MAINTAINING A POSITIVE SENSE OF SELF: DISTANCING EFFECTS IN

AUTOBIOGRAPHICAL MEMORY FOR NEGATIVE EVENTS

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ABSTRACT OF THE DISSERTATION

Maintaining a Positive Sense of Self: Distancing Effects in Autobiographical Memory for

Negative Events

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Numerous lines of research have identified that individuals are motivated to

remember past events in a way that supports a positive sense of self. Memories of

negative events challenge a person's positive sense of self by suggesting that stable,

positive traits that a person considers a part of his or her sense of self may not accurately

describe that person. Five possible contributors to the degree to which people find an

autobiographical memory challenging to the positive sense of self were identified: when

the event occurred, the perspective with which the event is remembered, the person's age,

the person's gender, and how meaningful the memory was. Participants were asked to

identify a positive trait that describes them, and then to write a narrative of an event in

which they did not act according to the selected trait. Each participant reported one event,

either from the past year or from more than two years ago, and either from the first- or

third-person perspective. After reporting the memory, participants completed a brief

questionnaire, and responded to three ethical dilemmas (two hypothetical, one actual) that

were used to measure participants' tendency to engage in self-enhancement behavior

after reporting the memories. Results found significant differences between emerging

adults (age 18-29) and older adults (age 30 and above), and between men and women in

the older adult group on numerous measures. Additionally, reported meaning and narrative indicators, such as emotion word use and reported harm to others, predicted performance on self-enhancement measures in both age groups. Time and perspective effects were more equivocal, but these two variables influenced responses, especially through interactions with participant variables (time and gender). Results suggest that threats to a positive sense of self can be alleviated by self-enhancement behavior in unrelated domains. Furthermore, results encourage the practice of analyzing memory narrative content to gain a deeper understanding of the impact of recalling significant events. Finally, results support the practice of considering adult development, both regarding changes in the sense of self and regarding influences of gender at different ages as a variable that shapes the content of autobiographical memories.

Acknowledgment and Dedication

I would like to thank Ilana Hyman and Talia Zarbiv for the tireless hours they spent coding memory narratives for different kinds of content. I would also like to express my deep gratitude to Judith Hudson for the guidance you have given me in the five years as your pupil. You honed my analytical abilities, made me a better writer and thinker, and provided a balance of guidance and letting me chart my own path.

This dissertation is dedicated to my parents. From the first book you taught me to read to the day before my defense, you have pushed me to further my education, and stood behind me whenever I did. You taught me the value and joy of the pursuit of knowledge, and to this day you continue to challenge me to clarify ideas and to think deeply about and debate matters of consequence.

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Cognitive Models of the Self and Memory

Jorge Luis Borges (1964/1983) wrote a short story of a character named Funes the Memorious, who, due to an otherwise tragic accident, had a memory of impeccable accuracy:

> We, at one glance, can perceive three glasses on a table; Funes, all the leaves and tendrils and fruit that make up a grape vine. He knew by heart the forms of the Southern clouds at dawn on the 30th of April, 1882, and could compare them in his memory with the mottled streaks on a book in Spanish binding he had only seen once and with the outlines of the foam raised by an oar in the Rio Negro the night before the Quebracho uprising. He could reconstruct all his dreams, or half dreams. Two or three times he had reconstructed a whole day; he never hesitated but each reconstruction has required a whole day.

A memory of such intricate detail seems absurd and unnecessary. What good is a memory if the amount of time needed to recall information is the same as the amount needed to learn it initially? Indeed, current models of semantic and episodic memory (e.g. Conway & Pleydell-Pearce, 2000) assume that our memory system does not work this way. Rather, information that relies on memory is accessed through a series of nodes in a hierarchy that maximizes efficiency when retrieving memories. Specifically, event-specific knowledge, or autonoetic remembering (Tulving, 1985), where the individual re-experiences the event, is employed for recent memories and retains many details of the original event. However, facts about that event are abstracted in semantic memory, which is used to recall information from the event later on. The episodic account of the original

event remains stored in memory, but is relied on less and less over time. Such a model of memory, described as a script (Schank & Abelson, 1977), or as a fuzzy trace (Brainerd & Reyna, 1990), proposes that summary or gist information is abstracted from episodes to be used alongside other semantic information, and such a process increases efficiency. Often, the gist or semantic information is accessed and not the verbatim or episodic information (Brainerd & Reyna, 2002). For example, Robinson and Clore (2002) showed that, when asked to assess their own emotions from the past few days, participants used an episodic memory search, i.e. thinking through the details of each memory as experienced, but when asked the same question about the past few months, they used a semantic search, i.e. searching through their summary information about these different events. They explain that an episodic search would require a large amount of time and resources. Similar studies (e.g. Klein & Loftus, 1993) have shown that, while memories of specific episodes do remain, people rely on semantic memories rather than recalling entire episodes, especially with regards to the self, as one has so much self-knowledge that engaging in episodic memory searches would be overly taxing.

This paper focuses on semantic influences on autobiographical memory. Given that certain information is extracted from an episode, necessarily leaving some information out, the question of what information is deemed most important becomes relevant. Research has emphasized the self as a function of autobiographical memory that influences what details are extracted from an episode, (research has also stressed social and directive functions, see Bluck, Alea, Habermas, & Rubin, 2005, Pasupathi, 2001, Pillemer, 2003, 2009).

The term *self* is used in various literatures with various different meanings (Markus & Wurf, 1987), and it is important to clarify here how the term is used in this paper. The usage of the term *self* in this paper is as a cognitive representation of one's own being. Self refers to semantic knowledge about regularities in a person's behavior, such as traits (Klein & Loftus, 1993) or ways that a person usually acts in given situations (Conway, Singer, & Tagini, 2004). The self is formed over time through social influences (e.g. parents and peers, school and religion, many forms of media) as well as through a person's own experiences. While extensive research on the self has birthed conceptions such as the ideal self, the real self, the ought self (Higgins, Klein, & Strauman, 1985), and the undesired self (Ogilive, 1987), all of which influence the representation of self that I aim to study, my goal for this paper is to examine the self as a form of summary information that a person maintains about himself. What is important about this representation is that the person believes it to be true and is motivated to maintain that belief. Like Conway and Pleydell-Pearce (2000), the term self used here is not referring to an entity that exists somewhere in the brain, but to a process of semantic memory where certain aspects of an individual's knowledge are grouped around one common theme, that is, his own behavior.

In explaining the function of the self in autobiographical memory, Conway and colleagues (Conway & Pleydell-Pearce, 2000, Conway, Singer & Tagini, 2004, Conway, 2005) presented the Self Memory System (SMS), an approach that conceptualizes the self as a semantic knowledge structure that has been abstracted from the episodic memories of one's life. In other words, through a person's experiences (during events as well as in reflections on such later on), she notices patterns about herself – how she responds to

certain situations, how she generally acts, how she generally relates to other people. These patterns are then used to make predictions about future behaviors: if she knows how she usually feels at parties, that knowledge will help her decide whether she wants to go to the next one.

In turn, the conceptual self serves as an organizing feature of episodic memory, and enables efficient use of and access to memories from events in one's life. The SMS is driven by *correspondence*, the need for memories to accurately reflect events as they happened, and by *coherence,* the drive for a person to conceive of regularities in the self such that the self is a distinct entity about which stable predictions can be made. The claim of the SMS is that goals of the self impact how episodes are encoded, stored, and retrieved.

