.97
Verbosity	.00	.00	-.01	-.15
Personal significance	6.14	1.86	.24	3.30**
Closeness				
Step 1				
Pre memory-sharing warmth	.83	.07	.84	3.12***
Relationship satisfaction	.21	.17	.07	1.22
Positive affect $\Delta$	.11	.16	.04	.66
Verbosity	.01	.00	.05	.84
Step 2:				
Pre memory-sharing warmth	.83	.06	.84	13.12***
Relationship satisfaction	.13	.16	.06	.83
Positive affect $\Delta$	.03	.15	.01	.45
Verbosity	.00	.00	.00	.05
Personal significance	4.91	1.54	.18	3.19**

Note: Warmth:  $R^2 = .70$  for Step 1,  $\Delta R^2 = .05$  for Step 2. Closeness:  $R^2 = .81$  for Step 1,  $\Delta R^2 = .03$  for Step 2. For both warmth and closeness, the variables statistically excluded from the model were positive re-experiencing, rehearsal, and themes of communion. \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Closeness. Summary of the regression results for closeness are reported in the bottom portion of Table 7. As would be expected, the control variables again accounted for a large percentage of the variance in closeness in the relationship after autobiographical remembering,  $R^2 = .81$ ,  $F(4, 59) = 65.30$ ,  $p < .001$ . Again, the result of interest, however, is identifying which memory characteristics, if any, would account for post memory-sharing feelings of closeness.

As with warmth, the personal significance index was empirically selected as the best predictor of post memory-sharing feelings of closeness,  $R^2 = .84$ ,  $F(1, 58) = 10.20$ ,  $p < .01$ . Sharing AMs about personally significant events, that is, events that were meaningful in the past and vivid in the present, led to higher feelings of closeness in the relationship after AM-sharing. Including personal significance in the model significantly increased the variance accounted for by 3% above the initial 81% that was originally accounted for by the covariates.<sup>17</sup> The other two memory quality indices, positive re-experiencing and personal significance, did not predict post memory-sharing closeness, nor did the extent to which individuals expressed themes of communion in their autobiographical narratives. Thus, again the more personally significant the memories being shared were, the greater the increase in closeness in the relationship.

In sum, the quality of the memory being recalled is related to the extent to which the intimacy function of AM is served: sharing personally significant AMs leads to greater increases in post-memory sharing levels of both warmth and closeness in the relationship. The second part of these analyses assesses what matters more: the quality of the memory or who is doing the remembering.

### **Does Personal Significance Matter More than Gender?**

This set of analyses was conducted to determine the relative strength of memory characteristics and life context (i.e., gender) when using AM to foster intimacy in

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<sup>17</sup> Analyses were again conducted to examine the meaningfulness of the 3% of the variance accounted for by personal significance, by using pre-post difference in closeness as the dependent variable. Beyond the variance explained by the control variables (4%), personal significance contributed an additional 13% of variance.

relationships.<sup>18</sup> Separate hierarchical regression analyses were conducted for warmth and closeness in the relationship. Control variables, entered in the first step of the models, again included: pre memory-sharing levels of intimacy (warmth or closeness), relationship satisfaction, change in positive affect from pre to post memory-sharing, and verbosity. The memory characteristic included as a predictor for both warmth and closeness was the personal significance of the memory. This characteristic was entered as a predictor both before and after gender to determine its relative weight.

Warmth. A summary of the hierarchical regression analyses for warmth is reported in Table 8. As before, the control variables accounted for a large proportion of the variance in post memory-sharing feelings of warmth,  $R^2 = .70$ . When personal significance is entered into the model first, an additional 4% of the variance is explained,  $R^2 = .74$ ,  $F(1, 58) = 10.10$ ,  $p < .01$ . Taking into account an individual's gender does not make a significant contribution to the model,  $R^2 = .75$ ,  $F(1, 57) = 2.33$ ,  $p > .05$ . In order to examine whether gender mattered at all, it was entered in the model before personal significance. Doing so revealed that gender does play some role in using AM to foster warmth in relationships. Gender explained 3% of variance in post memory-sharing feelings of warmth,  $R^2 = .73$ ,  $F(1, 58) = 6.19$ ,  $p < .05$ . Being a woman is related to the extent to which AM fosters warmth in relationships. Is it something, however, about the quality of women's memories that is driving this effect? Including personal significance in the model, suggests that it is. Including this memory characteristic in the model

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<sup>18</sup> Analyses were also run using age as a predictor, even though it did not interact with Memory Condition in the intimacy ANOVAs. Age was not a significant predictor in any analyses, indicating that age is not a determining life-context factor in the extent to which the intimacy function of AM is served.

accounts for an additional 2% of variance,  $R^2 = .75$ ,  $F(1, 57) = 5.94$ ,  $p < .05$ , and mediates the gender effect.

Table 8. Summary of hierarchical regression analyses for post AM-sharing warmth: personal significance entered before and after gender.

	<i>B</i>	<i>SEB</i>	<i>Beta</i>	<i>t</i>
Step 1				
Pre memory-sharing warmth	.53	.11	.66	5.00***
Relationship satisfaction	.40	.30	.18	1.34
Positive affect $\Delta$	.29	.19	.11	1.54
Verbosity	.00	.00	.04	.53
Personal Significance Entered First				
Step 2				
Pre memory-sharing warmth	.61	.10	.75	5.97***
Relationship satisfaction	.12	.29	.06	.43
Positive affect $\Delta$	.18	.18	.07	1.01
Verbosity	.00	.00	-.01	-.14
Personal significance index	5.85	1.84	.24	3.18**
Step 3				
Pre memory-sharing warmth	.56	.11	.69	5.32***
Relationship satisfaction	.25	.30	.12	.85
Positive affect $\Delta$	.16	.18	.06	.89
Verbosity	.00	.00	-.01	-.16
Personal significance index	4.76	1.95	.19	2.44*
Gender	2.81	1.84	.11	1.53
Personal Significance Entered Last				
Step 2				
Pre memory-sharing warmth	.48	.10	.59	4.60***
Relationship satisfaction	.52	.29	.24	1.81
Positive affect $\Delta$	.22	.18	.09	1.22
Verbosity	.00	.00	.02	.33
Gender	4.44	1.79	.18	2.49*
Step 3				
Pre memory-sharing warmth	.56	.11	.69	5.32***
Relationship satisfaction	.25	.30	.11	.85
Positive affect $\Delta$	.16	.18	.06	.89
Verbosity	.00	.00	-.01	-.16
Gender	2.81	1.84	.11	1.53
Personal significance index	4.76	1.95	.19	2.44*

Note:  $R^2 = .70$  for Step 1. Personal significance entered first:  $\Delta R^2 = .04$  for Step 2,  $\Delta R^2 = .01$  for Step 3. Personal significance entered last:  $\Delta R^2 = .03$  for Step 2,  $\Delta R^2 = .02$  for Step 3. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Closeness. A summary of the hierarchical regression analyses for closeness in the relationship is presented in Table 9. Results are similar to those for warmth. As was the case earlier, the control variables account for a large majority of the variance,  $R^2 = .81$ .

