

AUTOBIOGRAPHICAL MEMORY SHARING IN EVERYDAY LIFE: WHO TELLS
BETTER STORIES?

By

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To my loving and supportive friends and family

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Abstract of Thesis Presented to the Graduate School
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Storytelling is a ubiquitous human activity that occurs in everyday life. Remembering details and remaining on-target have been suggested as two aspects of a 'good' story. This study addresses an inconsistency in the literature: some studies show that older adults are less likely to recall details and more likely to go off-target when sharing memory stories, but other findings show that older adults receive higher peer evaluations of global story quality. To examine this discrepancy, actual autobiographical memory stories and fictional stories (as a comparison) recalled by younger and older adults were content-coded for two memory story characteristics: level of detail and off-target responding. Stories were also evaluated for global quality by peer raters. Results show age and gender differences in memory story characteristics and global quality across autobiographical memory and fictional stories. Age and gender, however, do not predict the global story quality of autobiographical memory stories. Telling better autobiographical memory stories is governed by characteristics of the story not necessarily the characteristics of the person sharing them.

CHAPTER 1 INTRODUCTION

Background

Storytelling is a ubiquitous human activity (Dunbar, 2005; Swearingen, 1990) that appears across cultures (Freeman, 2001; Strawbridge, 2005; Wang, 2004). It occurs in a variety of everyday circumstances and can include sharing autobiographical memories or, less frequently, recalling non-autobiographical stories (e.g., parables, fables, and jokes). In this study, the focus is on autobiographical memory stories because they are most commonly shared in daily life. Individuals of all ages, after about five years old (Nelson & Fivush, 2004), tell autobiographical memory stories. The current study focuses on differences and continuities between younger and older adults.

Telling autobiographical memory stories may certainly be entertaining but the serious study of such stories is also gaining momentum due to their psychosocial functions (McAdams, 2003). Sharing autobiographical memory stories is a unique social behavior that is theorized to serve three broad functions: intrapersonal, interpersonal, and directive (i.e., setting future goals and plans) (Bluck, 2003; Bluck & Alea, 2002; Cohen, 1998). More specifically, telling autobiographical memory stories may serve particular functions such as self-definition (Habermas & Bluck, 2000), and developing and maintaining social bonds (Nelson & Fivush, 2000) in individuals of all ages (Pillemer, 1998). These theorized functions of sharing autobiographical memory stories have begun to receive empirical support (e.g., Bluck, Alea, Habermas & Rubin, 2005; McLean, 2005; Webster & Cappeliz, 1993).

Since autobiographical memory sharing is theorized to serve important functions, one might expect that research has focused on how to tell a good or effective memory story. In the

following review, two characteristics (level of detail and on-target responding) of a ‘good’ memory story are discussed. Are older adults’ memory stories more likely to have these two characteristics? To answer this question, research on age differences in level of detail and age differences in off-target responding are presented. Finally, age differences in global story quality are reviewed and the research objectives of the current study are outlined.

What Are the Characteristics of a Good Story?

If one can captivate and inform the listener, his or her shared memory stories may be more likely to serve socio-emotional functions (Alea & Bluck, 2006; Pasupathi, Stallworth & Murdoch, 1998). Some research has suggested the likely characteristics of a good memory story. For example, memory stories that contain vivid details are more likely to be perceived as captivating and engaging (Pillemer, 1998). Of course, telling memory stories that are burdened with descriptive details is inappropriate in some contexts (e.g., first introductions) and may prove boring. In addition, memory stories that do not adopt the social conventions of brevity and relevancy (i.e., remain on-target) are viewed negatively as violations of conversational maxims (Grice, 1975). Going slightly off-target in order to elaborate or emphasize a point, however, or to make an interesting aside, can be important for clarity when sharing a memory story (Pillemer, 1998). Despite qualifications, the literature suggests that stories with high levels of detail and that are on-target are ideal.

Do Older Adults Tell Good Stories?

The literature provides inconsistent information about whether older adults tell good stories. Compared to younger adults, older adults are poorer at recalling fictional story details (Adams, et al., 1990), and tend to stray off-target more (e.g., Arbuckle & Gold, 1993). On the other hand, when focusing on global story quality rather than particular story characteristics (i.e.,

level of detail, remaining on-target), findings show peers rate older adults' stories as higher quality than younger adults' (Pratt & Robins, 1991). To further examine whether older adults should be expected to tell good stories, available evidence concerning age differences in recall of detail, remaining on-target, and global story quality are reviewed below.

Age Differences in Recall of Detail

One quality of a good story is the ability to remember and relate details of what happened and to whom (Pillemer, 1998; Ross, Buehler & Karr, 1998). Researchers have investigated age differences in the recall of detail in non-autobiographical essays and fictional stories. Results suggest that younger adults excel at recalling the details of stories whereas older adults do not. Adams and colleagues (1990) investigated level of detail in recall in four age groups (early adolescence, late adolescence, middle adulthood, and late adulthood). Participants were given two types of texts (i.e., fiction or non-fiction) and were asked to recall the passages after a short delay. The older adult groups (i.e., middle and late adulthood) were more likely to report the gist of the story, whereas younger adult groups (i.e., early and late adolescence) reported more details. The results suggest that individuals in middle and late adulthood are more likely to report the integrative gist, and younger individuals have a more literal, detailed recall style. A review of this research suggests that older adults may use a more selective process in which attention is directed at integrative or gist recall instead of at producing detailed accounts (Adams, 1991).

The reviewed research has a methodological limitation: it relies on experimenter-generated, non-autobiographical fictional stories that are then interpreted as analogues of autobiographical memory stories. The current study examines age differences in level of detail in both recalled fictional and actual autobiographical memory stories, and relates the level of detail

found in stories to peer evaluations of global story quality to determine whether level of detail is a crucial element of a good story.

Age Differences in Off-target Responding

A second quality of a good story is remaining on-target during the narrative without wandering onto other topics or providing irrelevant information. Several studies have investigated whether older adults' produce more off-target responses than younger adults. There are two main approaches to studying off-target responding: off-target verbosity (OTV) and off-target speech (OTS).

Based on the Inhibitory Deficit Model, Arbuckle and Gold (1993) have conducted research to quantify levels of older adults' OTV. According to this model (Hasher & Zacks, 1988), older adults have impaired inhibitory processes that are fundamental to language production. These inhibitory processes decline with normal aging: older adults' ability to suppress irrelevant information decreases. As a result, older adults produce greater amounts of irrelevant information when speaking because they are less efficient at suppressing extraneous information once it is activated (Zacks, Hasher & Li, 2000).

Arbuckle and Gold (1993) conceptualize OTV as abundant speech that lacks focus, and contains loosely connected recollections. In several studies, in order to investigate the extent to which older adults (age range: 60-90+ years; no younger adult group) tend to go off-target, participants' brief spoken responses to a standard life history questionnaire (i.e., specific responses to standardized questions about educational, occupational, and social domains) were analyzed. Item verbosity (i.e., the number of questions producing any off-target information) and extent verbosity (i.e., the degree of off-target information) were coded: results show that both

increase with age. This research suggests that across later life, older adults increasingly stray off-target in providing open-ended responses.

Other researchers have based their studies of older adults' off-target speech (OTS) on a different model. According to the Pragmatic Change Hypothesis (Giles & Coupland, 1991), younger and older adults select different speech styles because they hold different communicative goals (Boden & Bielby, 1983; Giles & Coupland, 1991). This contrasts with the approach taken by Arbuckle and Gold because age-related deficits are not an important factor in this model. Instead, age differences reflect life-phase changes in communication style.

Besides their different theoretical orientation, James and colleagues' research (James, Burke, Austin & Hulme, 1998) also addresses a limitation of Arbuckle and Gold's (1993) previous work through the inclusion of a younger adult comparison group. In addition, participants provided open-ended narratives in order to address limitations of the brief response format used in the OTV research (i.e., responses to narrow, scripted questions about one's life). The use of open-ended recall provides speech samples more similar to everyday conversation. Off-target speech is defined (similar to OTV) as verbalization with meaning that is not directly relevant to the topic.

James and colleagues (1998) investigated OTS in younger adults ($M = 19.4$ years, $SD = 1.2$) and older adults ($M = 73.1$ years, $SD = 4.2$) to determine whether OTS occurred in open-ended responses to life history questions (e.g., describe your education) as well as to open-ended fictional stories the participants generated in response to experimenter-provided pictures. The life history and picture narratives were coded for number of words in phrases considered off-target. Off-target phrases were then coded as indirectly relevant (i.e., somewhat relevant to topic), or irrelevant (i.e., no identifiable connection to topic). Older adults showed higher levels

of OTS (both indirectly relevant and irrelevant) than younger adults in life history narratives but not in the fictional stories generated from pictures.