A person's goals are constantly changing, challenging a model of the impact of self on memory to be flexible enough to account for these changes. In describing how individuals think about the past self and organize memories of past experiences, Conway and Pleydell-Pearce (2000) wrote that events in memory are stored as connected to certain types of activities (e.g. exercising, going to the movies) and characteristic of certain time periods (e.g. college years, early marriage years). Changes in one's life can challenge a person's long-term coherence, as one's view of herself having a certain trait can be challenged by a memory in which she did not exhibit that trait. Therefore, individuals separate life experiences into different sections and chapters reflecting the characteristics and actions that were normative in each time period. With this type of organization, memories of past episodes that are inconsistent with one's current self-concept do not threaten the sense of coherence if the episode can be connected to a past

self, that is, part of a separate chapter of one's life story. Thus, episodic memories, or event-specific knowledge, are deeply embedded in multiple layers of organization. Such organization can be viewed as an efficient search mechanism. For example, when Susan attempts to retrieve a memory of an experience of watching the sun set, she thinks back to the time period when she lived by the beach and then accesses other details related to that memory.

In addition to providing an efficient means of accessing memories, this hierarchical organization also provides coherence by enabling the individual to distinguish between the current self and the past self. If a man known for his honesty is asked how he could have shoplifted, he may respond, "I was young then, and have changed since." He may even have a story of an encounter where he learned a lesson and changed his ways. The man uses his meta-representation of self-in-past as distinct from self-in-present to maintain stability with his current conception of self-as-honest. The past event thus no longer threatens coherence, but is part of a narrative highlighting personal change. Meta-representation of this sort has been identified as an important feature of autobiographical memory in that it enables an individual to simultaneously entertain a thought and recognize that it is false, or untrue in the present (Klein, German, Cosmides, & Gabriel, 2004, Leslie, 1987). The capability to meta-represent decouples semantic memory from semantic knowledge, so that the information about the past self can be used without interfering with the current self.

The Motivated Self

While the self is formed by integrating episodic memory through the principles of correspondence and coherence detailed above, it is by no means a purely objective representation of who a person is. In coming to understand one's self, a person is driven to see himself as good. In the example provided above, the honest man is challenged by a memory of shoplifting because it contradicts the consistency of his sense of self, but he is likely more threatened because it contradicts his perception of himself as *good*. Damon (1996) examined the relationship between morality and self in the developmental context, and theorized that morality and self-interests develop in children as two separate systems that only become integrated in middle childhood. Before this age, children learn rules for how to act, but don't necessarily follow them, and certainly don't incorporate them into a sense of self. It is this integration of morality and self that pushes people to act morally, even when selfish interests may encourage other behavior. Blasi (1995) adds that the drive for consistency among different elements of one's life leads a person to incorporate moral behavior into the sense of self. To return to the shoplifting example, the honest person first views honesty as a moral good, then, because of his perception of himself as a good person, comes to the realization that he must act honestly to maintain this goodness, leading him to stop shoplifting. Krettenauer and Eichler (2006) tested this integration of morality and self by presenting adolescents with passages about people who stole or left the scene of an accident and asking them how they would feel if they acted in the same way. They found that participants who reported that they would feel worse if they committed these hypothetical actions were less likely to engage in delinquent behavior in real life. This finding suggests that negative feelings contribute to

preventing people from acting immorally, promoting moral behavior via the integration of morality and the self.

This paper focuses on the tension that is created by the drive to maintain a positive sense of self in conjunction with the fact that people do not always act in ways that are perfectly consistent with their moral ideals. Baumeister, Stillwell, and Wotman (1990) examined this tension by comparing participants' accounts of a time they made somebody else angry and a time they were angered by someone. Each participant in this study wrote one narrative of being a perpetrator and one of being a victim. Victim accounts were more likely to include negative consequences of the event, damage to a relationship, continued anger, and a focus on how the act was immoral and unjustifiable. Perpetrator accounts were more likely to include denial of lasting consequences, apologies, explanations as to why the anger experienced by the victim was an overreaction, and happy endings. Given that victims and perpetrators were the same people, the data reported in this study suggests that negative events are reported differently by different parties. Whereas the victims portray the event as having had lasting consequences, the perpetrators protect the positive sense of self by presenting the events as isolated occurrences that are not connected to the present self.

Pasupathi and Wainryb (2010) view narratives of events where people committed some negative act as an opportunity for individuals to establish *moral agency* by including details such as beliefs, intentions, and emotions. Inclusion of so many details changes an event from a simple representation of, for example, "I lied," to a more varied representation with many participants and motives, and the narrator's action as one piece of a more complex puzzle. The authors further suggest that people generally don't

distort events in an effort to protect themselves from the harm that they did because doing harm, at least on a minor level, is inevitable in daily life, and coming to terms with it is an important skill.

While people are willing to tell stories of their own transgressions (Pasupathi, McLean, & Weeks, 2009), they still have negative feelings when they think about these events. A person trying to establish a positive sense of self still thinks about these negative events and comes to the conclusion that she is still a good person. The focus of this paper, then, is to examine the experience of re-telling negative events, specifically testing if the act of recalling a negative event prompts a person to react in such a way that supports a positive sense of self. Thus, the first overarching hypothesis tested here is that the act of recalling a negative autobiographical memory, due to the challenge it poses to the individual's positive sense of self, influences the way the individual acts after writing the narrative.

Several lines of research support the notion that individuals are motivated to maintain a coherent and positive self concept and to resolve dissonant autobiographical memories. Wilson and Ross (2001; Wilson, Gunn, & Ross, 2009), in their *temporal self-appraisal theory*, demonstrated through numerous experiments that, in maintaining a positive sense of self, people conceive of negative memories as farther in the past and positive memories as closer to the present. Happy memories seem clearer (Levine & Bluck, 2004) and more detailed (Rasmussen & Berntsen, 2009) than unhappy ones, and so positive experiences are kept salient and vivid, making them feel closer to the current self and maintaining a positive sense of self. For example, when reading about German atrocities in World War II, Germans judged the Holocaust to be farther in the past than

Canadians did (Peetz, Gunn, & Wilson, 2010). Similarly, college students reported about past failures, but some were induced to feel as if this time was far in the past and others to feel like it was rather recent. This manipulation was achieved by either using a timeline that spanned from birth to the present, making an event from last year seem rather recent, or by using a timeline that spanned from high school to the present, placing an event from last year somewhere in the middle of the timeline (Ross & Wilson, 2003). Those induced to feel as if it was far in the past evaluated their current selves more favorably than those induced to feel as if the event was more recent. Alongside conceiving of positive memories as temporally closer to the present, people often view the past self as more negative than the current self (Wilson & Ross, 2003), enabling a sense that the current person has improved from who she was in the past (Wilson & Ross, 2001).

Temporal self-appraisal theory shows that by remembering positive memories as temporally closer to the present, retaining greater vividness and detail from these events, and by negatively appraising the past self, an individual attains evidence that confirms a positive, current self image. This approach highlights one way that the drive to maintain a positive sense of self is achieved. Additionally, it shows that the phenomenal qualities associated with how a person remembers an event (e.g. how vivid it is) can impact the relationship between what happened and how it influences the way a person feels about it.