Table 9. Summary of hierarchical regression analyses for post AM-sharing closeness: personal significance entered before and after gender.

	<i>B</i>	<i>SEB</i>	<i>Beta</i>	<i>t</i>
<b>Step 1</b>				
Pre memory-sharing closeness	.83	.07	.84	2.33***
Relationship satisfaction	.21	.17	.09	1.24
Positive affect $\Delta$	.11	.16	.04	.67
Verbosity	.00	.00	.05	.83
Personal Significance Entered First				
<b>Step 2</b>				
Pre memory-sharing closeness	.82	.06	.83	13.06***
Relationship satisfaction	.14	.16	.06	.88
Positive affect $\Delta$	.03	.15	.01	.22
Verbosity	.00	.00	.00	.05
Personal significance index	4.70	1.53	.17	3.07**
<b>Step 3</b>				
Pre memory-sharing closeness	.80	.06	.82	12.93***
Relationship satisfaction	.18	.16	.08	1.17
Positive affect $\Delta$	.00	.15	.00	-.01
Verbosity	.00	.00	.01	.12
Personal significance index	3.85	1.56	.14	2.47*
Gender	2.86	1.48	.11	1.93
Personal Significance Entered Last				
<b>Step 2</b>				
Pre memory-sharing closeness	.83	.07	.82	12.38***
Relationship satisfaction	.25	.16	.10	1.55
Positive affect $\Delta$	.00	.16	.02	.27
Verbosity	.00	.00	.04	.75
Gender	3.90	1.48	.14	2.63*
<b>Step 3</b>				
Pre memory-sharing closeness	.80	.06	.82	12.93***
Relationship satisfaction	.19	.16	.08	1.17
Positive affect $\Delta$	.00	.15	.00	-.01
Verbosity	.00	.00	.01	.12
Gender	2.86	1.48	.11	1.93
Personal significance index	3.85	1.56	.14	2.47*

Note:  $R^2 = .81$  for Step 1. Personal significance entered first:  $\Delta R^2 = .03$  for Step 2,  $\Delta R^2 = .01$  for Step 3. Personal significance entered last:  $\Delta R^2 = .02$  for Step 2,  $\Delta R^2 = .02$  for Step 3. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

When personal significance is entered in the model first, it accounts for an additional 3% of the variance,  $R^2 = .84$ ,  $F(1, 59) = 9.44$ ,  $p < .001$ . Adding gender to the model did not contribute (1%),  $R^2 = .85$ ,  $F(1, 59) = 3.72$ ,  $p > .05$ . When gender is entered first in the model, however, it accounts for 2% of the variance,  $R^2 = .83$ ,  $F(1, 59) = 6.91$ ,  $p < .05$ . Adding how personally significant the memories were also contributed significantly to the model. This memory characteristic increased the variance explained by another 2%,  $R^2 = .88$ ,  $F(2, 56) = 6.10$ ,  $p < .05$ , and gender no longer mattered. Thus, being a woman was an important predictor of post memory-sharing feelings of intimacy (both warmth and closeness). The quality of their memory (i.e., more personally significant), however, was better at explaining the extent to which intimacy was enhanced as a function of autobiographical remembering.

### **Summary**

Several memory characteristics were examined to determine whether they would predict intimacy gains after autobiographical remembering. In order for AM to foster intimacy, it is beneficial if the events being remembered and shared are about personally significant life experiences. This is elucidated when considering the extent to which the personal significance of the memory being shared predicts the *change* in intimacy from pre to post memory-sharing: it accounts for 20% of the variance for warmth, and 13% of the variance for closeness. Thus, not just any memory would do to serve the intimacy function of AM. Personally significant AMs led to greater changes in intimacy post AM-sharing. Although being a woman also influenced the extent to which intimacy was enhanced after remembering, it was something about the way that women remembered that mattered: they remembered more personally significant life events.

## CHAPTER 5 DISCUSSION

Theoretical work has long suggested that adults can use AM to serve a variety of social functions including fostering intimacy in relationships (Alea & Bluck, 2003). Empirical work substantiating these claims, however, has relied mostly on individuals' declaring (via self-reports) that they use memory in this way (Bluck et al., in press; Hyman & Faries, 1992; Webster, 1995). My study extended previous work by using an experimental design to investigate whether remembering meaningful relationship events did indeed enhance intimacy. This design involved independently assessing actual changes in felt intimacy (warmth and closeness) in romantic relationships after remembering times spent with one's partner (e.g., a vacation). Changes in intimacy, if any, after remembering non-autobiographical, but similar events (narrative text passages about relationship events), were used as a control. The study allowed for a conservative test of whether AM serves an intimacy function because changes in intimacy were examined at a micro-level: before and after individuals shared only two memories. As such, it represents a microcosm of how memory-sharing might occur in everyday conversation.

The discussion is organized in four major sections. In the first section, results showing that remembering events shared with a romantic partner can lead to increases in immediate feelings of felt intimacy (i.e., that AM serves an intimacy function) are reviewed. The influence of life-context variables (age and gender) is also highlighted through a discussion of why women appear to benefit from AM-sharing across a broader

range of intimacy dimensions. In the second section, the role of the quality and content of the memories ‘kept in mind’ is outlined: personally significant events appear to be crucial. The third section provides an interpretation of how basic affect is involved when AMs foster relationship intimacy. In the final section, limitations of the study are noted, and directions for future research on how AM fosters intimacy across adulthood are provided.

### **Autobiographical Memory Serves an Intimacy Function in Adulthood**

The primary aim of my study was to show that AM serves an intimacy function, as is theorized in the literature (Neisser, 1978; Nelson, 1993; Robinson & Swanson, 1990). I hypothesized that after remembering only two autobiographical relationship events, people would report experiencing more warmth in their relationship and feeling closer to their partner. The second aim of the study was to examine whether life-context variables, particularly an individual’s age and gender, influence how much intimacy changes after remembering. In general, results show that AM can be used for maintaining and fostering intimacy in relationships. This finding is qualified though by results showing that life-context variables, particularly gender, make a difference. Recall that intimacy was operationalized as both warmth and closeness. Findings concerning each are reviewed below, followed by an integration of why the aspect of intimacy being investigated might need closer attention when making claims about the intimacy function of AM.

### **Autobiographical Memory Fosters Warmth: Age and Gender Invariance**

Warmth in relationships was enhanced after remembering autobiographical experiences. This effect occurred across participants in the study, regardless of age and gender. That is, there was invariance across these adult age groups in the use of AM to foster warmth in meaningful relationships. Whether individuals had been in their

relationship for only a few years or for almost half a century, remembering relationship events led to greater feelings of warmth toward one's partner.

Finding no age difference in the efficacy of AM for enhancing warmth in relationships is important because of the role that maintaining intimate ties has on psychological and physical well-being across the adult lifespan. The stronger and more positive an individual's social network and social interactions are the better off their mental and physical health (Antonucci et al., 2002; Newson et al., 2003; Penninx et al., 1997). Thus, being able to use AM at any point in the lifespan to foster warmth may be beneficial not just for the relationship, but also (possibly through that relationship) for the individual's well-being. These results are thus encouraging, and make a contribution to the literature on social relationships in adulthood and late life. Autobiographical memory should be integrated as one of several possible mechanisms, in addition to emotional goals (Carstensen, 1993) and internal working models (Koski & Shaver, 1997) that are used across the lifespan to maintain warmth in relationships.