In sum, on this measure of good story quality, remaining on-target (OTV or OTS), older adults perform worse than younger adults, particularly when producing personal information. The OTS research extends original OTV findings by showing that off-target responding is not only evident in brief responses but also in open-ended narratives. In both areas, however, researchers fail to explore whether actual episodic autobiographical memories (i.e., the type of memory stories that people recall and share in everyday life) differ by age group in level of off-target responding. Off-target responding may actually be somewhat useful, especially when sharing an autobiographical memory story: it may serve the purpose of providing important background information that is useful for the listener's interpretation of the story. The current study examines off-target responding in episodic autobiographical memory stories, and relates levels of off-target responding to global story quality.

Global Story Quality

Conceptualizations of story quality differ across disciplines including psychology, linguistics and communication studies (James, et al., 1998; Kelly, Night, Peck & Reel, 2003; Schneider & Winship, 2002). These different conceptualizations attest to the fact that it is difficult to objectively identify the dimensions that comprise a high quality or 'good' story. Despite this difficulty, research has examined global quality of a variety of story types. One aim of the current study is to investigate age differences in the global story quality of autobiographical memory stories (as compared to recalled fictional stories). Previous research on age differences in story quality reviewed below, serves as a model for the current research.

Age Differences in Global Story Quality

The literature reviewed earlier shows that older adults recall fewer details than younger adults, and stray off-target more frequently. Thus, an informed hypothesis (based on that literature) is that older adults' stories should be rated as inferior overall to stories told by younger adults. Research however, suggests the contrary. According to peer evaluators, older adults tell better quality stories than younger adults (e.g., James et al., 1998; Pratt & Robins, 1991; Ryan, Kwong See, Meneer & Trovato, 1992).

James and colleagues (1998) investigated global story quality by obtaining 20 peer ratings of younger and older adults' narrative responses to questions about their life. Story narratives were rated on five dimensions: interest, informativeness, clarity, focus, and story quality. Older adults' stories were rated higher on story quality, interest, and informativeness than were younger adults' stories. Younger adults' stories were only rated higher in clarity and focus. Thus, on several dimensions of story quality, older adults' stories receive higher peer ratings.

Pratt and Robins (1991) investigated age differences in global story quality by examining whether late adulthood represents a particularly specialized life phase for sharing stories. In this study, autobiographical stories were obtained from 20 participants in each of three age groups: 18-25 years, 26-55 years, and 60-87 years. Twenty-six adult peer raters judged the stories on several dimensions: interesting, dramatic, vivid, humorous, and clear. They also evaluated whether the story included a good description and made a point. These dimensions were collapsed to create an overall story quality index. The narratives of the oldest group were rated as being significantly higher in quality than those of the youngest group. The middle-aged group did not differ from either younger or older adults.

Ryan and colleagues (1992) did not explicitly examine global story quality, but people's beliefs about whether older or younger adults tell better stories. Younger (aged 18-40 years) and older (aged 61-88 years) adults completed a questionnaire assessing adults' language use in social context, including storytelling. Participants answered questions about their generalized view of typical adults aged either 25 years or 75 years. Findings show that the participants (both younger and older adults) believe that older adults produce better stories than younger adults.

In sum, whether using a variety of dimensions or using overall assessments of global story quality, results consistently show that older adults tell better stories. These differences also hold up when investigating story quality across late adulthood (Kemper, Rash, Kynette & Norman, 1990). That is, in one study, 10 adult raters judged the global story quality of three groups of older adults' (28 aged 60-69 years, 22 aged 70-79 years, and 12 aged 80-90 years) narratives (i.e., re-telling of a children's story chosen by the participant). The raters assessed the narratives for global story quality on a seven-point scale ranging from *very bad story* to *very good story*. The stories told by the old-old group (80-90 years) were rated higher than those told by the young-old group (60-69 years) but did not differ from the middle-old group. Age appears to play a role in story quality even across late life.

Although previous research has sometimes included a variety of dimensions for evaluating story quality, the current project employs a single dimension: global story quality. The rationale for this approach is to capture peer raters' implicit views (Sternberg, 2005) of a good story (i.e., the conception that is carried by the individual in everyday life of what constitutes a good story). To avoid biasing the mental set of the raters as to what a good story entails, experimenter-generated dimensions were not included. For example, dimensions used in previous research did not always fully capture what laypersons¹ consider a good story (e.g., must

it always be humorous?). Rather than including or omitting particular dimensions of story quality a priori, one global dimension was employed. Other research has relied on a single overarching dimension of global story quality (e.g., James, et al., 1998), and researchers who measure various dimensions often collapse these into an index of global story quality (e.g., Pratt & Robin, 1991).

Present Research

In direct contrast with research on age differences in level of detail and off-target responding, findings concerning global story quality suggest that older adults tell better stories than younger adults. As a result, the current literature is inconsistent regarding whether older adults tell better memory stories. The current study has two major objectives. The first objective is to examine established claims concerning age differences in recall of story details, level of off-target responding, and global story quality using ecologically valid materials (i.e., the common type of story shared in everyday life, that is, episodic autobiographical memory stories). The current study compares autobiographical memory and recalled non-autobiographical (i.e., fictional) memory stories told by younger and older adults.

Level of detail. Research suggests that older adults recall fewer details of fictional stories than do younger adults (e.g., Adams, Labouvie-Vief, Hobart & Dorosz, 1990). This study aims to replicate the finding that older adults' fictional stories contain fewer details than younger adults, and to examine whether this effect holds for actual episodic autobiographical memory stories. It is hypothesized that older adults' memory stories will contain less detail than younger adults' regardless of story type (i.e., autobiographical memory stories or fictional stories).

Off-target responding. Research has shown that older adults produce more off-target information than younger adults in response to specific interview questions (e.g., Arbuckle & Gold, 1993). This study investigates whether there are differences in younger and older adults'

level of off-target responding when recalling autobiographical memory stories as compared to fictional stories. Based on available evidence, it is predicted that older adults will show higher levels of off-target responding than younger adults in recounting autobiographical memory stories but not in fictional stories.

Global story quality. Researchers have found that peers rate older adults' memory stories as having higher global quality than younger adults' memory stories (e.g., James, et al., 1998). Does this effect depend on the type of memory story being told? This study aims to determine whether older adults' memory stories are rated more favorably than younger adults' memory stories, regardless of whether the memory stories are autobiographical or are simply retellings of fictional stories.

The second objective of this investigation is to bridge research that suggests older adults are worse than their younger counterparts at remembering details of recalled events and remaining on-target, with findings showing older adults' memory stories are evaluated as having higher quality than those of younger adults. The current research addresses that inconsistency by examining all of these constructs in a single study. It is hypothesized that older adults' memory stories will be rated higher in global story quality than younger adults. Further, it is hypothesized that level of detail and level of off-target responding will both be predictors of global story quality in autobiographical memory stories. Specifically, autobiographical memory stories with a high level of detail will predict global story quality. Additionally, memory stories with moderate off-target responding may predict global story quality, whereas those with excessive off-target responding may affect the story negatively. Age group is also expected to be a predictor of global story quality (above and beyond level of detail and off-target responding) in autobiographical memory stories. Determining whether age, level of detail, and off-target

responding predict global story quality helps to resolve the literatures' inconsistency by establishing the relative role of age and other factors associated with global story quality in the type of memory story shared in everyday life.

CHAPTER 2 EXPERIMENT

Method

These data were collected as part of a larger study that experimentally examined changes in several outcome variables in pre and post memory-sharing (Alea & Bluck, 2004). The narratives of the shared memory stories comprise the data used in the current study. The study is a 2 (age group: younger and older adults) X 2 (gender) X 2 (type of memory story) design. Type of memory story is a between-subjects factor: half of the participants recalled an autobiographical memory story and the other half recalled a fictional story. The fictional story condition was used as a comparison task. Participants in both conditions recalled the same topic: a romantic event.

Participants

There were 129 participants in the study. Younger adults (32 men, 32 women) ranged in age from 19 to 39 years old ($M = 27.94$ years; $SD = 4.84$). Seventy percent of the younger adults were Caucasian, 10.9% were Hispanic, 9.4% were Asian, 7.8% were Black, and 1.9% reported his or her race as 'other'. Older adults (33 men, 32 women) ranged in age from 64 to 86 years old ($M = 74.66$ years; $SD = 6.05$). Of the older adults, 97% were Caucasian, 1.5% were Black, and 1.5% were Asian. The ethnic composition of the sample generally mirrors the ethnicity of the population where the study was conducted, in Gainesville, Florida (US Census Bureau, 2000).

Participants were recruited from several sources. Most of the younger adult sample was recruited from on-campus housing and university graduate and professional programs. These participants received \$10 for participation. A small number of the younger adults were recruited from the psychology department's participant pool and received research credit. The older adults

were recruited from several community locations (e.g., churches and community centers) and through publications in local newspapers. They received no compensation.