The work reported here from the temporal self-appraisal framework is limited to measures relating to the events remembered (i.e. negative memories are rated as farther in the past, Wilson & Ross, 2001) but it has not yet been tested whether psychological distancing results in behavioral changes in an unrelated domain. In studying the

behavioral changes influenced by memory, Kuwabara and Pillemer (2010) asked alumni of University of New Hampshire for either a positive, neutral, or negative memory of their time at the school. Memories were rated by the experimenters as either specific or general. After completing a questionnaire about that memory, participants were given two dollars and given the option to donate it to the United Way or to the university. Participants who had reported a positive memory were subsequently more likely to donate to the university, rather than to the United Way, though no participant mentioned the memory as connected to why they were giving to the university, suggesting an implicit effect of recalling events. Kuwabara and Pilllemer's (2010) findings demonstrated that recalling a past event can influence subsequent behavior related to the content of the memory.

The current study aims to extend the understanding of memory's influence by testing whether thinking about an adverse memory can influence behavior in an unrelated domain. Specifically, exhibiting pro-social or morally ideal behavior after a negative memory would demonstrate a proactive confirmation of a positive self, rather than distancing from the negative past event, achieving the same result of protecting a positive current self through different means.

Central to this study is the notion that different factors can influence how individuals react to negative memories from their lives. The section below presents the four dimensions that are examined in this paper: time, perspective, gender, and age. These dimensions are conceptualized as features that can influence how close a person feels to the event reported. The farther a person feels from the self portrayed in the narrative, the less this event should challenge the positive sense of self.

Variables Hypothesized to Influence an Event's Salience to Self

The central hypothesis to this study is that, when instructed to think about negative past events, people attempt to distance their own current sense of self from these events in order to maintain a positive sense of self. Events can be more or less challenging to a sense of self, either because of the severity of what happened, when the event occurred, how the event is recalled, or how connected the individual is to past events. In this section, four elements that are hypothesized to influence an event's salience to the self are discussed: time, visual perspective, gender, and age. The latter two of these refer to participant variables, while the former two refer to instructions for what type of event to recall and how to recall it.

Time

Temporal self appraisal theory suggests that negative memories from farther in the past are less challenging to a current positive sense of self. This is why negative events are rated as farther in the past than positive events, and why people remember more recent positive events and fewer recent negative events. For example, in a longitudinal study of subjective well-being, participants filled out a checklist to indicate which events had occurred in their lives over the past four years, and indicated when the events had happened (Suh, Fujita, & Diener, 1996). After filling out this checklist, participants completed an assessment of their own positive and negative affect. When there was a greater amount of negative events in the past three months, individuals demonstrated higher ratings of negative affect. If negative events had occurred more than three months in the past, subjective well-being was not affected. However, Suh et al.

(1996) also reported one additional time period where negative events predicted negative affect, namely three to four years in the past, the longest time period they studied. Along with this result, they found that the events reported from this time period had the greatest proportion of the most negative events, such as parents' divorce, death of family member, and abortion, whereas other time periods had a larger proportion of less extremely negative events such as gaining weight, ending a romantic relationship, or financial problems. Suh et al. (1996) interpret this finding to mean that when a negative event occurs, a person needs some time to adjust to its impact, and hence the short-term effect on affect. Only the more significant negative events have a lasting impact.

In a related study, Escobedo and Adolphs (2010) elicited autobiographical memories of moral events (involving either helping or hurting another) from 40- to 60-year-old participants. In one analysis, the narratives of these events were rated on three scales: moral weakness versus moral strength, doing the right thing versus doing the wrong thing, and hurting someone versus helping someone. For all three of these categorizations, narratives were classified as either one or the other option. Subsequent analyses found that on all three categories, negative events were reported five to eight years earlier than the positive events.

Taken together, these studies present a challenge to an analysis of time as a factor when studying how much a memory challenges the positive sense of self. Temporal self-appraisal theory (Wilson & Ross, 2001) suggests that negative events that have occurred more recently are more challenging to a person's positive appraisal of self. However, findings have shown that events that have occurred far in the past are often the more intense and impactful events (Suh et al. 1996), and that when spontaneously generating

events from the past, participants are less likely to report negative events that have occurred more recently (Escobedo & Adolphs, 2010). These two studies demonstrate that an analysis of time of event for spontaneously generated negative events risks confounding time of the event with intensity of the event. Thus, in all analyses of time as a predictor, ratings of personal meaning (described later) were included as a covariate to prevent suggesting that the time of an event has an impact that may really be attributed to the emotional intensity of the event.

Perspective

Freud (1899/1953) was the first to discuss the psychological role of visual perspective in recall. Some of his patients reported recalling an event as if they were observers watching it happen from the outside. He suggested that recalling an event from this third person perspective implies an element of reconstruction, because nobody actually experiences events from this perspective. Additionally, he suggested that individuals use this perspective to create psychological distance from a difficult or objectionable memory. In the first cognitive study of perspective in autobiographical memory (Nigro & Neisser, 1983) participants visualized memories of 10 types of activities (e.g. watching television, public speaking). People confidently classified approximately 85% of events as having been visualized from the Observer (third person) or Field (first person) perspective. In the study, third-person perspective was more often utilized for older memories, supporting the approach that third-person recall is an indicator of reconstruction (as no events were initially experienced from the third-person perspective). Additionally, first-person perspective was more common, and it has been suggested that first-person is the default mode of remembering (Frank & Gilovich, 1989;

Nigro & Neisser, 1983; Robinson & Swanson, 1993). Furthermore, it was found that events that involved being evaluated and involved strong emotions, such as "being in a performance" or "running from a threatening situation" were most likely to be recalled using the third-person perspective.

Research after Nigro and Neisser (1983) can be divided into studies that examine reports of naturally occurring perspective (i.e. what perspective people use when simply asked to recall an event), and those that attempt to manipulate it through instructions. In studies of reported perspective, D'Argembeau, Comblain, and Van der Linden (2003) instructed participants to report positive, negative, and neutral memories, and found that both positive and negative memories, but not neutral memories, were recalled more often from the first-person perspective, suggesting that memories of greater emotional intensity are more likely to be recalled from the first-person perspective. This finding, along with others from Rubin and colleagues (Rubin, Schrauf, & Greenberg, 2003; Talarico, LaBar, & Rubin, 2004), contradicts Nigro and Neisser's original finding that highly emotional events were imagined from the third-person perspective, as well as Robinson and Swanson's (1993) finding of no difference in emotional intensity between first- and third-person memories. Finally, Berntsen and Rubin (2006) found that negative events were more likely to be recalled in the third-person than the first-person, regardless of emotional intensity. Overall, the data are mixed, especially with regard to whether intensity and valence are related to naturally occurring first- and third-person recall, highlighting the need for experimental manipulations (for a review, see Rice, 2010).