Based on the social developmental theories which suggest that maintaining strong relationships might be more crucial in late life (Carstensen et al., 1999; Lang, 2001), and work showing that individuals become more satisfied with their romantic relationships with age (Gilford & Bengtson, 1979; Markides et al., 1999), it was originally hypothesized that older adults would show greater gains in intimacy after AM-sharing. The function of AM would be consistent with their socioemotional goals. Thus, in terms of the lifespan psychology framework (Baltes, 1987), a gain for older adults was hypothesized, but instead stability was seen. Invariance across age groups, though unexpected, is also encouraging as much work on memory phenomena, particularly

performance, shows age-related declines (Zacks et al., 2000). When moving away from performance criteria and looking at AM function, however, stability seems likely. The use of AMs to serve a particular function, that is, to enhance warmth in relationships appears to be well-preserved in late life.

Based on these findings alone, however, it does not seem appropriate to abandon the search for possible age differences in the degree to which AM serves an intimacy function. In the self-report literature on memory function, Webster (1995, 1998) has shown in a series of studies that older adults are more likely than younger adults to remember loved ones who have passed away to maintain an intimate connection. My study was a direct examination of this assertion using thoughts about loved ones who are alive, but not physically present during remembering. My results suggest that the self-report literature may be misleading researchers to assume that the intimacy function of AM is generally more prevalent in older adults, when in fact it is that older adults are more likely to be bereaved (Fingerman & Birditt, 2003). Further work is thus necessary to understand the relation between using AM to foster warmth in relationships, and the relative importance of older adult's socioemotional goals (i.e., to maintain strong social ties) and current life experiences (i.e., becoming widowed).

### **Autobiographical Memory Fosters Closeness: Age Invariance for Women**

Another aspect of intimacy that was examined in my study was closeness. Overall (main effect) results did not support an intimacy function of AM. It is when life context is considered that findings show that AM can foster closeness. Women, regardless of age, reported feeling closer to their partner after sharing memories about relationship events.<sup>19</sup>

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<sup>19</sup> It is recognized that the Gender x Memory Condition interaction necessary to substantiate this claim only approached significance,  $p = .057$ . Given, however, that this

This heightened closeness was not experienced after they remembered non-autobiographical events. This finding is consistent with initial expectations about how gender might influence the extent to which AM serves an intimacy function. It was expected that both men and women would show gains in intimacy after autobiographical remembering, but that women might do so to a greater degree. Instead, findings suggest gains in warmth are experienced regardless of gender, but that women's gains in intimacy appear to be broader than men's: AM-sharing also increases closeness.

Why might women show broader gains in intimacy? One possibility is that the goal of closeness in romantic relationships is more consistent with women's life context. Women are more relational than men: they place a greater emphasis on doing things with others and on emotional communication in intimate relationships (Heller & Wood, 1998; Hook, Gerstein, Detterich & Girdley, 2003). This is not to say that men do not value maintaining intimacy in relationships. The warmth results refute that idea. Rather, it may be that maintaining intimacy in relationships is more congruent with women's social goals and thus they show broader gains in intimacy as a function of autobiographical remembering. Other work supports this interpretation: when asked why they use AM in everyday life, women self-report reflecting on the past to maintain intimacy in relationships more than do men (Webster, 1995).

A woman's more pronounced use of AM to foster intimacy in relationships is consistent with a growing body of literature regarding gender differences in AM in general. This suggests that possibly both women's social goals and the way they

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interaction is significant when controlling for changes in basic affect from pre to post memory-sharing, which is a more conservative test of the intimacy function of AM, it seems reasonable to interpret the effect here. The relation between closeness and basic affect is addressed in a latter section of the discussion.

remember influences the degree to which the intimacy function of AM is served. Women seem to be more skilled at, or at least place more emphasis on, remembering life events (Davis, 1999; de Vries & Watt, 1996; Pillemer et al., 2003). Women access AMs more quickly than men, especially when the memories are about emotional events such as intimate evenings spent with one's spouse (Davis, 1999). When asked to recall significant life events, women also report remembering more events than men (de Vries & Watt, 1996). Thus, women appear to place more emphasis on remembering autobiographical events in everyday life than do men, especially when those events are personally significant (i.e., likely consistent with social goals). My study suggested that women may also benefit in a broader way in terms of the extent to which intimacy is enhanced after remembering such events.

### **Considering the Aspect of Intimacy**

Multiple measures of intimacy were originally included in the study because intimacy is a multidimensional construct: it includes warmth and closeness, self-disclosure and communication, trust, and personal validation (see Hook et al., 2003). Here, relationship warmth (SMD, Osgood et al., 1957), and perceived levels of closeness in the relationship (PAIR, Schaefer & Olson, 1981) was measured. Original hypotheses did not differentiate across these dimensions. Theoretical work on the intimacy function of AM makes only general claims about intimacy, and provided no clues that warmth and closeness should be considered separately. These different dimensions of intimacy, however, yield slightly different results: regardless of age and gender, adults showed gains in warmth, but only women reported gains in closeness.

One reason for these different results is a straightforward methodological point. The measure of warmth, which was enhanced across the sample, is simply a more

sensitive measure than the measure of closeness. Effects would thus be easier to detect when warmth is being assessed than when closeness is measured. Both measures, however, were particularly chosen because both have been shown in previous work to be sensitive to short and long-term marital interventions and assessments (Hickmon et al., 1997; Karney & Bradbury, 1997). In my study, both measures also showed similar effect sizes from pre to post memory-sharing. Indeed, both measures were sensitive enough to show change, just not for all groups of people. Thus, measurement sensitivity, while a possibility, does not provide a parsimonious explanation of the results.

Another plausible explanation for the pattern of results is that warmth and closeness are more distinct aspects of intimacy than originally thought, and that these aspects are: (a) differentially affected by remembering relationship events and (b) differentially important for men and women. The two measures of intimacy are certainly related ( $r = .67$ ), but a closer examination of the items reveals how conceptually dissimilar they are. The SMD is a measure of affect in the relationship: participants rate how they feel about their relationship on a number of affect-related adjective pairs (e.g., empty - full, sad - happy). The measure of closeness (the PAIR) includes some emotional indicators of intimacy, but largely assesses behavioral and communicative aspects of the relationship (e.g., recreational, social, and intellectual). Such questions deal with the extent to which couples engage in joint activities (e.g., enjoying outings together or time spent with other couples) and discussions with one another (e.g., being able to express one's point of view). Given these differences, it is no surprise that the measure of warmth showed changes for everyone because it is about relationship emotions. In retrospect, it is quite surprising that the measure of closeness showed change at all! Why would a person

report feeling more intellectually close to their partner (i.e., report being able to share ideas with them), for example, after sharing an autobiographical event about a vacation? The extent to which the couple actually engages in talking to each other could not have changed during the study session. The results suggest that women, however, report that it has. Thus, in some ways women's increased closeness after AM-sharing can be seen as a bias: their subjective sense of closeness increases even though behavioral indicators of closeness could not have changed. What might be responsible for this effect?