Prior to participating in the study, older adults were screened using a modified telephone version of the Mini-Mental State Examination (ALFI-MMSE; Roccafort, Burke, Bayer & Wengel, 1992). Only those individuals scoring at least 16 out of 21 were invited to participate. This excluded individuals with a level of cognitive impairment that may have affected their ability to participate in a study involving memory.

To determine whether this sample demonstrated typical age-related differences, cognitive functioning was assessed (Schaie, 1994). As is typical, older adults ($M = 30.65$, $SD = 5.00$) had better vocabulary scores than younger adults ($M = 27.61$, $SD = 4.66$), $t(127) = 3.57$, $p < .001$. Performance on the WAIS-R reasoning subscale was also typical: younger adults correctly completed more problems ($M = 14.53$ problems; $SD = 5.24$) than older adults ($M = 8.09$ problems; $SD = 3.73$), $t(125) = 7.95$, $p < .001$, and made fewer errors (young: $M = 1.53$ errors, $SD = 3.07$; old: $M = 3.13$ errors, $SD = 2.68$), $t(125) = 3.12$, $p < .01$. Using an immediate recall version of the Auditory Verbal Learning Task (AVLT; Rey, 1941) younger adults correctly remembered more words ($M = 8.91$ words; $SD = 2.12$) than older adults ($M = 7.23$ words; $SD = 1.94$), $t(127)$, $p < .001$. There were no age differences for the number of errors of commission or repetitions, $t(127) = 1.54$ and $.83$, $p > .05$. Thus, the sample seems typical with respect to cognitive function. The cognitive variables were not used as covariates in the major analyses, however, because they were highly related to age, but unrelated to the major dependent variables (Stevens, 1996).

Procedure

Participants were tested individually in a comfortable home-like interview room. The order of presentation of preliminary measures was the demographics and health questionnaire followed by measures assessing episodic memory ability, verbal ability, and reasoning ability. These measures were employed to collect background information, and to test for typical age-related cognitive differences.

Following this, participants were randomly assigned to one of two memory story conditions. The memory story portion of the session was audio taped. The story recall session consisted of remembering and telling an autobiographical memory story or recalling a fictional story about a romantic event. This topic has been previously used in the autobiographical memory and fictional narrative recall literatures (e.g., Dixon & Gould, 1996; Ross & Holmberg, 1992) and provides an event that is likely to have been experienced by both younger and older adults. Memory stories were shared orally to a young female interviewer trained to act as an interested listener in order to best reflect the conditions of sharing autobiographical memory stories in everyday life. Condition descriptions are provided in more detail below.

Autobiographical Memory Story Condition. Participants were given three minutes to remember and think about the autobiographical memory story that they would like to share. This time limit was used to give participants ample time to recall an event, and so that the recall sessions across the two conditions used a standard time frame (the fictional story was three minutes long). Participants were asked to narrate a meaningful memory story for a romantic event they shared with their partner, and to tell the interviewer everything they could remember about it. Participants were given up to 10 minutes to recall and narrate the memory story. A maximum of 10 minutes was selected because it reflects the amount of time an individual might

take telling a memory story in everyday life. Three standard probes were used to elicit full recall.

Fictional Memory Story Condition. The fictional story condition served as a comparison to the autobiographical memory story condition. A fictional passage from a battery of standard stories developed for use in narrative memory research with older adults was used (Dixon, Hultsch & Hertzog, 1989). The fictional story is written in a colloquial style and describes a romantic episode including information about the character's intentions, plans, evaluations, outcomes, and behavior. Younger and older adults have reported that these narratives are moderately emotional stories, elicit positive feelings, and are somewhat interesting and true-to-life (Dixon, et al., 1989). The three-minute fictional story was presented to the participants via audiotape. After hearing the story, the participants immediately were given up to 10 minutes to recall and narrate it. Participants were instructed to recall the story that they just heard and to tell the interviewer everything they could remember. Three standard probes were used to elicit further information. Directions were identical to those given in the autobiographical memory story condition, except that they referred to remembering the fictional story. When participants had completed their memory recall session, they were administered the Memory Quality Questionnaire.

Measures

Screening. A modified telephone version of the Mini-Mental State Examination was employed to assess cognitive status (ALFI-MMSE; Roccafort, et al., 1992). Participants respond to questions regarding their orientation in time and place, and questions that tap into cognitive status (e.g., How do you spell W-O-R-L-D, backwards?). Scores on the ALFI-MMSE range from 0 to 21, with the average for 'non-impaired' individuals being 17.

Background Variables. Various measures were administered to collect basic background information and to assess typical age-related differences in health and cognitive ability in the sample, and to assess phenomenological qualities of the shared memories.

Demographics. A general demographic questionnaire assessed basic demographics such as age, gender, and ethnicity.

Health. Self-rated Health Status (Maddox, 1962) relies on a single item concerning perceived health ranging from 1 (*very good*) to 6 (*very poor*) on a standard Likert-type scale. Adults report the level that best describes their health in relation to other people their age.

Episodic memory. The Auditory Verbal Learning Task (AVLT; Rey, 1941) was administered. Participants listen to 15 semantically unrelated words and are then asked to immediately write down as many of the words as they can remember. In this study, only one trial of the AVLT was used to provide a quick test of typical age-related differences in episodic memory. The ALVT score is the number of correct words remembered out of 15.

Reasoning ability. Reasoning ability was assessed using the Primary Mental Abilities letter series task (Thurstone, 1962). The task involves a timed sequence of letter series completion items that increase in level of difficulty as the task progresses. Scores reflect the number of correct series completed.

Verbal ability. Verbal ability was assessed with the vocabulary subscale of the Wechsler Adult Intelligence Scale – Revised (WAIS-R; Wechsler, 1981). Participants define a list of words (e.g., breakfast, travesty) one word at a time. The words increase in level of difficulty as the task progresses. The number of correctly defined words was scored. Two coders reached 90% agreement ($n = 24$), Kappa = .80.

Memory qualities. Participants completed a Memory Quality Questionnaire for their shared memory. The questions were altered slightly, where needed, so that items reflected the appropriate type of memory (autobiographical memory versus fictional story). Only the qualities of participants' autobiographical memories were examined in the current study. Previous analyses suggest these items form three factors: emotional re-experiencing, personal significance, and rehearsal (Alea & Bluck, 2006).

The *emotional re-experiencing* subscale represents the extent to which individuals reported being able to re-experience the *positive* emotion they felt at the time of the event. The scale includes five items. Four ask participants the extent to which they felt discrete emotions (i.e., happiness, sadness, anger, and fear). To ensure that high scores equaled more positive affect, negative emotion items were reverse coded. A final item assesses the overall valence (negative, positive) of the memory. Items were rated on a Likert-scale ranging from 1 (*not at all*) to 5 (*extremely*). Higher scores represent greater emotional re-experiencing of positive affect.

The *personal significance* subscale includes questions about how memorable the event is for participants, how emotional the experience was overall (i.e., without regard to valence), how important the memory is for the person, and how vivid the memory is. Responses for all items were made on a Likert-scale ranging from 1 (*not at all*) to 5 (*extremely*).

The third subscale represents *rehearsal*, and includes two questions about frequency of thinking and talking about the event. Responses ranged from 1 (*very infrequently*) to 5 (*very frequently*) on a Likert-scale. A third item asking participants the extent to which the event was surprising is also included. Memories that are surprising are more frequently talked ($r = .39, p < .01$) and thought about ($r = .45, p < .01$).

Major Study Variables

Two major constructs of interest were measured through content-coding of the memory story narratives: level of detail and off-target responding. The memory story transcripts were verbatim records of the interviews. Before coding, the transcribed memory stories were blinded for participants' gender (i.e., changing gender specifics to ambiguous labels such as he/she). To make them more readable, extraneous speech fillers (e.g., um, uh) were also removed. The 'clean' transcripts were coded for level of detail and off-target responding. Both coding schemes were taught through intensive training using pilot data memory story transcripts. After achieving reliability the transcripts were coded independently by each of two coders and discrepancies were resolved by discussion. Coder drift was addressed by having weekly coder meetings to discuss discrepancies. The coding schemes are described in further detail below.

Level of detail. The procedure used for content coding level of detail is a modified version of an existing scheme (Levine, Svoboda, Hay, Winocur & Moscovitch, 2002). This coding scheme was adopted because of its explicit explanation of the coding procedures for identifying a comprehensive set of details in autobiographical memory stories. Level of detail was coded in four categories: place, time, perceptual, and emotion/thought details. Place details refer to any information that involves localization in space, including countries, cities, streets, buildings, rooms, and locations within a room. Time details include a life epoch, year, season, month, date, day, time of day, or clock time. Perceptual details include auditory, olfactory, tactile/pain, taste, visual, and spatial-temporal (including duration) information. Emotion/thought details are those that pertain to the mental state of the characters in the story. These include feelings, states, thoughts, opinions, expectations, or beliefs.