In experiments that varied instructions for first- and third-person recall, there is a general trend towards third-person perspective causing decreased overall affect and

increased detachment from an event. McIsaac and Eich (2002) used a series of laboratory events and found that describing them from the first-person perspective led to more language describing emotional, physical, and psychological states than the third-person. Robinson and Swanson (1993) found that, when instructed to change one's recollection from first-person to third-person perspective, participants reported a drop in emotional intensity. Studies have also found that instructions to use the third-person perspective also lead to a decline in positive affect. Holmes, Coughtrey and Connor (2008) instructed participants to think of positive memories from one of the two perspectives, and found that use of first-person imagery led to an increase in positive affect while use of third-person imagery led to a decrease in positive affect. Spurr and Stopa (2003) had participants give a presentation while focusing on either perspective, and found that use of the third-person perspective led to increased negative thoughts.

Thus, theory and research on visual perspective is still at an early stage of development, but it points to a general approach to third-person imagery as more emotionally detached. It has been found that PTSD patients are more likely to use the third-person perspective for traumatic memories (Berntsen, Willert, & Rubin, 2003), and that those who are instructed to use the third-person perspective rate their traumatic memories as less emotional and anxiety provoking (McIsaac & Eich, 2004). These findings highlight the self-protective possibilities created by detachment. Conversely, depressed patients have been found to use the third-person perspective more often for their positive memories than for their negative memories (Lemogne et al., 2006). Kuyken and Howell (2006) suggest that the third-person perspective promotes negative comparisons between the happy past and current depressed self. When studying a non-

depressed population, Libby and colleagues (Libby & Eibach, 2002, Libby, Eibach, & Gilovich, 2005) found that the third-person perspective encouraged comparison between the present self and the past self, increasing the perception of the changes undergone.

The above findings can be best understood with some background about episodic and semantic memory. Robinson and Clore (2002) suggested that for memories of some events, people engage in an episodic memory search, i.e. they try to re-experience it, as Tulving (1985) originally defined episodic memory. In a series of studies, Robinson and Clore (2002) asked participants to judge how much they had experienced particular emotions in certain time periods. The researchers hypothesized that if participants were accessing episodic knowledge about these time frames, longer time frames should require longer latencies in making the judgments, as there is more episodic information that needs to be remembered. Using seven time frames (now, hours, days, weeks, months, years, and "in general"), their findings indicated a curvilinear pattern, such that latencies increased until the "weeks" time frame, beyond which they remained constant. They interpreted this result to indicate that, in the shorter time frames, participants were engaging in an episodic search through memory. In longer time frames, participants were engaging in a semantic judgment, which would take the same amount of time regardless of time frame because it was not dependent on searching all available episodes, but on semantic information stored about that person's past emotions. Most relevant in Robinson and Clore's (2002) work was the finding in two follow-up studies, where they demonstrated that longer time frames were subject to priming effects and stereotype effects, something expected for a semantic memory search but not for an episodic search. Libby et al.'s (2005) findings can be understood as reflecting a similar mechanism, in that

first-person visualizing encourages an episodic search, or re-living, of the type that is not normative for events that have occurred more than a few weeks in the past. When a recovering depressed patient engages in a memory search of a past event and then reports on it, because his self representation includes the knowledge of his former depressed state and current improvement, that fact dominates his remembrance of the past event when he is visualizing it from the third-person perspective, leading him to report the memory as more negative, and himself as having changed more. The first-person perspective, in encouraging an episodic search, minimizes the influence of such semantic information.

What can be expected from a manipulation of the perspective used in recalling memories? Research pointing to detachment and low emotionality suggests that events recalled from the third-person perspective should be lower in emotional intensity and produce less of a threat to maintaining a positive sense of self. Conversely, third-person perspective has been shown to highlight the perception of change, and this may increase the emphasis on negative elements of a past event, especially those relating to semantic memory.

Thus far, two features of autobiographical recollection have been presented that may influence the effect of reporting a negative autobiographical memory. Negative events that have occurred farther in the past are less challenging to a positive sense of self, though people may retrieve more intensely negative or more personally meaningful memories from longer in the past. Third-person memories are more often emotionally detached, but the representation of the self as having changed since this event may serve to highlight the negative elements and stress the negativity of the event.

It was thus hypothesized that events farther in the past and events recalled from the third-person perspective would serve to distance the narrator from the challenges posed to the sense of self by a negative memory. However, given the possible other effects of time and perspective described above, a close analysis of narratives and other ratings are an integral part of interpreting results. Time and perspective were not expected to affect self-enhancement equally for different ages and genders. Current research suggests that both age and gender play significant roles in autobiographical memory, and this review now turns to discussing these roles.

Gender

While a comprehensive approach to gender differences in autobiographical memory does not yet exist, a collection of findings suggests that gender is likely to influence the results in this study. Findings in episodic memory research (Herlitz, Nilsson, & Backman, 1997; Herlitz, Airaksinen, & Nordstrom, 1999; Herlitz & Rehnman, 2008) have demonstrated that women perform better than men on episodic memory tasks but not on semantic memory tasks, and that their performance advantage is found in both verbal and visual-spatial tasks, suggesting it cannot be explained in terms of the distinction often found between men and women where women perform better on verbal tasks and men perform better on visual-spatial tasks (Maccoby & Jacklin, 1974).

While this episodic memory advantage shows that women tend to remember more than men, autobiographical memory research has found more specific ways in which the two genders differ. An overall trend exists that, from an early age, girls report memories that are longer, include more details about internal states (Bauer, Stennes, & Haight,

2003; Reese, Haden, & Fivush, 1993), and simply have more to say about themselves (e.g. Bohanek & Fivush, 2010; Bohn & Berntsen, 2008). For example, Robinson (1976) presented participants with cue words and asked them to report a personal memory related to that cue word. He found that women responded quicker to this elicitation than men. Pillemer, Wink, DiDonato, and Sanborn (2003) interviewed participants, age 68-79, focusing on life changes from the past 15 years. In an analysis of the transcripts of these interviews, they found that women included more specific episodes and more specific details than men. Additionally, it has been found that women find their autobiographical memories more personally meaningful (Thompson, Skowronski, Larsen, & Betz, 1996) and are more likely to identify a theme in their self-defining narratives (McLean, 2008). Davis (1999) suggested that women create more pathways to access their memories by elaborating on them more, and Pillemer (2009) writes that "females tend to have more frequent, accessible, elaborate, accurate and detailed personal memories than males do."

Considering the evidence that women's autobiographical memories are more detailed and more personally meaningful leads to the question of whether these differences reflect a general episodic memory advantage or if women remember events relevant to the self differently than men. Developmental approaches points to conversations between mothers and children. Nelson and Fivush (2004), in a review of the development of autobiographical memory, explained that, through conversations with their children, mothers scaffold the developing autobiographical memory system, teaching children which parts of an event to pay attention to by asking them questions about those elements. Indeed, longitudinal studies (e.g. Reese, Haden, & Fivush, 1993) found strong correlations between maternal reminiscing style and children's

autobiographical skills. Reese and Fivush (1993) found that parents of daughters were more elaborative than parents of sons, and it has also been found that mothers use more emotion words (Adams, Kuebli, Boyle, & Fivush, 1995) and more supportive speech with daughters than with sons (Leaper, Anderson, & Sanders, 1998). Thus, it is reasonable to expect that women would have more detailed and elaborated autobiographical memories than men, as girls experience more hands-on memory support at early ages, and this has been found (e.g. Bauer et al., 2003).