Research shows that men and women conceptualize "intimacy" differently (Heller & Wood, 1998; Hook et al., 2003). A recent factor analysis of several measures of intimacy (including the PAIR), for example, revealed that both men and women define intimacy in terms of giving and receiving emotional support: emotion (i.e., affective warmth as measured here) is an aspect of intimacy that is important for both genders. Women, however, also think that being intimate with someone involves personal validation, which refers to sharing interests and understanding another person's needs (behavioral and communicative indicators of intimacy; Hook et al., 2003). These gender differences in what it means to be intimate with another person map on to the gender differences in my study. When warmth is assessed, all groups of people show changes after autobiographical remembering because warmth has a strong emotional component to it, and regardless of gender, intimacy is conceptualized in this way. Only women report change in closeness after autobiographical remembering because they tend to have a broader conceptualization of what it means to be intimate with someone. This conceptualization biases them to report changes in behavioral and communicate aspects

of closeness in the relationship after AM-sharing, and thus they experience broader gains in intimacy because of doing so.

### **Summary**

Having warmth and closeness in a relationship are two integral aspect of what it means to be intimate with another person. My study was the first to experimentally show that AM can enhance feelings of warmth in relationships and make people feel closer to a loved one. The extent to which AM serves to foster warmth in relationships is invariant across life context. This suggests that AM is one mechanism that can be used to maintain meaningful social relationships important for well-being in adulthood. Women's broader view of what it means to be intimate with someone might bias them to report changes in relationship closeness when none have actually occurred. This is a positive memory bias (Walker et al., 2003) that puts them at an advantage when using AM for maintaining intimacy in relationships.

### **Memory Quality and Content**

Keeping others in mind is not only influenced by life-context variables like gender, but also by memory characteristics. Not all events are encoded, or stored in one's mind: humans remember only selectively. Events that are remembered are likely to have particular qualities and be of a particular content (Linton, 1986). Thus, the third study aim was to examine whether memory quality or content influence the degree to which intimacy is enhanced as a function of autobiographical remembering.

That is, should we expect a relationship memory that is not particularly vivid or meaningful, like dropping your partner off at work last Thursday, to be remembered? Moreover, even if it were, would we expect sharing that AM to serve an intimacy function? Pillemer (1998) has suggested that AMs that are more vivid and emotional are

more likely to serve important social functions, like intimacy maintenance. My study is the first to examine whether the quality and content of AM influenced the degree to which a particular function of AM is served. Due to the exploratory nature of this study aim, hypotheses were speculative. In fact, however, a consistent pattern of findings emerged.

### **Personally Significant Memories Foster Warmth and Closeness**

Although three memory qualities were examined (positive re-experiencing, personal significance, and rehearsal), only one characteristic emerged as an important predictor of post AM-sharing feelings of warmth and closeness in relationships: personal significance of the event being remembered. As hypothesized, memories about more personally significant relationship events led to higher levels of intimacy (both warmth and closeness) after remembering.

This finding coincides with research showing that the personal significance of an event is related to how well it is remembered. For example, in their classic study, Brown and Kulik (1977) found that the more personally significant (what they called “consequential”) the JFK assassination was, the more likely a person was to form a flashbulb memory of that event. The influence of personal significance on memory has been recognized in several other studies that compare the memory of individuals who directly experienced tragic events, such as the terrorist attacks on the World Trade Center (Pezdek, 2003), versus those who are less directly involved in such events. Direct involvement, or greater personal significance, leads to more complete, vivid memories.

My study results extend the role of personal significance beyond the formation of flashbulb memories to everyday AM function: relationship events that are more personally significant for individuals foster greater intimacy in relationships. It is the

highly significant memories of our relationships, like a wedding day or a romantic getaway, which are kept in mind and used to keep intimacy alive through the years. It seems to be that women are more likely to remember and share these types of personally significant events because gender differences seen in the extent to which the intimacy function of AM is served is accounted for by this proximal memory characteristic. When the personal significance of the event being remembered is considered, there are no longer gender differences in the extent to which the intimacy function of AM is served. Thus, the initial hypothesis was supported and further clarifications based on life context (gender) were made. It was also expected that other memory qualities and memory content might play a role. Speculations about why they did not are briefly provided below.

#### **Positive Re-experiencing, Rehearsal, or Memory Content May Not Play a Role**

It was quite surprising that re-experiencing the positive emotion associated with remembering relationship events did not lead to higher post AM-sharing levels of intimacy. If I re-experience all the wonderful positive emotions associated with a relationship event while I am remembering it, then it seems that how I feel about my relationship should improve. Previous literature suggests that events that are particularly positive are better recalled than more neutral events (Walker et al., 2003), and are the ones that are remembered across a lifetime (Bernsten & Rubin, 2002; Cohen & Faulkner, 1988). Given evidence suggesting that emotionally re-experiencing an event is important for other aspects of recall, why was it not a memory quality that helped to enhance intimacy?

A statistical explanation was explored to answer this question. Positive emotional re-experiencing was related to changes in basic positive affect ( $r = .15$ ). Initial regression

analyses were thus rerun without change in basic positive affect as a control to ensure that positive re-experiencing of the event was not being statistically removed. Emotional re-experiencing still played no role in fostering intimacy. Given this conundrum, further exploratory analyses were conducted. These revealed that positive re-experiencing predicts not how much intimacy changes, but how much basic affect changes from pre to post memory-sharing.<sup>20</sup> That is, although re-experiencing positive emotions at the time of recall does not make people feel more intimate, it does affect current mood. Thus, emotional re-experiencing of past events plays a role in making people feel more positive in the present.

The role of rehearsal on the extent to which the intimacy function of AM would be served was unclear from the onset: no hypothesis was made. It was found that how often a relationship memory had been rehearsed in the past did not predict levels of intimacy (warmth or closeness) in the relationship after AM-sharing. This suggests that well-rehearsed AMs, those that are frequently thought about or talked about, are no more likely to increase intimacy than memories that have infrequently been thought or talked about. Thus, although rehearsal plays a critical role in leading to accurate (Bluck & Li, 2001) and vivid memories (Bohannon, 1988; Conway et al., 1994), its potential role in how AM functions to promote intimacy remains unclear.

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<sup>20</sup> Forward regression analyses were conducted controlling for pre memory-sharing levels of basic affect, general relationship satisfaction, and verbosity ( $R^2 = .77$ ). The memory quality and content variables were entered in the equation as predictors of post AM-sharing basic positive affect. Personal significance was again selected as the best predictor, accounting for an additional 3% of the variance. Positively re-experiencing the event was selected next, accounting for 2% of the variance. Neither rehearsal nor memory content predicted basic affect post AM-sharing.