Coders assigned ratings by reviewing the entire memory story for each of the four types of detail in succession. This provided one rating pertaining to the entire memory story for each of the four detail types. Ratings ranged from three to zero. ‘Three’ represents a rich, highly specific, evocative, and/or vivid description that appears to emerge from a feeling of re-experiencing. ‘Two’ refers to a detailed description that lacks a feeling of re-experiencing. ‘One’ is characterized as a description that is limited to general, non-specific information. ‘Zero’ is assigned if there is no description pertaining to the specified type of detail. Beyond these general parameters, specific coding rules exist for each of the four types of detail. For a comprehensive account of the scheme, see Levine et al., (2002). Level of detail is operationalized as the mean of the four detail codes in each memory story.

Two coders rated a sub-sample of 15% of the 129 memory stories for level of detail. Inter-rater agreement for Place was 94.7%, Kappa = .92, for Time was 100%, Kappa = 1.0, for Perceptual 92.6%, Kappa = .83, and for Emotion/Thought was 90.3%, Kappa = .79.

Off-target responding. Off-target responses were coded independent of the detail codes in a second round of coding. The two variables represent similar constructs of off-target responding (OTS and OTV) differ only slightly in their conceptualization. Thus, the off-target responding coding used the off-target speech approach (OTS; James, et al., 1998). Coding procedures were adopted and modified for use with autobiographical memory stories.

The *amount of off-target speech* was coded first. Each previously identified text segment (i.e., an idea unit) was categorized as off-target or not. The *amount* of off-target responding was coded for any continuous block of speech not directly relevant to the memory story episode. Amount of off-target speech is operationalized as the number of total words in off-target

segments. The number of off-target segments (regardless of number of words in a segment) provides a second measure of amount of off-target speech.

The identified off-target segments were further coded to ascertain the *degree of off-target responding*. That is, each off-target segment was coded as indirectly relevant or irrelevant. Indirectly relevant is coded when information is outside of the episode but is still somehow related to the memory story. For example, information can be coded as indirectly relevant if the participant goes off-target to supplement the remembered event with information from a similar previous life event. Such information is no longer about the specific episode being shared but is still related to the narrative's topic. Indirectly relevant information is operationalized as the number of indirectly off-target text segments in the story. Irrelevant is coded when information that is completely unrelated to the topic appears in the memory story and the participant does not provide transitions, segues, or an explicit signal about the manner in which the information is connected to the remembered event. Irrelevant information is operationalized as the number of irrelevant off-target text segments in the story.

A sub-sample of 15% of the 129 memory stories was coded for amount and degree off-target. Inter-rater agreement for amount off-target was 88.5%, Kappa = .79, and for degree off-target was 97.6%, Kappa = .88.

Global story quality. The third major study variable, global story quality, was assessed through peer ratings. Eight younger adults ($M = 24.63$ years; $SD = 4.00$) and eight older adults ($M = 76.00$ years; $SD = 7.30$) provided peer ratings of global story quality for each of the transcribed memory stories. The group of peer raters included volunteers from the community and was balanced by gender within age groups. Peer raters received \$30.00 for their involvement.

The peer rating sessions were held in a conference room at a community location. Sessions included no more than four raters to ensure quality ratings. The number of memory stories rated in each session was pre-set (based on pilot testing that determined the average length of time required to read one memory story), so that raters did not feel group pressure to complete their ratings hurriedly. It was determined that two two-hour sessions were adequate for each rater to rate all of the 129 memory stories. There were four complete sets of stories that contained a combination of all fictional stories and autobiographical memory stories in four random orders. Coding of the four orders was counterbalanced across age and gender of the raters.

In the first session, peer raters received an introduction to the project and standardized instructions on how to do the task. The raters were encouraged to ask clarification questions throughout the session. During the first session, raters read and judged 60 of the 129 memory stories. In the second session, raters received a reiteration of the instructions and completed the ratings of the remaining 69 memory stories. The global story quality rating procedures are based on previous research (James et al., 1998; Pratt & Robins, 1991). Raters judged the memory stories on a single global story quality dimension. This is to ensure that the implicit view of an untrained rater (i.e., a layperson's view) was captured. Raters read one story at a time and made ratings on a five-point Likert-scale ranging from 1 (*not at all a good story*) to 5 (*an extremely good story*). All raters read all stories. Global story quality is operationalized as the average rating of each memory story across all raters.

Results

The results are divided into three major sections. The first section reports the preliminary analyses. In the second section, the results of a series of analyses of variance investigating the

study's first objective are presented: these analyses address age group and gender differences in level of detail, off-target responding, and global story quality. The third section addresses the second objective using a hierarchical regression approach to identify variables that predict global story quality.

Preliminary Analyses

Two preliminary analyses were necessary: (i) a correlation matrix was obtained to identify appropriate covariates to be used in further analyses, and (ii) intraclass correlation (ICC) analyses determined whether the 16 peer raters' consistently rated the memory stories for global story quality.

Covariate identification. An empirical approach was employed to determine which variables to include as covariates. Ideal covariates are those with a significant correlation with dependent variables, and little correlation among covariates (Stevens, 2002). A bi-variate correlation matrix of all dependent variables, independent variables, and individual difference variables (e.g., education, ethnicity, health status), assessed using a Bonferroni correction, revealed that the total number of words in the memory story ($M = 358.73$ words; $SD = 288.84$, range: 65-1315) is significantly correlated with all of the dependent variables (p 's all $< .001$). That is, the length of the memory story an individual shared is related to the level of detail, the level of off-target responding, and global story quality ratings. Correlation with all the dependent variables and no relation to age group, gender, ethnicity, education, and health demonstrate the appropriateness of total number of words as a covariate. Total number of words is related to condition: autobiographical memory stories ($M = 514.85$ words; $SD = 335.69$) are longer than fictional stories ($M = 200.17$ words; $SD = 65.88$), $F(1, 128) = 54.18$, $p < .001$, $\eta_2 = .35$. Thus, this variable is used as a covariate in all major analyses.

Note that ethnicity, education and health status were considered as possible covariates. None of these three individual difference variables were significantly correlated with any of the dependent variables. The cognitive ability measures (i.e., reasoning ability, memory ability and verbal ability) were also not significantly correlated with the dependent variables. The relationship between cognitive abilities and age group are reported as sample characteristics in the Participants section.

Peer rater consistency. The goal of the peer ratings was to assess peoples' implicit views of a good story. Thus, to determine whether the 16 peer raters judged the memory stories similarly (as should be the case if they are drawing on a culturally-based implicit view) an ICC was performed. A two-way mixed effect model was computed for the global story quality ratings of the 16 raters. The consistency approach was to look for general changes in rater's judgments rather than systematic variability among the raters. The average measure ICC determined that the 16 peer raters were reliably similar in judging the memory stories, $\rho_I = .78$; $F(126, 1890) = 4.49$, $p < .001$, $\eta^2 = .36$. This provided support for creating a mean global story quality score across the raters for each story, to be used in further analyses.

Group Differences in Memory Story Characteristics and Global Story Quality

A series of analyses were conducted to determine if there were group differences in level of detail, off-target responding, and global story quality.

Level of detail. The data were analyzed using a 2 (age group: younger adult, older adult) X 2 (gender) X 2 (condition: autobiographical memory story, fictional story) ANCOVA, with total number of words as a covariate. The overall level of detail score (range: 0-3) was the dependent variable. The ANCOVA revealed a main effect for age group, $F(1, 128) = 4.00$, $p <$

.05, $\eta_2 = .03$. As predicted, younger adults' stories are more detailed ($M = 2.14$, $SD = .47$) than older adults' stories ($M = 2.04$, $SD = .44$) regardless of the type of memory story recalled. As expected, a main effect for memory story condition was revealed, $F(1, 128) = 8.07$, $p < .01$, $\eta_2 = .06$. Autobiographical memory stories include a higher level of detail ($M = 2.30$, $SD = .46$) than fictional stories ($M = 1.87$, $SD = .33$).

Off-target responding. An analysis of covariance approach was used to assess differences in amount and in degree of off-target responding. Variables assessing amount of off-target responding include number of words off-target, and number of segments off-target. Number of words measures the total amount of off-target responding, while number of segments assesses how frequently a participant goes off-target regardless of number of words produced in any off-target segment.