Findings suggest the process of specifically remembering self-related events from the past is different between men and women. Bauer, Stennes and Haight (2003) found that, in written accounts of events occurring after the age of seven, women wrote narratives that were longer and included more references to internal states (cognitions, emotions, perceptions, and physiological states). Additionally, while women's use of cognitions, emotions, and perceptions were highly intercorrelated and correlated strongly with self-ratings of personal significance and affective intensity, men's narratives showed no correlations between use of the various internal state languages, and internal state language negatively correlated with confidence in the details of the story and frequency of telling, suggesting that the more often the story was told, the less men reported internal states. Similarly, adolescent girls were found to tell narratives of themselves that were similar to those they told about their mothers but not their fathers, while boys showed no similarity to either parent (Fivush, Bohanek, & Zaman, 2011). These findings suggest that women and girls tell personal narratives that pay greater attention to their own thoughts and feelings than boys and men, and that they retain this information for a longer duration. This finding is relevant to a study of how one maintains a positive sense

of self in the face of a negative memory. Women might find negative personal events more challenging to their positive sense of self because they have greater access than men to the feelings of negativity they originally felt.

Taken together, the findings reported thus far suggest that women have access to a greater amount of detail from their memories of self-related events, especially for information about thoughts and feelings (Davis, 1999), and find these memories to be more meaningful than men (Thompson et al., 1996). This led to the hypothesis that women would find memories of negative personal events more challenging to a positive sense of self than men. However, this hypothesis is qualified by work suggesting that gender differences are not consistent at all ages.

Age

In continuing the previous section's discussion of gender, age can act to moderate expected gender differences. In a review of how autobiographical narratives contribute to gender identity, Fivush and Buckner (2003) discussed some inconsistencies in gender differences. Specifically, gender differences have been found as early as 40 months, when girls talk about past events with more reference to inner thoughts and feelings, more detail, and more explanation of actions that occurred (Fivush, Haden, and Adam, 1995); Buckner and Fivush (1998) found similar gender differences at age 8, with girls telling narratives that are longer, more detailed, involve more people and more relationships, and include more emotional information. However, Buckner (2001) elicited memories from college students for four types of events: feeling connected to other people, achieving a goal, being cautious, and feeling stressed. The only gender difference

found was in the *feeling stressed* condition, and in this situation males talked more than females, made more references to self, and used more internal states (Buckner, 2001). Fivush and Buckner (2003) suggest that context plays an important role in the narratives of men and women. At younger ages, gender is almost always in the forefront of a child's identity. Girls play in pairs or small groups, while boys play in large groups with hierarchies, and the two rarely mix (Gilligan, 1982). In college, the lens of gender is overshadowed by goals for identity formation, as both males and females are concerned with establishing a stable self as they plan their futures. Such an approach is useful in understanding why gender differences are not always found in autobiographical memory research (e.g. Rubin, Schulkind, & Rahal, 1999; Tustin & Hayne, 2010) and fits with existing models of gender differences, such as Deaux and Major's (1987) review, which highlights the fact that many research areas other than autobiographical memory have found gender differences elusive. The authors structure their theoretical model on the *display* of gender differences, explaining that whether gender differences will be found can depend on the individual, the audience, or the situation (Deaux & Major, 1987). For example, college students are more likely to mention their gender as part of a self-description when their gender is in the minority of a group (Cota & Dion, 1986), and the death of a spouse or loss of a job may highlight a person's gender roles in the family context, making him or her more aware of gender (Spence, 1984, 1985). Thus, because of one's developmental status or life experiences, gender may play a greater or lesser role in one's self-concept, which would then heighten awareness of gender-related characteristics. For adults, while the early years are focused on establishing a career and forming an identity, the later adulthood years are more likely to involve experiences that

make gender more salient, such as marriage, the birth of a child, or the death of a loved one. Thus, gender differences in narratives of self-relevant events are likely to be more pronounced in an older adult population than in a younger one.

Aside from gender, age can impact autobiographical memory in other ways, and it is important first to define the different age groups that were studied here. Arnett (2000) has identified the age range of 18-29 in current American society as *emerging adulthood,* and suggested that many psychological factors are influenced by this group's developmental concerns of attaining first jobs, living independently, establishing stable romantic relationships, and developing identity, in ways similar to Erikson's (1968) *intimacy vs. isolation* stage, but including other social factors as well. Similarly, in Rubin's studies of the *reminiscence bump* (Conway & Rubin, 1993; Rubin & Schulkind, 1997)*,* the age group of 10-30 was identified as the time from which adults retain the most specific memories. Because this time of life is one in which people are establishing norms for lifelong commitments and behaviors, this awareness has the potential to impact how memories about the self would be treated. Effects of age may be felt in numerous ways.

McLean (2008) compared self-defining memories (Singer & Salovey, 1993) of emerging adults to those of 65- to 85-year-olds. She found that older adults' narratives focused more on stability, while emerging adults focused more on change. The drive for maintaining stability may be heightened in adults of this age group, who face more negative change, such as declining health and death of loved ones, than the changes of emerging adults, such as new jobs, relationships, or moving to new cities (Bluck & Habermas, 2001). Using the Reminiscence Functions Scale, Webster and McCall (1999)

found that younger adults more often tell memories for the sake of boredom reduction and problem solving, but that participants in their 20's and 40's tell memories equally for the sake of establishing identity, while older adults more often tell memories for the sake teaching/informing as well as a factor called *death preparation* (Webster & McCall, 1999). If different age groups tell personal narratives for different purposes, the effect that telling the narrative can have on the self may change accordingly. Specifically, younger adults who are in the process of defining an identity may be more challenged by a negative memory as it more acutely contradicts the positive self that they are aiming to construct.

While the purpose for which people commonly tell memories is important, another relevant factor may have to do with memory accuracy. If accuracy declines with age, memories may be less challenging to the positive self, as fewer details are recalled. Conversely, Cohen (1998) showed that older adults' recall for personal events is as accurate as younger adults' when those events are self-selected, as they were in this study, and suggested that self-selected memories have been told or thought about many times and are likely quite vivid and important to the individual. This factor may further influence the data in this study, especially for stories occurring more than two years prior, as older participants, with a larger pool of adult memories to choose from, are more likely to report memories that have been thought about and re-told than younger participants. This finding provides further reason to analyze younger and older adults separately.

In addition to Cohen's (1998) finding with regards to accuracy, a number of cross-sectional studies have examined whether memory accuracy declines differently for different types of information. Hashtroudi, Johnson, and Chrosniak (1990) asked

participants to either perform or imagine performing certain scripted activities (e.g. packing a picnic basket). One day later, they were given a surprise recall task, and recollections were coded based on different features. The authors found that younger participants showed improved memory for colors, objects, and non-visual sensory information, but that older participants recalled a greater number of thoughts, feelings, and evaluative statements. Similarly, Carstensen and Turk-Charles (1994) presented participants with excerpts from two novels that contained emotional and non-emotional information. They compared four age groups, but primarily found differences between 20-45-year-olds and 53-83-year-olds, in that the older groups recalled a greater proportion of emotional information to non-emotional information than the younger groups. Specifically, they found that both groups recalled the same amount of emotional information, while the older groups' memory for non-emotional information declined. Uttl and Graf (2006) criticized these studies by suggesting that some of the results found were caused by floor effects, and by suggesting that memory gains and losses can occur at either encoding or retrieval and the studies don't distinguish between the two. They performed a study where participants, age 16 to 83 viewed pictures, described what they saw, and were later asked to recall what they had seen in the pictures. This procedure enabled the experimenters to test both encoding and retrieval for different age groups. They found substantial age declines in both retrieval and encoding for non-emotional information, meaning that older participants encoded less and subsequently remembered less of what they had encoded. Conversely, for emotional information, they found small gains in encoding and retrieval, suggesting that older participants encoded slightly more emotional information and remembered more of it than younger participants (Uttl &

Graf, 2006). While these studies were not testing autobiographical memories, results suggest that as people get older, the emotional information of an event becomes more prominent as memory for the other details declines.