There was a clear hypothesis about memory content. It was expected that expressing themes of communion in AMs would lead to greater changes in intimacy after remembering. Communal themes of love and affection, reciprocal dialogue, caring and helping for another person, and feelings of togetherness and unity with others (McAdams, 2001) were not predictive of post AM-sharing intimacy levels. Examining AM narratives for content themes is quite common in the personality literature (McAdams et al., 1996; McLean & Thorne, 2003; Woike et al., 1999), but only recently have suggestions been made about how memory content might influence memory function (Alea & Bluck, 2003; Pillemer, 1998). The results here suggest that the degree to which intimate content is expressed within an AM might not play a role, or that maybe the “correct” content has yet to be examined. After all, the content of the memories shared in my study were intimate by definition, that is, a vacation and romantic evening with one’s partner. Maybe more diversity in the content of the memory (e.g., remembering intimate versus events that are not intimate) would lead to differences in the extent to which AMs foster intimacy in relationships. A further examination of memory content is thus warranted.

### **Summary**

Autobiographical memory fosters warmth and closeness in relationships. The extent to which it does so, however, depends on the quality of the memory being shared. Results of my study suggest that it is not necessarily often repeated and reflected on memories that elicit emotional responses at the time of remembering that best serves to foster intimacy in relationships. Not even recalling memories in an intimate way seem to matter. It is recalling events that are personally significant, that is, especially meaningful events that lead to vivid memories, that keep relationships full of warmth and loved ones

close to one another. It was also found that remembering autobiographical relationship events makes people happier; that is, it serves to regulate their emotion.

### **Role of Basic Affect: Emotion Regulation**

Intimacy is a social or interpersonal emotion (Reis & Shaver, 1988), but there are also more basic emotions, like happiness and fear, that represent intrapersonal affective states (Magai, 2001). Results from my study suggest that remembering relationship events not only increases intimacy, but also leads people to experience more positive affect. Thus, AM appears to also serve a basic emotion regulation function.

The emotion regulation function of AM implies that people feel better after reflecting on the past (Cohen, 1998), and can regulate their emotions to a more positive affective state (affect optimization, Labouvie-Vief & DeVoe 1991). Only recently has this theoretical function of AM received self-report (Webster & McCall, 1999; Wong & Watt, 1991) and experimental support (Pasupathi, 2003; Pasupathi & Carstensen, 2003). Writing about an emotionally charged autobiographical event can, for example, improve basic affect (Burton & King, 2004; Pennebaker, Zech, & Rime, 2001). To what extent then are the changes in basic positive affect seen in my study related to whether intimacy is enhanced after AM-sharing?

Rerunning the major intimacy analyses controlling for change in positive affect from pre to post memory-sharing (emotion regulation) provided some insight. Accounting for emotion regulation highlights the intimacy function of AM for women: women experience higher levels of closeness in their relationships as a function of autobiographical remembering. When intimacy is conceptually similar to basic affect (as it is for warmth: a measure of relationship affect), however, both the intimacy function of AM and an emotion regulatory function seem to be occurring simultaneously.

Coming from an ecological perspective, the relation between the intimacy and emotion regulatory functions of AM is unproblematic: it shows how the functions of AM likely overlap in everyday life (Bluck, 2003; Cohen, 1998). Work has recently found that the functions of AM, while distinct, are also interrelated (Bluck et al., in press; Nelson, 2003; Webster, 2003). Pasupathi (2003, p. 151) provides a nice example of this overlap stating that, “remembering ‘how we met’ can strengthen and deepen a relationship, but also induce positive emotion.” Separating the functions of memory into social, self, and directive categories (Bluck & Alea, 2002; Cohen, 1998; Pillemer, 1998), or intimacy and emotion regulation (as done here), is useful for theory, and possibly necessary for controlled empirical research. It is perhaps however not a sophisticated enough approach to accurately model the simultaneity with which functions are served in the ongoing stream of life.

In summary, basic positive emotion is enhanced after remembering meaningful autobiographical relationship events. This emotion regulation function of AM can occur in conjunction with changes in warmth that occur after AM-sharing. Regulating ones emotions can also promote the extent to which gains in intimacy are experienced after autobiographical remembering. Thus, benefits of remembering personally meaningful relationship events include both intimacy enhancement and improvement in basic affect.

### **Study Limitations**

There were two types of limitations of my study: one involved the duration and size of the effects found, and the other revolved around the generalizability of the sample. These limitations are reviewed next.

### **Immediate and Small Effects**

The micro-analytic design used in my study undoubtedly offers several benefits not provided by the self-report measures that have previously been used to examine AM function. The design mimics an instance of AM-sharing in real life, providing ecological validity. This design, however, is also a drawback. It only allowed for examination of immediate changes in felt intimacy as a function of autobiographical remembering. That is, after immediate post memory-sharing assessments no longer-term follow-ups were conducted. Based on my study design, no conclusions can be made about how an instance of AM-sharing serves to foster intimacy over a more extended period of time. That said, I think that expecting long-term retention of increased intimacy after an instance of AM-sharing is a misinterpretation of what is meant by AM function, and the way it was examined here. The question is not how long will an AM function be served (i.e., will it last over time), but rather whether it is served or not (i.e., is it how AM is used), and if it is, to what extent is it served (i.e., is it adaptive; Bruce, 1989). Thus, the AM condition in my study was not a “treatment” expected to show long-term effects, but rather a demonstration of how AM might serve the function of intimacy maintenance as events are remembered in everyday life.

It is acknowledged as a limitation that changes in intimacy from pre to post memory-sharing were somewhat small based on statistical standards (Green & Salkind, 2003). A significant effect shows that AM can be used to foster intimacy in relationships. The small effects found in my study suggest, rather, that remembering only two meaningful relationship events is not fostering dramatic increases in intimacy in relationships; if it were, the effects would have been larger. Such large effects were not

necessarily expected a priori given the micro-analytic nature of the design: it is a rather conservative test of the intimacy function of AM, and effect sizes reflect this.

### **Generalizability of the Sample**

The generalizability of the sample in my study was also considered to be a limitation for two reasons. The first had to do with the majority of my study participants being Caucasian adults. The few studies that have been done examining AM in individuals of different ethnic backgrounds, have found some ethnic differences (Wang, 2004), and thus differences in using AM to foster intimacy in relationships by ethnicity might exist. The ethnic distribution of the younger adults in my study somewhat mirrors the ethnicity of the population in Gainesville, Florida, where my study took place. According to the 2000 Census (US Census Bureau, 2000), the ethnicities of Gainesville residents include 73.5% Caucasian, 19.3% Black, 5.7% Hispanic, 3.5% Asian and 1.4% reporting their race as “other”. Older adults (i.e., persons 65 years old or older) only make up 9.6% of the population in Gainesville. Thus, although recruitment occurred through various public agencies and avenues (e.g., churches and community centers), most of the older adults who volunteered were Caucasian. This is likely due to the limited number of older adults (of all ethnicities) in the Gainesville area. Thus, extending the results of my study to a variety of ethnic groups should be made with caution because of the limited diversity in the older adult sample, in particular.