For amount of off-target information, the data were analyzed using a 2 (age group: younger adult, older adult) X 2 (gender) X 2 (condition: autobiographical memory story, fictional story) ANCOVA with total number of words as a covariate. Total number of off-target words in the story is the dependent variable. The ANCOVA shows a main effect for gender, $F(1, 127) = 6.72$, $p < .05$, $\eta_2 = .05$. Men's stories contain more off-target words ($M = 73.92$ words, $SD = 154.14$) than women's stories do ($M = 46.63$ words, $SD = 55.53$). This effect was qualified by a gender X condition interaction, $F(1, 127) = 8.06$, $p < .01$, $\eta_2 = .06$. Autobiographical memory stories told by men contain significantly more off-target words ($M = 135.73$ words, $SD = 207.28$) than autobiographical memory stories told by women ($M = 68.78$ words, $SD = 67.80$), $F(1, 62) = 7.55$, $p < .01$, $\eta_2 = .04$ but there is no gender difference in number of off-target words in fictional stories. Additional pair-wise comparisons show no other differences.

In the next analysis the data were analyzed using a 2 (age group: younger adult, older adult) X 2 (gender) X 2 (condition: autobiographical memory story, fictional story) ANCOVA with total number of words as a covariate. Number of off-target segments is the dependent variable. Results revealed a main effect for age group, $F(1, 127) = 6.02, p < .05, \eta^2 = .05$. Older adults' stories contain more off-target segments ($M = 5.71$ segments, $SD = 9.98$) than younger adults' stories ($M = 3.47$ segments, $SD = 3.45$). The main effect was qualified by the predicted age group X condition interaction, $F(1, 127) = 4.67, p < .05, \eta^2 = .04$. Autobiographical memory stories told by older adults contain more off-target segments ($M = 9.55$ segments, $SD = 12.90$) than autobiographical memory stories told by younger adults ($M = 5.19$ segments, $SD = 4.04$), $F(1, 62) = 5.40, p < .05, \eta^2 = .08$. There was no age group difference for fictional stories. A gender X condition interaction was also detected, $F(1, 127) = 5.03, p < .05, \eta^2 = .04$. Autobiographical memory stories told by men ($M = 8.83$ segments, $SD = 12.29$) contain more off-target segments than autobiographical memory stories told by women ($M = 5.97$ segments, $SD = 6.34$), $F(1, 62) = 4.20, p < .05, \eta^2 = .05$. There were no gender differences for fictional stories. Pair-wise comparisons examining the two interactions did not detect additional differences across groups.

The degree of off-target responding consists of two variables: indirectly relevant and irrelevant off-target segments. To investigate group differences for these two variables the data were analyzed using a 2 (age group: younger adult, older adult) X 2 (gender) X 2 (condition: autobiographical memory story, fictional story) MANCOVA with total words as a covariate. Indirectly relevant and irrelevant off-target segments are the dependent variables. These two dependent variables are contingent on each other: together they comprise the amount of off-target segments variable described above. The MANCOVA revealed main effects for condition, $Wilks's \Lambda = .94, (2, 127) = 3.61, p < .05, \eta^2 = .06$ and age group, $Wilks's \Lambda = .94, (2, 117) = 3.86,$

$p < .05$, $\eta_2 = .05$. There was also an age group X condition interaction, *Wilks's A* = .95, (2, 117) = 3.04, $p = .05$, $\eta_2 = .04$. Univariate results are reported separately for each dependent variable.

A 2 (age group: younger adults, older adults) X 2 (gender) X 2 (condition: autobiographical memory story, fictional story) ANCOVA was conducted with total words as a covariate. Number of indirectly relevant segments is the dependent variable. A gender X condition interaction, $F(1, 127) = 3.85$, $p = .05$, $\eta_2 = .03$ (see Figure 1) was detected. Autobiographical memory stories told by men contain more indirectly relevant segments ($M = 6.30$ segments, $SD = 7.50$) than autobiographical memory stories told by women ($M = 4.45$ segments, $SD = 2.90$), $F(1, 62) = 12.86$, $p < .05$, $\eta_2 = .04$ but men and women show no differences in the fictional memory story condition. No other main effects or interactions were found.

A 2 (age group: younger adults, older adults) X 2 (gender) X 2 (condition: autobiographical memory story, fictional story) ANCOVA was conducted with total words as a covariate. Number of irrelevant segments is the dependent variable. A main effect for age group, $F(1, 127) = 7.10$, $p < .01$, $\eta_2 = .06$ was found. Older adults' memory stories contain more irrelevant segments ($M = 1.78$ segments, $SD = 6.34$) than younger adults' memory stories ($M = .23$ segments, $SD = .58$). There was an age group X condition interaction, $F(1, 127) = 5.66$, $p < .05$, $\eta_2 = .05$ (see Figure 2). Older adults' autobiographical memory stories contain more irrelevant segments ($M = 3.61$ segments, $SD = 8.73$) than younger adults' autobiographical memory stories ($M = .44$ segments, $SD = .76$), $F(1, 62) = 6.55$, $p < .05$, $\eta_2 = .06$. Including more irrelevant segments was not evident across memory story conditions: older and younger adults' fictional stories do not differ in the number of irrelevant segments. Pair-wise comparisons show no other differences between groups.

Global story quality. The data were analyzed using a 2 (age group: younger adult, older adult) X 2 (gender) X 2 (condition: autobiographical memory story, fictional story) ANCOVA with total number of words as a covariate. Global story quality, the dependent variable, is the average across the 16 peer raters for each story (range: 1-5). The ANCOVA revealed a main effect for age group, $F(1, 127) = 9.83, p < .01, \eta_2 = .08$. Younger adults' memory stories ($M = 2.48, SD = .46$) are rated higher in global story quality than older adults' stories ($M = 2.25, SD = .62$). There was also a main effect for condition, $F(1, 127) = 9.10, p < .01, \eta_2 = .07$. Autobiographical memory stories ($M = 2.64, SD = .55$) are rated higher than recalled fictional stories ($M = 2.09, SD = .41$).

The main effects were qualified by an age group X gender X condition interaction, $F(1, 127) = 4.47, p < .05, \eta_2 = .04$ (see Table 2-1 for all M and SD). For interpretive purposes the observed three-way interaction is best presented in terms of the 2 (age group) X 2 (gender) effects found in ANCOVAs run separately for autobiographical memory stories and for fictional stories (Stevens, 2002).

The data for autobiographical memory stories only were analyzed using a 2 (age group: younger adult, older adult) X 2 (gender) ANCOVA with total number of words as a covariate. Global story quality was the dependent variable. The analysis revealed a marginal main effect for age group ($p = .058$). There was an age group X gender interaction, $F(1, 62) = 6.19, p < .05, \eta_2 = .10$. Younger men's autobiographical memory stories ($M = 2.48, SD = .45$) are rated higher than older men's autobiographical memory stories ($M = 2.15, SD = .54$). There were no differences in younger and older women's autobiographical memory stories. The data for fictional stories only were separately analyzed using a 2 (age group: younger adult, older adult) X 2 (gender) ANCOVA with total number of words as a covariate. Global story quality was the dependent

variable. The analysis revealed a main effect for age group, $F(1, 63) = 5.18, p < .05, \eta^2 = .08$: younger adults' fictional stories are rated higher ($M = 2.22, SD = .26$) than older adults' fictional stories ($M = 1.97, SD = .49$). There was no main effect for gender or an age group X gender interaction. In sum, the three-way interaction in global story quality appears to be driven by age group differences that occur for men's autobiographical memory stories but not for women's: older men tell worse autobiographical memory stories than younger men. This pattern does not appear for fictional stories.

Predictors of global story quality. Regression analyses were used to determine the extent to which content coded story characteristics (i.e., level of detail, off-target responding) and person characteristics (i.e., age group, gender) predict ratings of global story quality in the autobiographical memory stories. Fictional stories were used as a control in the current study and thus were not analyzed. A bi-variate correlation matrix assessed the relatedness among variables to be used in the regression models (see Table 2-2). Note that total number of off-target words was redundant in the model because of its high correlation with the degree of off-target responding variables (i.e., indirectly relevant and irrelevant off-target segments). Additionally, note that age group is not significantly correlated with level of detail or global story quality.

Evaluation of the data determined the general linear model assumptions were adequately met. The curve estimation procedure was employed to determine whether the data conform to a linear or quadratic regression model. Inspection of the scatter plots and comparison of the ANOVA results supported a linear regression approach. The global story quality score was the criterion variable. Total number of words was entered in the first step. Note that models were run with total number of words entered in the first step and last step of the model. Both versions of the model were comparable. In the second step, indirectly relevant off-target segments, irrelevant

off-target segments, and level of detail were entered. In the final step, age group, gender, and age group by gender were entered. There are two predictors of global story quality in autobiographical memory stories (p 's < .05): total number of words ($\beta = .47$), and as expected, level of detail ($\beta = .25$); *adjusted R*² = .37, $F(6, 60) = 6.85$, $p < .001$. The model predicts 43.2% of the variance in global story quality (see Table 2-3). Total number of words in the story was the best predictor but is a conceptually inadequate predictor of global story quality. Thus, follow-up analyses examined whether the relationship between total number of words and global story quality might be mediated by particular memory qualities (i.e., emotional re-experiencing, personal significance and rehearsal) that would allow for more conceptual interpretation.