One challenge posed by examining age differences is that the majority of studies relevant to age differences in autobiographical memory examine adults age 60-90, while the age comparison in this study compares a younger group, age 18 to 29, with an older group, age 30 to 78, with a mean age of approximately 41 and only ten participants age 60 and above. Although many studies examining age groups between 30 and 60 find a gradual decline in general memory, leading to a higher proportion of emotional information remembered, the differences between 25-year-olds and 45-year-olds are not particularly pronounced. Thus, to properly frame an analysis of age differences for this study, it is important to keep in mind that differences found are likely to be attributed to developmental status, rather than a change in memory capacity. Three factors are important considerations in making predictions for age differences.

The first relevant factor is the data provided by *socioemotional selectivity theory* (*SST*, Carstensen, Isaacowitz, & Charles, 1999). This theory suggests that two overriding goals influence people's social behavior and social preferences: knowledge-related goals and emotion regulation goals. Both goals are present at all ages, but at different ages some are more influential than others. Specifically, in adolescence and early adulthood, individuals stress the importance of the future, and put aside current emotional needs based on the idea that hard work or tolerance of adverse situations in the present will gain them knowledge that will lead to benefits in the future. For example, the young employee will take more difficult and time-consuming assignments, work longer hours, and tolerate

a small cubicle, thinking that this work will eventually gain him a nice office and easier hours. Thus, young adults stress gathering information and seek out novel social situations in service of these goals. Conversely, middle and older adults stress "living for the now," and make more of an effort at regulating their own emotions, preferring activities and social groups that will make them happy in the present, rather than successful in the future (see Figure 1). SST would predict that older adults would be more affected by re-telling a negative memory, as it poses a threat to their current well-being, while younger adults, because of their focus on the future, would be less affected by a negative memory.

A second possible influence that age could play in remembering negative events is similar to one discussed earlier when referring to time. Older participants are likely to recall events that happened farther in the past because they have a more significant past from which to select a memory. As mentioned earlier, older negative events that are remembered, if they are significant, can have a greater negative impact on subjective well-being than more recent events (Suh et al., 1996). Additionally, since many transformational life experiences happen in the emerging adulthood years, the younger group will not report these events if they have not yet happened. Finally, as this paper conceives of these negative memories as challenging because they pertain to one's current sense of self, it is unlikely that an emerging adult will consider memories from more than a few years past as relevant to his current sense of self, as he will view himself as having significantly changed since then. Consider a twenty-year-old reporting on an event when he was sixteen. It was only four years in the past, yet the individual considers himself to be vastly different. Conversely, an adult in her thirties or forties will view the

past ten or twenty years as relevant to her adult self. Thus, it will be important to examine the age of the memories that participants report to test any interpretation of age differences.

An opposite perspective to the previous two suggests that emerging adults' developmental status makes them more vulnerable to the effects of a negative memory. Although Erikson (1950) originally identified the adolescent years as having the central crisis of identity versus role confusion, Arnett (2000) has argued that more identity exploration occurs in the emerging adult years, as research has shown that few people reach identity achievement by the end of high school (Waterman, 1982). Additionally, the emerging adulthood years are when formative decisions are made about work, love, and worldviews, which have implications for stable lifelong practices. Given the developmental concerns of this age group of establishing norms and stability in one's life, the possibility exists that thinking about negative events will be more challenging for an emerging adult than for an older adult. The older adult has already established a stable and positive sense of self, and is thus less challenged by the thought of having acted negatively in the past. The emerging adult, however, who has less stability in his life and concept of self, may find negative information more challenging, and be more likely to try and maintain the positivity of self in response.

Given the evidence presented, the need for data collection that includes participants beyond a college-age sample is apparent. It is hypothesized that emerging adults will respond differently to negative memories than older adults. In some senses, emerging adults may find these memories more challenging, as they are in the process of establishing a stable sense of self and identity. However it is more likely that the older

adult group will find the memories more challenging in that the older adults are more focused on maintaining positive emotion in their lives, and that memories from a greater time span are relevant to adults' current sense of self. Additionally, older adults may recall events of greater consequence than younger adults due to having more adult life experiences from which to choose.

The Present Study

Past studies have demonstrated individual psychological distancing mechanisms, such as time and perspective. However, to fully understand how psychological distancing occurs, it is necessary to compare multiple mechanisms simultaneously. Additionally, the reliance on college-age students for the majority of samples and the absence of a careful analysis of gender differences has left unanswered the question of whether the effects found demonstrate characteristics universal to memory or if they are specific to certain populations. Answering this question can deepen an understanding of differences found. Additionally, examining features of memory narratives enables an analysis of self distancing as the memory is being re-experienced, in addition to other measures which focus on the participants' responses to recalling a situation.

In the study, participants were instructed to identify a trait that describes them. After identifying this trait, they were instructed to write a narrative of an event in which they did not act in accordance with this trait. As outlined in the methods section, participants were given different instructions regarding when the episode occurred and the visual perspective with which to recall it. After reporting this memory narrative, participants completed rating scales about the event and responded to a series of ethical dilemmas that were designed to measure self-enhancement.

The proposed study furthers our understanding of how distancing occurs by analyzing the simultaneous effects of time, perspective, age, and gender on 1) the content of memory narratives of negative events, 2) participants' evaluations of these memories in the form of rating scales, and 3) self-enhancement behaviors subsequent to narrating

the memories. In addition to the effects of the independent variables, analyzing memory content and participants' rating scales enables a careful examination of properties of the memories for events being narrated. In accordance with the SMS model (Conway & Pleydell-Pearce, 2000), it was expected that, in service of the goal to maintain a positive sense of self, participants would distance themselves from events that pose a threat to a positive sense of self. This report turns now to an outline of the content analysis and memory ratings.

Narrative Analysis

Central to an analysis of memories that are threatening to the sense of self is an examination of the content of participants' narratives. The hypothesis being examined here is that the content of memory narratives will predict participants' behavior in attempting to maintain a positive sense of self. While rating scales are also a valuable way of assessing how challenging a particular memory is to the sense of self, and are also used, narrative features provide an implicit measure of processes involved in reporting a memory. A closer look at the narratives that participants wrote has the potential to convey valuable information about the memory processes involved in re-experiencing negative events. An aim of this study is to examine whether narrative features can be used to predict subsequent behavior. Analyses of three narrative features were used: internal states, redemptive sequence, and harm to others.