A second limitation of the sample in my study is that there were only two age groups, young and older adults. The distribution of ages within these two age groups was quite good (i.e., not all young adults were in their 20s, and not all older adults were in their early 60s), but the exclusion of a middle-aged sample limits any conclusions made about how the intimacy function of AM might change across adulthood. It may be the

case that although young and older adults use AM to the same degree to foster intimacy in relationships (as was found in my study), middle-aged adults are less likely to use AM in this way than both young and older adults. That is, there may be a U-shaped distribution across the adult lifespan in using AM to foster intimacy in relationships that mimics the U-shaped distribution found for the level of satisfaction in intimate relationships in adulthood (Gilford & Bengtson, 1979). No conclusions can be made from my study results.

In sum, the limitations of this work are acknowledged, but must also be evaluated in the context of the study goals, design, and sample. Despite these limitations, the study makes a contribution to the literature on AM function, shedding light on AM-sharing as one way in which intimate ties might be maintained in at least two adult age groups. Of course, the study also leaves many questions unanswered, providing direction for future research.

### **Future Directions**

Much remains to be discovered about how AM serves social, self, and directive functions. The focus here, however, will be on future directions that specifically aim to understand how AM is used to fulfill social goals, such as intimacy maintenance and enhancement. Three future directions are proposed, including: (1) a discussion of the types of methods that might be used in future work to test the limits of when and how AM serves intimacy maintenance, (2) directions for better understanding the role of life-context variables, and (3) a call for research that more closely examines the influence of memory quality and content.

### **Methods for Examining the Intimacy Function**

Future work using diverse methods could prove to be informative as the experimental design used for my study provides new insight about how AM is used to foster intimacy in relationships. One simple direction is to move beyond an examination of positive memories, to also examine the role of negative events in using AM to foster intimacy. That is, participants in my study remembered only positive relationship events, even before direct instruction to do so (in pilot interviews). This positivity bias in AM (the tendency to recall positive over negative events) is quite pervasive (see Walker et al., 2003 for a review). It has been found for both men and women of all ages (de Vries & Watt, 1996), for memories that are self-selected and those that come to mind involuntarily (Bernsten & Rubin, 2002), and has been shown to sustain positive views of the self (Wilson & Ross, 2003) and one's relationships over time (Karney & Coombs, 2000). Even when negative events are remembered, the negative affect associated with them tends to fade faster over time than positive affect (Levine & Bluck, 1997; Pasupathi, 2003). Despite this positivity bias to remember positive life experiences, negative events do occur and are remembered: couples likely remember the good and the bad experiences they have shared. Thus, the role of negative memories in serving social functions of AM, like intimacy, needs to be addressed.

The next logical step would be to examine whether remembering negative events fosters or hinders intimacy in relationships. It is possible that remembering a negative relationship event would lead to lower levels of intimacy in the relationships (e.g., bitterness revival; Webster, 1995). Another possibility is that remembering a negative event that happened long ago could increase intimacy in relationships. Remembering negative events that have been resolved could increase intimacy as the person reflects on

all they have been through with their partner to get to where they are today (integrative reminiscence; Watt & Wong, 1991). Increased intimacy after remembering negative events might also occur as memory biases lead people to contrast current relationship satisfaction with the way it is remembered to be (Karney & Coombs, 2000). This simple change in methodology (i.e., conditions including both negative and positive memories) could be quite informative about the limits of AM for fostering intimacy in relationships.

### **Further Exploring Life Context Variables**

The second future direction involves further examining life-context variables (age and gender), and other individual difference variables. Obviously the gender differences found here needs to be replicated to determine whether women do indeed show broader gains in intimacy as a function of autobiographical remembering. Another interesting direction involves further exploring age differences and similarities in using AMs to foster intimacy in relationships. In everyday life, individuals have free reign to recall any number of events and to share memories as often as they like to fulfill social goals. Work has shown that older adults tend to identify more past significant experiences than younger adults, presumably because they have accumulated more (de Vries & Watt, 1996). The same might be true when using AMs about relationship events to foster intimacy. Since older adults have been in their relationships longer, they likely have a larger storehouse of memories, and can access and use these AMs more often in everyday life to maintain intimacy, or achieve other social goals. Thus, one way to search for age differences would be to use a methodology where the number of events shared is left to the participant's discretion. Presumably, the number of AMs shared would vary with the length of time the participant had been with their partner. Thus, older adults might recall more memories, and benefit to a greater degree in terms of intimacy gained.

Gender and age, however, are not the only life-context variables that are important to consider. Cultural context and individual differences in personality may also affect how AM is used. For instance, research has shown that individuals who are extraverted are more likely to use AMs for social purposes (Cully et al., 2001). Also, the cultural context in which an individual is embedded is likely to affect social goals, and limit or facilitate the use of AM in serving social functions (Nelson, 2003). Moreover, one's immediate social context, that is how responsive listeners are and who one is remembering with, can influence how events are remembered (Pasupathi, 2001), and possibly the extent to which intimacy is enhanced after remembering (see Alea & Bluck, 2003). These are a few future directions that would provide insight into the extent to which AM fosters intimacy in different contexts.

### **Further Examination of Memory Quality and Content**

Results from my study suggest that not all types of memories are likely to serve social functions to the same degree: not all AMs are created equal! That is, it was found that personally significant memories were the ones more likely to foster intimacy in relationships. This begs the question of whether personal significance is a memory quality important for all social functions of AM. For example, emotional re-experiencing, though not important for the intimacy function, may be absolutely necessary when using AMs to empathize with another person. Several phenomenological qualities of memory have already been identified (Larsen, 1998). The task for future research is to map the functions of AM with the memory qualities that are most influential for serving it. One way to explore this relation would be to instruct participants to remember and share event that vary in quality: have them recall their most significant and vivid memory, and a memory that is not particularly salient or vivid. Doing so could inform theory, so that

blanket statements about the social functions of AM are qualified by statement regarding memory quality (e.g., emotional memories are best for empathizing with others, and personally significant memories are best for maintaining intimacy).

This type of methodology would also likely lead to memories that are about different events (e.g., intimate versus not intimate), that is, have different content. Only one aspect of memory content was explored here: themes of communion. Although these themes did not predict the extent to which intimacy was enhanced after autobiographical remembering, there are a multitude of memory themes and content that could be explored. For example, autobiographical memories can be more or less emotional (Alea et al., in press; Farrar, Fasig & Welch-Ross, 1997; Kennedy et al., 2004) and it might be that basic emotional content is what fosters intimacy in relationships. Maybe, however, emotional content is relevant to using AM to empathize with another person, but not for maintaining intimacy. These questions still remain unanswered, but highlight the need to collect AM narratives in future empirical work on the social functions of AM.

### **Everyday Conclusion about the Intimacy Function**

Humans do not remember everything, but they recall huge amounts from their lives, and for long periods of time. Memories of life experiences come freely to mind: memories about loved ones stay with us for years. The ecological approach to AM asks why these events are remembered in everyday life. Why do I remember that hot summer day having lunch with my Abuelo when he wore his white guayabera as we sipped on margaritas together? Why does the image of being proposed to on the beach, during sunset, with my flip-flops kicked off and toes in the sand come so readily to mind? What purpose do such memories serve? They must serve a purpose, otherwise why would I

remember them? My study suggests that they serve an intimacy function: to sustain intimate connections among people.