Standard mediation analyses were conducted (Baron & Kenny, 1986). A bi-variate correlation matrix examined relations between level of detail, total number of words, the three memory characteristic factors, and global story quality. Personal significance of the memory was the only memory characteristic that was significantly correlated with both total number of words and global story quality.⁴ The first step in the hypothesized mediation was confirmed by the initial hierarchical regression, *adjusted R*² = .27, $F(1, 62) = 12.86$, $p < .01$, $\eta^2 = .23$ (i.e., total number of words predicts global story quality). A second linear regression showed that personal significance of the autobiographical memory (as rated by the storyteller) predicts global story quality (as rated by independent peers) ($\beta = .35$); *adjusted R*² = .12, $F(1, 62) = 8.45$, $p < .01$, $\eta^2 = .20$. Thus, the second step in the hypothesized mediation was confirmed.

A final hierarchical regression model was conducted to determine whether the personal significance of the memory partially or fully mediates the relation between the total number of words in the story and global story quality. If personal significance of the memory is a partial

mediator of the relation between total words and global story quality, total words will be a weaker predictor (i.e., reduced Beta weight) of global story quality when personal significance of the memory is also entered in the model. If personal significance fully mediates this relation, total number of words will no longer be a significant predictor of global story quality.

Results from the regression analyses for the mediation model are presented in Table 2-4. The criterion variable was the global story quality score. Level of detail was entered in the first step of the model because of its predictive value (demonstrated in the first hierarchical regression), so as to take a conservative approach to testing the mediation model. Total number of words was entered in the second step. Personal significance was entered in the final step. As can be seen in Table 2-4, the storyteller's ratings of the personal significance of the memory completely mediates the relationship between total number of words and peer-rated global story quality. The more personally significant an event one shares, the more words produced, and the better the story in the mind of the listener.

2-1. Global quality of younger and older men and women's stories

Memory Story Condition	Younger Adults		Older Adults	
	Men	Women	Men	Women
Autobiographical Memory	2.79 (.43)	2.69 (.53)	2.33 (.50)	2.74 (.64)
Fictional Memory	2.20 (.25)	2.24 (.28)	2.00 (.54)	1.94 (.44)

2-2. Intercorrelations between variables in autobiographical memory stories

Variable	1	2	3	4	5	6	7
1. Words in memory story	—	.59**	.40**	.59**	.06	.47**	.49**
2. Off-target words		—	.79**	.76**	.13	.03	.21
3. Indirectly relevant segments			—	.32*	.11	.13	.31*
4. Irrelevant segments				—	.25*	.03	.07
5. Age group					—	-.07	-.18
6. Level of detail						—	.51**
7. Global story quality							—

*indicates $p < .05$ **indicates $p < .01$.

2-3. Summary of hierarchical regression analyses for memory and person characteristics predicting global story quality in autobiographical memory stories ($N = 65$)

Variable	B	SE B	β
Step 1			
Words in memory story	.00	.00	.53**
Step 2			
Words in memory story	.00	.00	.51**
Indirectly relevant segments	.02	.01	.14
Irrelevant segments	-.02	.01	.26
Level of detail	.28	.15	.24*
Step 3			
Words in memory story	.00	.00	.27**
Indirectly relevant segments	.02	.01	.15
Irrelevant segments	-.02	.01	-.21
Level of detail	.29	.15	.25*
Age group	-.11	.12	-.10
Gender	.06	.12	.05

Model 1: $R^2 = .28$ for Step 1. $R^2 = .42$ for Step 2; $\Delta R^2 = .14$ for Step 2. $R^2 = .43$ for Step 3;

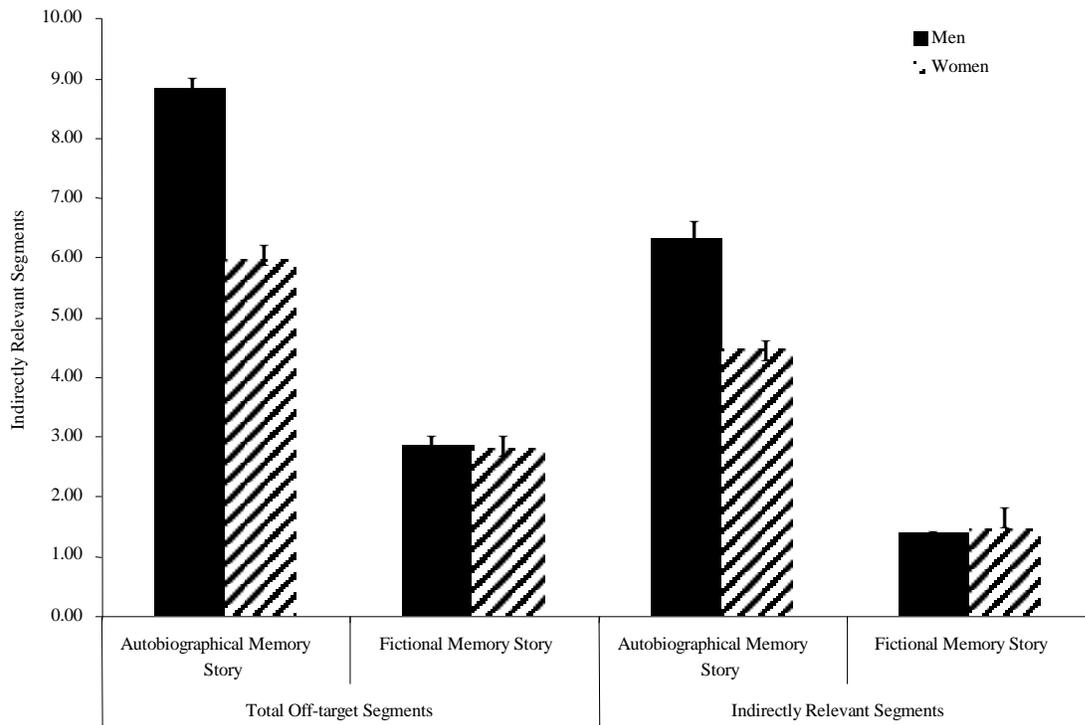
$\Delta R^2 = .01$ for Step 3. *indicates $p < .05$ **indicates $p < .01$

2-4. Summary of mediation analyses for memory characteristics and personal significance predicting global story quality in autobiographical memory stories ($N = 65$)

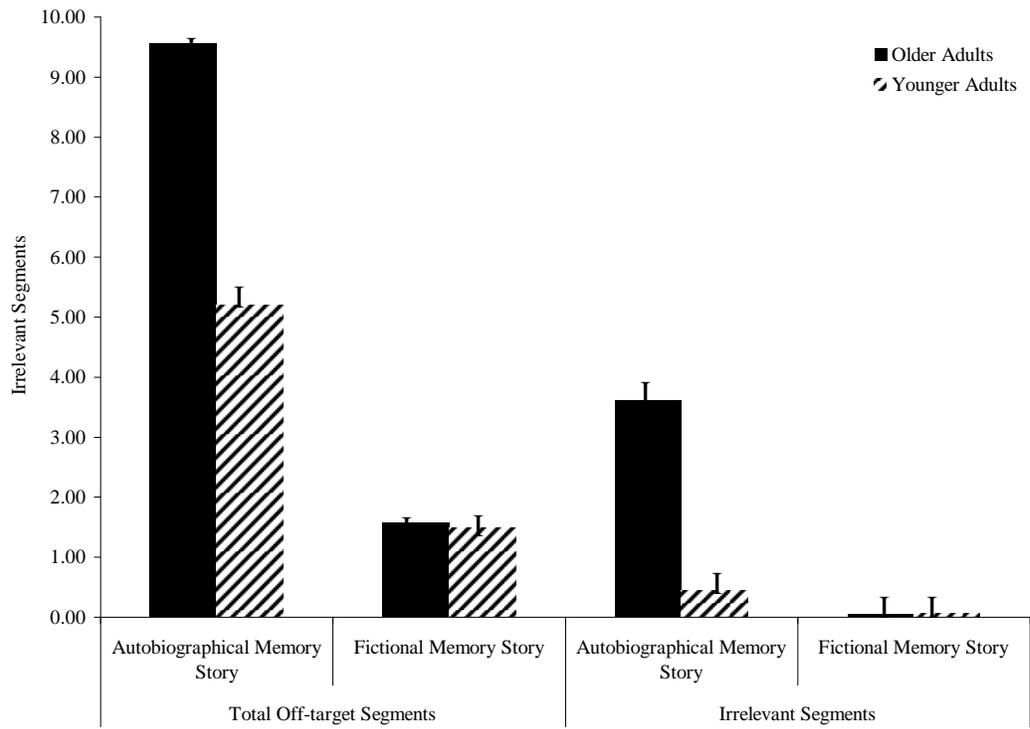
Variable	B	SE B	β
Step 1			
Level of detail	.60	.13	.51**
Step 2			
Level of detail	.41	.14	.35**
Words in memory story	.00	.00	.32*
Step 3			
Level of detail	.47	.14	.40**
Words in memory story	.00	.00	.21
Personal Significance	.30	.12	.27*

Model 2: $R^2 = .26$ for Step 1. $R^2 = .33$ for Step 2; $\Delta R^2 = .08$ for Step 2. $R^2 = .40$ for Step 3;

$\Delta R^2 = .07$ for Step 3. * $p < .05$, ** $p < .01$.