Internal states. Bauer et al. (2003) examined *internal state language* used in autobiographical narratives, defined as use of emotion, cognition, perception, and physiological states. They found that women used these terms more than men and that

emotion, cognition, and perception terms were highly correlated for women, but not for men. Using internal state language in a narrative reflects the narrator's focusing on her own and others' interpretation of the event, and measuring memory narratives on these dimensions can inform how a focus on the interpretation of an event affects how the person responds to recalling it. Examining internal state language can also enable a test of whether narrative features that differ between men and women are related to behavioral responses after writing the narratives. Bauer et al. (2003) found that, for women, use of internal state language predicted personal significance and affective intensity reported in questionnaire items. Conversely, negative correlations were found between men's use of internal state terms and their ratings of confidence and personal significance, suggesting that narrative features may help explain differential relationships between narrative measures and memory ratings for men and women, and this study attempts to further understand these relationships.

It was predicted that narratives involving more internal state terms would be more likely to be threatening to the self, as they reflect a greater awareness of the first-person perspective, and especially with emotion terms, may point to events that are more emotionally intense or where the narrator is more aware of the emotional implications for himself and others involved.

Redemptive sequence. McLean and Pals Lilgendahl (2008) coded narratives for the *redemptive sequence,* a measure of whether narrative begin in the negative and turn positive. In examining stories of negative personal memories, the use of such a sequence may demonstrate psychological distancing that would lessen the effect of telling such a narrative. Additionally, McLean and Pals Lilgendahl (2008) showed that, while older

(59-83 years old) and younger (age 17-34 years old) participants used the redemptive sequence with the same frequency, using the redemptive sequence was positively associated with well-being for younger adults, but not for older adults. They suggested that emerging adults, who are more driven by achievement and establishing a unique identity, are more threatened by negative events than older populations. This study examines this claim, both by examining the narrative use of redemptive sequences and by exploring other age effects in the data.

Writing narratives using the redemptive sequence is a means of limiting the threat of a negative memory by turning it into a positive outcome or lesson learned. Thus it was predicted that use of the redemptive sequence would moderate the effects of negative memories by reducing the amount of other strategies participants would use to protect the self.

Harm to others. This final coding method was implemented based on reading the narratives provided by participants, rather than the other two coding methods that were based on a priori hypotheses. It was found that some narratives explicitly mentioned another person being harmed by the actions of the protagonist, and others simply mentioned a personal error without explicitly noting that someone else was hurt by this behavior.

It was hypothesized that narratives in which the protagonist harmed another person would predict more pro-social behavior as a means of compensating for the social damage caused in the event narrated, thereby protecting a positive sense of self in social contexts.

Memory ratings

The possibility exists that people responded differently to the measures if they told memories of greater or lesser consequence, or if they demonstrated strategies for self-protection in the narratives themselves. In order to incorporate these elements into all analyses, before the four main independent variables outlined above are studied, narratives are examined for self-reported *personal meaning*, as indicated by participants on the rating scales. It was expected that memories rated higher on personal meaning would be more connected to the self and thus exhibit stronger effects on the self-enhancement measures. Other memory ratings items were also provided, as reported in the method section, but these are less central to the overall hypothesis of the study, and are addressed only when results of interest are found.

Hypotheses

The overarching hypothesis of this study was that participants would distance themselves from memories that challenge the positive sense of self by engaging in behaviors that promote a positive sense of self. This promotion of self can take many forms. First, participants can respond to self-enhancement measures with more pro-social or more ethical behavior. Additionally, participants can rate the negative event as having occurred farther in the past than they actually did. Furthermore, participants can rate their own memories of the events as less clear, suggesting that the details of the event cannot be relied on as well. Within this construct, six specific predictions are tested:

1. Past studies have shown that a means of distancing the self from negative memories is to rate negative past events as farther in the past. In this study, it was predicted

that, when instructed to recall events from farther in the past, the positive sense of self would be less threatened, leading participants to less promotion of the positive sense of self.

2. Similarly, the third-person perspective has been found to lead to memories with emotional detachment, and it was predicted that memories told in the third-person perspective would be less threatening as well, leading to less promotion of the positive sense of self.

3. Because older adult participants are more concerned with emotion regulation (Carstensen et al., 1999) than emerging adults, it was predicted that older adults would find past negative memories more threatening to the sense of self, and thus would engage more in promotion of the positive sense of self.

4. It was predicted that women would find negative past memories more threatening to the positive sense of self, and would thus engage more in promotion of the positive sense of self. It was also predicted that gender differences would be stronger in older adult participants than in emerging adult participants.

5. In addition to effects of the four independent variables (time, perspective, age, gender), it was expected that content of the memory narratives (internal states, redemptive sequence, and harm to others) would predict subsequent promotion of the positive sense of self.

6. Memories rated as more personally meaningful can be more threatening to the positive sense of self and thus would predict increased promotion of the positive sense of self.

Baseline Data for Self-Enhancement Measures

Because responses on the two ethical dilemmas have never been used before in an experimental context, and because comparisons based on age and gender are being made throughout the study, it was important to conduct some baseline measures so that it would be possible to interpret whether the findings in the study can be attributed to the memories participants narrated, or if they simply reflect pre-existing group differences.

Method

Participants. 94 participants were recruited through Mechanical Turk[TM] to achieve baseline measures. Age ranged from 18 to 67 ($M = 32.61$, $SD = 11.91$). There were 45 participants in the emerging adult group, age 18 to 29 ($M = 23.16$, $SD = 3.38$) and 49 in the older adult group, age 30 to 67 ($M = 41.82$, $SD = 9.71$). There were 21 men and 24 women in the emerging adults group, and 21 men and 28 women in the older adult group. Reported ethnicity was White (n = 72), Asian (n = 8), Black (n = 9), and Hispanic (n = 2). Two participants did not report ethnicity. Only participants residing in the United States were allowed to complete the survey, and data include respondents from 28 states, with no single state accounting for more than 14% of the sample.

Procedure. Participants were recruited through Mechanical Turk[TM] to participate in a "short study about hypothetical reasoning." They were directed to a survey conducted using Survey Monkey[TM]. After providing demographic information, participants were presented with the two ethical dilemmas, detailed below. They were then thanked for their participation and paid 12 cents.

Voting behavior. Participants were asked if they would vote for a candidate of an opposing party if they were paid anywhere from 50 cents to "more than 100,000 dollars." The scale had 15 options, with the fifteenth option being that they would not accept any amount (see Appendix A). For the main study, it was hypothesized that, in servicing the need for a positive and consistent sense of self, participants who had just told a memory that challenges that sense of self would be less likely to accept money to vote for the opposing party (no real money was offered). This initial data collection provided a baseline of how participants responded to this measure of positive self-image maintenance when it is not preceded by a manipulation.

Emergency help. Participants read about a situation where the more time they spent saving victims of an accident, the later they would arrive to a job interview, hurting their chances of getting the job (see Appendix A). For the main study, it was predicted that participants who have just reported a memory that threatens a positive sense of self would be more likely to act selflessly in an attempt to maintain a positive self image. This initial data collection provided a baseline of how participants responded to this measure of positive self-image maintenance when it is not preceded by a manipulation.