Will these memories, however, stay with me over the years? Will the memory of being proposed to be one mechanism that serves to keep intimacy alive after 50 years of marriage for both my spouse and me? Results from my study suggest that these events will likely be remembered and continue to foster intimacy as they do today because they are personally significant, and because the intimacy function of AM appears well-preserved in adulthood. More work is needed to definitively answer these questions about the everyday use of AM. Study findings suggest, however, that memories of loved ones that we hold dear will remain with us throughout the years. They serve a function. They can be used now, and when we are older, to keep important people in mind and close in our heart.

APPENDIX A  
MEMORY QUALITY QUESTIONNAIRE

Directions: Think about the vacation that you remembered while answering the following questions.

1. When did this event occur? (month and year) \_\_\_\_\_

2. How significant or important is this memory to you? (circle one)

not at all	a little	somewhat	quite a bit	extremely
1	2	3	4	5

3. How memorable was this event for you? (circle one)

not at all	a little	somewhat	quite a bit	extremely
1	2	3	4	5

4. How vivid (or clear in your mind) is the memory you have for this event? (circle one)

not at all	a little	somewhat	quite a bit	extremely
1	2	3	4	5

5. Overall, how emotional was this event for you? (circle one)

not at all	a little	somewhat	quite a bit	extremely
1	2	3	4	5

6. Did this memory make you feel.... (circle one number for each emotion)

Happy?	not at all	a little	somewhat	quite a bit	extremely
	1	2	3	4	5

Sad?	not at all	a little	somewhat	quite a bit	extremely
	1	2	3	4	5

Afraid?	not at all	a little	somewhat	quite a bit	extremely
	1	2	3	4	5

Surprise?	not at all	a little	somewhat	quite a bit	extremely
	1	2	3	4	5

Angry?	not at all	a little	somewhat	quite a bit	extremely
	1	2	3	4	5



APPENDIX B  
INTERVIEW SCRIPTS

**Autobiographical Memory**

As I mentioned, we are interested in how people remember their own stories and other people's stories about the past. Today, we will be asking you to tell stories about your past.

We would like you to share stories about events that happened when you were with your spouse. We have chosen two events that we want you to remember and share today. We would like you to share a story about a memorable positive \_\_\_\_\_ you had with your spouse, and a story about a memorable positive \_\_\_\_\_ you had with your spouse.

Let's start with the \_\_\_\_\_.

I am going to give you some time to think about a \_\_\_\_\_ that you had with your spouse. During this time try to remember where you were, what you did, and what you were thinking and feeling. The story can be about something that happened years ago or more recently, as long as the memory is memorable and positive for you.

I will let you know when the time is up, and when you can begin sharing your story. Please continue thinking about this memory until I tell you to begin.

BEGIN TIME. When 2 minutes are up, stop and reset the stop watch and say:

Okay, let's begin.

TURN ON THE TAPE RECORDER. MAKE SURE THE RECORD LIGHT IS ON!

Please tell me everything you can remember about a \_\_\_\_\_ that you had with your spouse. Tell me about where you were, what you did, and what you were thinking and feeling.

BEGIN TIME. Let the participant talk for 10 minutes. Respond with interest, with facial expressions. Sounds that indicate you are listening are fine (e.g., oh, mm-hmm, yeah), but do not make any verbal responses (e.g., really, wow).

If the participant stops talking before 10 minutes is up, respond with the 3 probes below. Use all 3 probes for participants, even if the time is close to being complete (e.g., 9 minutes). If the participant says they are done and cannot remember anything else, and

are getting frustrated then do not probe further. If the participant is still talking and it has been 10 minutes, use the ending probe. Only use the ending probe after the 10-minute time limit has been reached.

Probe 1: Can you remember anything else about where you were, what you were doing, thinking or feeling?

Probe 2: Okay, do you think that is everything?

Probe 3: Is there anything else?

Ending probe: That is great. Time is just about up, is there anything else that you want to briefly tell me?

After probing completely and the participant stops talking: STOP TIME, then PAUSE the tape recorder. Write the participant's memory time on the Materials Checklist, Memory 1. Continue with the script.

Thanks for sharing that story. Let's move on to the \_\_\_\_\_.

Again, I am going to give you some time to think about a \_\_\_\_\_ that you had with your spouse. During this time try to remember where you were, what you did, and what you were thinking and feeling. The story can be about something that happened years ago or more recently, as long as the memory is memorable and positive for you.

I will let you know when the time is up, and when you can begin sharing your story. Please continue thinking about this memory until I tell you to begin.

BEGIN TIME. When 2 minutes are up, stop and reset the stop watch and say:

Okay, let's begin.

TURN ON THE TAPE RECORDER. MAKE SURE THE RECORD LIGHT IS ON!

Please tell me everything you can remember about a \_\_\_\_\_ that you had with your spouse. Tell me about where you were, what you did, and what you were thinking and feeling.

BEGIN TIME. Let the participant talk for 10 minutes. Respond with interest, with facial expressions. Sounds that indicate you are listening are fine (e.g., oh, mm-hmm, yeah), but do not make any verbal responses (e.g., really, wow).

If the participant stops talking before 10 minutes is up, respond with the 3 probes below. Use all 3 probes for all participants, even if the time is close to being complete (e.g., 9 minutes). If the participant says they are done and cannot remember anything else, and are getting frustrated then do not probe further. If the participant is still talking and it has

been 10 minutes, use the ending probe. Only use the ending probe after the 10-minute time limit has been reached.

Probe 1: Can you remember anything else about where you were, what you were doing, thinking or feeling?

Probe 2: Okay, do you think that is everything?

Probe 3: Is there anything else?

Ending probe: That is great. Time is just about up, is there anything else that you want to briefly tell me?

After probing completely and the participant stops talking: STOP TIME, then PAUSE the tape recorder. Write the participant's memory time on the Materials Checklist, Memory 2. Continue with the script.

### **Narrative Text**

As I mentioned, we are interested in how people remember their own stories and other people's stories about the past. Today, we will be asking you to re-tell someone else's story.

We would like you to share stories about events that happened to someone else when they were with their spouse. We have chosen two events that we want you to remember and share today. We would like you to listen to a story about a memorable positive \_\_\_\_\_ that a couple had together, and a memorable positive \_\_\_\_\_ that a couple had together, and then re-tell this couple's story.

Let's start with the \_\_\_\_\_.

I am going to give you some time to listen to a story about a \_\_\_\_\_ that a couple had together. During this time think about where they were, what they did, and what they were thinking and feeling. The story is about an event that is memorable and positive for the couple.

I will let you know when you can begin sharing their story.

**BEGIN THE TAPE RECORDER WITH THE NARRATIVE TEX PASSAGES ON IT NOW.** Make sure to use the correct tape (with either the vacation memory or the romantic evening memory first). Do not rewind the tape after the first passage is played, so that it will be ready for the next one. Stop the recorder when the first story is finished.

When the tape is finished with the first narrative passage, say...

Okay, let's begin.

TURN ON THE TAPE RECORDER TO RECORD THE MEMORY. MAKE SURE THE RECORD LIGHT IS ON!

Please tell me everything you can remember about the \_\_\_\_\_ that the couple had together. Tell me about where they were, what they did, and what they were thinking and feeling.