2-1. Men’s autobiographical memory stories contain more indirectly relevant segments than women’s. Note: Analyses controlled for total number of words in the narrative.



2-2. Older adult's autobiographical memory stories contain more irrelevant segments than younger adults'. *Note:* Analyses controlled for total number of words in the narrative.

CHAPTER 4 DISCUSSION

Storytelling is a universal human activity (Dunbar, 2005; Swearingen, 1990). It occurs in various cultures (Freeman, 2001; Strawbridge, 2005; Wang, 2004), and is practiced by individuals of all ages (Bruner, 1999; Nelson & Fivush, 2004). The most commonly told stories are autobiographical: ones that individuals tell about their own life and experiences. The current study investigated age and gender differences in level of detail, off-target responding and global story quality in autobiographical memory stories (with fictional stories as a comparison). Younger and older adults recalled and narrated a specific event, a romantic episode. Narratives were content coded for level of detail and off-target responding. In addition, an independent group of younger and older peers read and rated the stories for global story quality. Results show age and gender differences in the characteristics of memory stories. Age and gender do not, however, predict global story quality. Results pertaining to age and gender difference in level of detail, off-target responding, and global story quality are highlighted below. Next, predictors of global story quality are discussed. Lastly, the study's limitations are outlined and future directions for research are briefly suggested.

Age and Gender Differences in Memory Story Characteristics

Level of detail. As expected, older adults tell less detailed autobiographical memory stories and fictional stories than younger adults. Though plausible as an explanation for these results, age-related cognitive declines do not seem to explain lower levels of detail in older adults' memory stories. The three cognitive abilities measured (i.e., episodic memory, reasoning ability and verbal ability) are unrelated to the level of detail variables either within the entire sample, or within the older adult group. In addition, if cognitive declines were involved, age differences might be expected regardless of the type of narrative recalled. Instead, past research

shows that age differences in level of detail are dependent on the type of material being recalled and retold. Age differences are found more frequently when individuals recall stories about real life (whether their own or others, as in the current study) but not when they recall fictional literary materials (e.g., fables; Adams et. al., 1991).

Rather than a cognitive decline explanation, observed age differences in sharing details may be due to differences in both communication style and communication goals. Research has found that older adults' communication style is integrative and interpretive (i.e., attempting to communicate the meaning of a story) compared to younger adults' detailed and literal style in recalling narratives (Adams et al., 1991; Gould, Trevithick, & Dixon, 1991; Hashtroudi, Johnson, & Chrosniak, 1990; Tun, 1989). Other research suggests that older adults prioritize telling the gist of a story over the details (Adams et al., 1990; Bluck, Levine & Laulhere, 1999; Stine & Wingfield, 1990), again showing a focus on general meaning. In terms of communication goals, late life is a phase in which the goal of story-telling may be to communicate directive lessons to the listener (McAdams, de St. Aubin, & Logan, 1993; Pratt, Norris, Arnold & Filyer, 1999): older adults self-report sharing stories with the goal of teaching and informing others through passing on life experiences (Birren & Deutchman, 1991; Cappeliez, Lavalee & O'Rourke, 2001; Webster & McCall, 1999). Thus, while sharing detailed, literal stories may be important in young adulthood, older adults' communication style and goals are consistent with them recalling and narrating stories without focusing on specific details.

Though telling the gist of a story is generally adequate for conveying the message, telling less detailed stories may have implications for older adults. Particularly, sharing less detailed autobiographical memory stories may affect the social dynamic of autobiographical memory-sharing (Adams, Smith, Pasupathi & Vitolo, 2002; Pasupathi, 2001). Studies have shown that

individuals are judged as more confident, more persuasive and more believable, when they share specific details of personal events (Pillemer, 1998). It appears that listeners are more willing to accept a personal story as being a valid real-world account when it is rich with affective and perceptual detail. Older adults may be at risk of losing credibility, and thereby even potentially losing listeners, when sharing stories with lower levels of detail.

Off-target responding. Researchers investigating off-target responding have focused on communication style differences (James, et al., 1998) and cognitive deficits (Arbuckle & Gold, 1993) as two possible explanations for its occurrence. Instead of determining whether off-target responding is best explained by one view, it is useful to consider that it may be explained by a combination of both. Off-target responding is best understood when broken down into two constructs: indirectly relevant and irrelevant off-target responding. Including indirectly relevant off-target information may actually serve to provide background for the story and reflects the storyteller's concern with adequately communicating with the listener. Inclusion of irrelevant off-target information, however, may reflect cognitive decline.

Indirectly relevant information is a part of the shared episode (i.e., romantic event) because the storyteller explicitly connects this information to core features of the episode (e.g., who, what, when, where, and why). For instance, after mentioning where an event occurred, information regarding the location may be expanded by directly linking it to world knowledge about the location (e.g., Paris is the capital of France), an autobiographical fact about the storyteller (e.g., I was born in Paris), or some other life story information (e.g., I traveled to Paris in my twenties) that is only indirectly related to the current event being recounted. Thus, the indirectly off-target information actually aids the listener in understanding the shared episode. Younger and older adults both produce indirectly relevant information but show no age

differences. Both older and younger adults seem to recognize the need to go off-target in order to give indirectly related, but supporting, story information.

Completely irrelevant information, however, cannot be conceived of as useful for communicating the story. It includes information such as random interjections about past experiences and other information that is in no way related to the episode. Age differences were found in the number of irrelevant segments produced: older adults go off-target providing irrelevant information more frequently in telling autobiographical memory stories (but not in telling fictional stories) than do younger adults. This supports previous findings (Arbuckle & Gold, 1993) suggesting that older adults produce more off-target information and that there is no communicative purpose to this (i.e., Inhibitory Deficit Model). Closer inspection of this result, however, shows that only 32% of the older adults in our sample produced any irrelevant information (range = 1-36 segments per story). Thus, this non-adaptive straying off-target is only present in a sub-group of the older adult sample. For younger adults, and most of the older adults, off-target responding is reserved for indirectly relevant information that provides a context for understanding the shared episode. Older adults who do produce irrelevant information, in large quantities, however, may have difficulties garnering and maintaining interested listeners because they violate conversation maxims of coherence and relevance (Grice, 1975).

Gender also played a role in off-target responding. Men's autobiographical memory stories contained more indirectly relevant off-target information than women's autobiographical memory stories (no difference in fictional stories). Researchers have found gender differences in recalling autobiographical memories (Pillemer, Wink, & DiDonato 2003). Women focus on specific episodes more than men (Goddard, Dritschel & Burton, 1998; Pillemer, Wink, DiDonato

& Sanborn, 2003) and thus tell memory stories that contain more emotions (Sehulster, 1995) and are more vivid (Morse, Woodward & Zweigenhaft, 1993; Niedzwienska, 2003; Acitelli & Holmberg, 1993) than men's stories. Men may be more likely to go off-target when sharing an autobiographical memory about a romantic episode since research suggests that women are more invested in relationship topics than are men (Ross & Holmberg, 1990). Thus for men, including indirectly relevant information may allow them to shift the primary emphasis from memory for the particular episode and allows them to construct their story using personally salient information (i.e., indirectly relevant information such as world knowledge, autobiographical facts, or references to the life story) to embellish their memory sharing.

Global story quality. In addition to the two memory characteristics measured (i.e., level of detail, off-target responding), the global story quality of both the autobiographical memory and fictional stories was assessed through peer rater's judgments. Peer ratings of global story quality provide an understanding of how stories shared in everyday contexts are judged by listeners. They tap individuals' everyday or implicit conception (Sternberg, 2005) of what constitutes a good story. Do raters judge older adults' memory stories as better than younger adults' memory stories? Contrary to expectation (James et al., 1998; Pratt & Robins, 1991), older adults' memory stories are rated worse than younger adults' stories. Analyses show that older men telling particularly poor autobiographical memory stories as compared to younger men drive this age effect. Younger and older women tell autobiographical memory stories with equally high global story quality.