BEGIN TIME. Let the participant talk for 10 minutes. Respond with interest, with facial expressions. Sounds that indicate you are listening are fine (e.g., oh, mm-hmm, yeah), but do not make any verbal responses (e.g., really, wow).

If the participant stops talking before 10 minutes is up, respond with the 3 probes below. Use all 3 probes for participants, even if the time is close to being complete (e.g., 9 minutes). If the participant says they are done and cannot remember anything else, and are getting frustrated then do not probe further. If the participant is still talking and it has been 10 minutes, use the ending probe. Only use the ending probe after the 10-minute time limit has been reached.

Probe 1: Can you remember anything else about where they were, what they were doing, thinking or feeling?

Probe 2: Okay, do you think that is everything?

Probe 3: Is there anything else?

Ending probe: That is great. Time is just about up, is there anything else that you want to briefly tell me?

After probing completely and the participant stops talking: STOP TIME, then PAUSE the tape recorder. Write the participant's memory time on the Materials Checklist, Memory 1. Continue with the script.

Thanks for sharing that story. Let's move on to the \_\_\_\_\_.

Again, I am going to give you some time to listen to a story about a \_\_\_\_\_ that a couple had together. During this time think about where they were, what they did, and what they were thinking and feeling. The story is about an event that is memorable and positive for couple.

I will let you know when you can begin sharing their story.

BEGIN THE TAPE RECORDER WITH THE NARRATIVE TEXT PASSAGES ON IT NOW. It should be at the appropriate place for the second narrative passage. Stop the recorder when the second story is finished.

When the tape is finished with the second narrative passage, say...

Okay, let's begin.

TURN ON THE TAPE RECORDER TO RECORD THE MEMORY. MAKE SURE THE RECORD LIGHT IS ON!

Please tell me everything you can remember about the \_\_\_\_\_ that the couple had together. Tell me about where they were, what they did, and what they were thinking and feeling.

BEGIN TIME. Let the participant talk for 10 minutes. Respond with interest, with facial expressions. Sounds that indicate you are listening are fine (e.g., oh, mm-hmm, yeah), but do not make any verbal responses (e.g., really, wow).

If the participant stops talking before 10 minutes is up, respond with the 3 probes below. Use all 3 probes for participants, even if the time is close to being complete (e.g., 9 minutes). If the participant says they are done and cannot remember anything else, and are getting frustrated then do not probe further. If the participant is still talking and it has been 10 minutes, use the ending probe. Only use the ending probe after the 10-minute time limit has been reached.

Probe 1: Can you remember anything else about where they were, what they were doing, thinking or feeling?

Probe 2: Okay, do you think that is everything?

Probe 3: Is there anything else?

Ending probe: That is great. Time is just about up, is there anything else that you want to briefly tell me?

After probing completely and the participant stops talking: STOP TIME, then PAUSE the tape recorder. Write the participant's memory time on the Materials Checklist, Memory 2. Continue with the script.

APPENDIX C  
NARRATIVE TEXT PASSAGES

**A Vacation**

Bob and Sally were excited about their first visit to the Grand Canyon. Bob had wanted to see the Grand Canyon since his boyhood days in Topeka. Sally had seen the Colorado Rockies several times and the California coast once, but this would be her first trip to Arizona. Their drive from Topeka, Kansas was cool and comfortable. The first night they stayed in Garden City, Kansas, where Bob's brother lives. The next night they stayed at a motel in Gallup, New Mexico. On the third day they drove through the beautiful Petrified Forest National Park. Sally was enchanted by the Navajo Indians. They arrived at the South Rim of the Grand Canyon in late afternoon. Bob and Sally couldn't wait to see what this marvel of nature looked like up close. They weren't disappointed. They were dazzled by the depth and breadth of the canyon. Bob's eyes moved from the raging Colorado River below, which looked like a trickle, to the distant northern rim. On their first day Bob and Sally rode mules down to the river at the bottom. They spent part of the day talking with a tour group from Phoenix. Then they went with several of them on a short hike. The next day Bob and Sally had a picnic near a ranger station. The weather each day was beautiful, with warm temperatures and very dry air. They were glad that they waited until September to take their vacation. Summer in Arizona is too hot and the crowds at the Grand Canyon are too thick.

### **A Romantic Evening**

Jim surprised Theresa with an evening in Washington, D.C. to attend the Fourth of July celebration. Although he had gone to the celebration a few times, Theresa had never been before, and had always wanted to go. He packed a picnic lunch for the two of them, and they drove from their home in Alexandria, Virginia. Although they lived across the Potomac River from Washington for a few years, they had rarely visited the historical sites. Today Jim packed fried chicken, fresh bread, peaches, and a bottle of New York wine. They drove up Highway 1, across the bridge. The area around The Mall was very crowded, so they parked about ten blocks north of it. It seems like more people than ever had come for the festivities today. They browsed among the artisans' displays, souvenir booths, and food stands. There were hordes of people playing Frisbee on the lawn, while waiting for the concerts to start. Jim and Theresa were looking forward to the concerts. Afterwards, they watched the fireworks over the Washington Monument. On that day, the fireworks seemed to have a special significance. It was a celebration of both the independence of America and their relationship. They had been together for years, now. The concerts were beautiful, the fireworks spectacular, and the people were friendly. Jim and Theresa were so impressed that they decided to make it a yearly tradition.

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## BIOGRAPHICAL SKETCH

Nicole Alea's academic and research interest in aging began as an undergraduate at the University of Florida. She graduated with honors, earning a B.S. in psychology, with a minor in gerontology. She remained at the University of Florida for graduate studies, joining the developmental area in the Department of Psychology. She completed her M.S. in August 2000, simultaneously earning a Graduate Certificate in Gerontology. She has also completed the required courses for a Social Science Methodology Graduate Certificate, and is a trainee in the NIA-funded Aging Training Program at the University of Florida. Nicole completed the requirements for her Ph.D. in August 2004, and then joined the faculty in the Department of Psychology at the University of North Carolina, Wilmington, as an Assistant Professor. She will be teaching adult development and aging courses, and continuing her program of research.

Nicole's research interests involve understanding how cognition and social contexts interact across the adult lifespan to promote (or hinder) successful aging. Her early research examined how social context is used as a resource to compensate for declines in cognition in later life. More recently, her work involves exploring how everyday cognition, particularly autobiographical memory, serves as a resource in social situations across the adult lifespan. That is, how memories of personal experiences are used in everyday life to serve social functions. As manager of the Life Story Lab, Nicole has worked closely on these projects with Dr. Susan Bluck. This work has been presented at

national and international conferences, and is published in scholarly journals, such as *Experimental Aging Research*, *Journal of Adult Development*, and *Memory*.

Nicole Alea has been funded through a variety of mechanisms during her graduate studies, including a Pre-doctoral Fellowship from the National Institute of Child Health and Human Development (awarded to the developmental area of the Department of Psychology), and a Provost's Award in Aging Graduate Research Fellowship from the University of Florida. A Ruth L. Kirschstein National Research Service Award from the National Institute on Aging funded Nicole's dissertation project.