Why might older men tell poorer autobiographical memory stories? Unfortunately, older men are often underrepresented in gerontological research (Birren & Clayton, 1975; Birren & Schaie, 1996). They are difficult to recruit in research studies (Binstock & George, 1996) and

there is only a sparse literature on the psychology of older men (Kernes & McWhirter, 2004). Thus, much remains unknown about older men's communication style. Older men's global story quality may be particularly poor because they are less likely to share memory stories in general (Webster, 1994), have an affinity toward recalling historical events rather than personal events (Keller, 2002), and tend to provide instrumental advice instead of emotional or interpersonal information in their narratives (Rosenthal, 1987). Note that age differences in men's global story quality may be a reflection of cohort differences. Young men in the current cohort may be better able and more inclined to provide socially and emotionally relevant information that improves the overall quality of their memory stories (Ryan & Laurie, 1990), and that inclination will not necessarily diminish as they age.

Overall, autobiographical memory stories were higher in global story quality than were fictional stories. This is unsurprising because autobiographical memories are real life accounts characterized by vivid, emotional and personally salient information (Pillemer, 1998). Thus, the prediction that autobiographical memories would be higher in global story quality seemed rather obvious. Of interest is that this seemingly obvious effect did not hold for men (regardless of age): men's fictional stories and autobiographical memory stories have the same level of global story quality. Women's autobiographical memory stories, however, are significantly higher quality than their fictional stories. Women may learn to tell better autobiographical memory stories because they are socialized from childhood to understand the importance of social sharing of personal memories (Reese, Hayden & Fivush, 1996). Gender differences may be traced to children's socialization concerning autobiographical memory sharing: parent's communication style with girls is more elaborative and emotional, and they tend to recall contextual and evaluative information more with girls than boys (Buckner & Fivush, 2000; Fivush & Reese,

2002). In adulthood, research has found that women tend to reminisce more frequently than men and use personal memories more as a source for communication (Merriam & Cross, 1982; Webster, 1994).

Predictors of Global Story Quality in Autobiographical Memory Stories

Often we think that individuals are good storytellers; that certain classes of people have a knack for telling riveting, interesting stories (Ryan et al., 1992). For example, older adults are considered better storytellers than younger adults in telling autobiographical memory stories. Neither age nor gender, however, predicted global story quality. Instead, it is the characteristics of the memory stories themselves that predict whether a story is judged positively. Previous research suggests that high levels of detail, and low levels of off-target responding are attributes of a ‘good’ story (Adams et al., 1990; Arbuckle & Gold, 1993; James et al., 1998). The current study shows that level of detail is an important predictor of global story quality. Providing details not only gives the story credibility (Pillemer, 1998), but stories rich in detail also provide the listener with a sense of re-experiencing the original event (i.e., provides the ability to relive the experience with the storyteller). Providing the listener an ability to relive the personal episode allows him or her to gain knowledge and information about the world without having to experience it directly (Dautenhahn, 2003; Mandelbaum, 2003). This type of social transmission of experienced events and consequences may be one of the primary benefits of sharing memories (Neisser, 1978; Nelson, 1993). Both the storyteller and listener benefit from effective use of detail in shared autobiographical memory stories.

Another important predictor of quality was a story’s length, but personal significance of the shared memory story completely mediates the relationship between story length and global story quality. When people recall and choose to tell personally significant autobiographical

memories, they talk longer and produce better stories. Thus, increased story quality is not due to simply talking longer but due to choosing a personally significant event to share. Research suggests that sharing personally significant memories increases rapport and caring (Tannen, 1990), intimacy with romantic partners (Alea, 2005; Buehlman, Gottman & Katz, 1992), empathy (Beals, 1991), and serves other social functions of autobiographical memory (Alea & Bluck, 2003; Nelson, 2003; Pillemer, 1998).

Contrary to expectation, higher levels of off-target responding are unrelated to global story quality. Indirectly relevant off-target information may supplement the remembered event providing the listener with additional contextual information but this does not improve overall global story quality. While there were no benefits to story quality when providing indirectly relevant (i.e., supporting) information, note that there was also no reduction in global story quality due to inclusion of irrelevant information. This may be due, however, to the extremely low levels of irrelevant information provided by the current participants. Stories containing very high levels of irrelevant information may be judged poorly.

Study Limitations and Future Directions

This study has two important limitations. These include the type of memory shared and the memory-sharing context. The current study examines the memory characteristics and global story quality of memory stories about a positive event. Thus, the current results may be specific to positive memories. Positive events are useful to study: research suggests that positive events occur more commonly in everyday life. Most life experiences are perceived positively regardless of individuals' physical and mental health status, income and ethnicity (Diener & Diener, 1996; Lykken & Tellegen, 1996). Positive events are recalled more frequently and such memories fade

less quickly than memories of negative events (Walker, Skowronski & Thompson, 2003). Thus, remembered events are generally positive events.

Negative events, when they do occur, however, may have different characteristics (e.g., stronger sensory details; Pillemer, 1998; Terr, 1990). Negative events (e.g., physical assaults, sexual attacks, natural disasters, and war) occur infrequently compared to positive ones, but they have far-reaching effects on individuals' lives and wellbeing (Bass, 1991; Franklin & Matchan, 1993; Goleman, 1992; Herman, 1992; Langer, 1991; Terr, 1990; Thurlow, 1982). Future research in this area might examine autobiographical memories for both positive and negative events in order to determine whether valence of the event affects the memory stories' characteristics and quality, and whether age and gender differences are consistent with those found for positive events.

A related issue is the domain (i.e., relationship events) of the shared memory stories. The particular event (i.e., a positive romantic episode) used in this study was selected because such events are experienced by both older and younger men and women (Carstensen & Turk-Charles, 1994), and have been used as standard material in previous research investigating memory performance (Dixon, Hultsch & Hertzog, 1989). There is growing evidence that relationship events are recalled differently by men and women (Niedzwienska, 2003; Ross & Holmberg, 1990). Studies show that women are more comfortable recounting intimate details of personal experiences than are men (Stimpson, 1987; Tannen, 1990). Women recall autobiographical memories about relationship events with more emotion and detail than men (Ross & Holmberg, 1990; Schulster, 1995). Note, however, that the current findings did not show an across the board advantage for women in recalling and retelling these relationship events. Future research should,

however, incorporate life events that are experienced equally by men and women, but that tap multiple life domains (e.g., work-related events).

A second critique of the study is that the context in which memory stories were recalled does not fully capture the ecology of storytelling in everyday life. Attempts were made to represent a real life situation: memory stories were shared with an engaged listener in a quiet, comfortable, home-like environment without restrictive time limits. The interested listener however, did not join in the conversation. Autobiographical memory researchers have often used similar methods (Alea, 2005; Bluck & Glück, 2004; McClean, 2005). Despite the attempts to model a natural story-telling environment, the study context does not completely represent the setting in which everyday memory story sharing occurs. At least in the United States, autobiographical memories are often co-constructed rather than recalled by a single storyteller (Pillemer, 1998). Parents and children frequently co-construct embellished narrative accounts of daily experiences (Fivush, 1991; Fivush & Fromhoff, 1988). Adults, too, conform to dyadic co-construction of past events: the storyteller and listener perform a “social dance” of probing for more details (e.g., “what happened next?”), providing social cues (e.g., head nods, verbal affirmations), and eliciting personal experience from one another (Adams, Smith, & Pasupathi, 2002; Pasupathi, 2003). Dyadic storytelling better represents real-life conditions of sharing autobiographical memory stories (Pasupathi, 2001). Characteristics of a ‘good’ story may not be fully understood when memory stories are shared without social cues (e.g., interjections from listeners). Moreover, telling a ‘good’ story might be particularly difficult without such social cues. Future research could examine storytelling of autobiographical memory stories in settings that incorporate various standard social cues, for example, dyadic interaction between different social partners (e.g., see Alea & Bluck, 2006; Pasupathi, 2001).

Conclusion

Telling memory stories about personal events is a common daily activity across cultures and among individuals of all ages. Sharing such stories benefits both the story “teller” by garnering listeners, and the story “listener” by receiving information. Younger adults tell stories with higher levels of detail, and are less likely to provide irrelevant information (i.e., learning from others experiences). Both younger and older adults include indirectly relevant information to clarify their stories for the listener. Though these age and gender effects are evident, it appears that age and gender of the memory storyteller are not crucial in peers’ ratings of a ‘good’ story. Instead, choosing a personally significant event, and recalling it in some detail results in high quality ratings from peers. The current study suggests that any person can be a ‘good’ storyteller provided they choose the right story to tell, and elaborate it in some detail.

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BIOGRAPHICAL SKETCH

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