Results

A number of measures used in this study demonstrated skewed distributions. In order to properly use parametric statistics with skewed data, power transformations are advised according to a *ladder of powers* (Velleman & Hoaglin, 1981; Kirchner, 2001); data that is positively skewed, or clustered at higher values, is transformed using squares, cubes, or higher powers. Data that is negatively skewed, or clustered at lower values, is

transformed using roots, logarithms, or reciprocals. A sample chart of this ladder can be seen in Table 1, and many of these transformations are used throughout the two studies. Whenever transformations are performed, test statistics (*t*, *F*, Cohen's *d* and *f*) are used from the transformed data, but means and standard deviations are reported in the original numbers found, as these numbers serve as a meaningful reference point (such as 12 on the 1-15 scale provided or 2% of a narrative for a proportion score on emotion and cognition terms), whereas their transformed values do not.

An early examination of the *voting behavior* measure found a moderate left skew in responses on this measure, *M* = 11.96 on a 1-15 scale, *SD* = 3.24, *Skewness* = -.926, *SE of Skewness* = .25. To compensate for this skew, a cubic transformation was performed (Kirchner, 2001). The resulting data demonstrated a substantially lower skew, *Skewness* = -.22, *SE of Skewness* = .25. Scores on the *emergency help* measure demonstrated a similar skew, *M* = 3.32 on a 1-4 scale, SD = .89, *Skewness* = -1.25, *SE of Skewness* = .25. A cubic transformation was also performed on this measure, resulting in an acceptable skew, *Skewness* = -.45, *SE of Skewness* = .25.

A separate 2 X 2 between groups Analysis of Variance was performed for each ethical dilemma, with age group and gender as independent variables. For the *voting behavior* measure, no effect of age group was found, $F(1, 90) = .92$, $p = .34$, but a significant effect of gender, $F(1, 90) = 5.01$, $p < .05$, Cohen's $f = .26$, found that women (*M* = 12.62, *SD* = 2.99) were less likely than men (*M* = 11.14, *SD* = 3.37) to accept money to vote for a candidate they disagreed with. On the *emergency help* measure, no significant differences were found for either age group, $F(1, 90) = 1.82$, $p = .18$, or gender, $F(1, 80) = .10$, $p = .75$. Means and standard deviations are reported in Table 2.

There were no interactions on either measure. In sum, baseline measures found no age differences on either ethical dilemma, suggesting that the measures do not elicit age-specific responses. Additionally, women chose the more "ethical" options on the *voting behavior* measure, but did not differ from men in their responses to the *emergency help* measure.

The Effect of Negative Memories on Self-Enhancement

Method

   Recruitment. Participants were recruited through Amazon's Mechanical Turk[TM], a web site where people consistently perform tasks of various kinds in exchange for payment. Recent findings (Buhrmester, Kwang, & Gosling, 2011) show that collecting data on this website has reliably replicated many past findings on established psychological questionnaires. Collecting data on this web site provides two methodological advantages and two practical advantages. Methodologically, participants on Mechanical Turk only receive payment after the owner of the survey approves their work. In contrast, Rutgers students in the research pool receive credit regardless of how they answer questions in an experiment. Consequently, Mechanical Turk members take surveys more seriously in general, and the experimenter can reject participants who do not follow instructions. Additionally, collecting data on Mechanical Turk provides a more diverse sample, both in terms of age and geographical location. Past studies have shown that the average age for participants on psychology surveys on this website was 32.8 (SD = 11.5, Buhrmester et al., 2011), higher than other means of internet data collection, and much broader than college-age participants. Furthermore, participants can take the survey from anywhere in the United States. Although 31% of Mechanical Turk participants are non-American, this data collection only included United States residents, as piloting found difficulties for a narrative analysis with some participants having poor English. The two practical advantages include cost effectiveness and time efficiency, as participants were recruited for approximately one dollar per hour, and data collection was conducted in approximately one month.

Participants. A total of 387 participants completed the survey for this study. Data from 48 participants were excluded, either because they were instructed to narrate a memory from the last year and they indicated that the event occurred more than one year in the past, or because they were instructed to give a memory from more than 2 years ago and they indicated that the event occurred less than two years in the past. Additionally, data from 12 participants were excluded because participants narrated an event that fit the selected trait instead of violating that trait. Data from three participants were excluded because there was no relationship between the memory narrative provided and the traits identified, and data from three other participants were excluded because the memory narratives were of positive events. One participant was excluded for checking 'male' on the demographic form and then indicating in the narrative that she was, in fact, a woman. Thus, the data reported here include the remaining 320 participants who followed the instructions properly.

Age of participants ranged from 18 to 78 ($M = 32.33$, $SD = 11.42$). Analyses reported refer to an older and a younger group. Each group consisted of 160 participants, 80 men and 80 women. The survey was designed such that once the 80 spots for each age and gender group had been filled, no further participants from those populations were permitted to take the survey. The younger group ranged in age from 18 to 29 ($M = 23.79$, $SD = 3.49$); the older group's age ranged from 30 to 78 ($M = 40.88$, $SD = 10.13$). Reported ethnicity was: White ($n = 262$), Asian ($n = 18$), Black ($n = 22$), Hispanic ($n = 9$), Native American ($n = 3$), Indian ($n = 2$), Arabic ($n = 1$), and Bi-racial ($n = 3$). Only participants residing in the United States were allowed to complete the survey, and data

include respondents from 44 states, with no single state accounting for more than 8% of the sample.

Procedure. Participants were recruited through Amazon's Mechanical Turk[TM], as described above. From Mechanical Turk[TM], participants were directed via a link to the survey using Survey Monkey[TM], a commonly-used, internet-based survey software (a full version of the survey can be seen in Appendix A).

Memory elicitation. After consenting to participate and entering demographic information, participants were presented with a list of traits, from which they were instructed to select three that describe them. Afterwards, participants were prompted to provide the trait of those three that most describes them, and to write a memory of an event where they did not act in accordance with that trait. Half the participants were instructed to report a memory that occurred within the last year and half a memory that occurred more than 2 years ago. Within each group, half were instructed to visualize the memory from the first-person (actor) perspective and half from a third-person (observer) perspective. Questions were provided to help them visualize the scene from either perspective (Libby et al., 2005; e.g. can you see what you were wearing? Can you see any windows in the room? See Appendix A).

Memory ratings. After writing the memory narrative, participants were asked to rate the following items relating to the reported memory, to their autobiographical memory in general, and other questions about seemingly unrelated behaviors, as described below (see Appendix A):

Personal meaning

How personally meaningful is the event you reported?

How important is this memory to who you are?

How would you rate your emotions relating to this event?

Bauer et al. (2003) found that college students reported memories from the distant past (before the age of 7) as less personally meaningful, less affectively intense, less visual, and were less confident in the details. Bauer et al. (2003) asked participants "how would you rate the affective intensity of this event?" This question was replaced with a rating of 'emotions,' because of a concern that not all participants would understand the meaning of the term 'affective intensity.' These first items were used to establish the extent to which participants viewed the reported memory as relevant to their sense of self.

Sense of personal continuity and change

How much have you changed since this event?

When I think of my past I notice certain qualities that I had then and still have now.

When I think of myself when I was little, I am often amazed at how different I was and how many changes I have gone through to become the person that I am.

Narratives can be told to stress either continuity or change (McAdams, 1985, Pillemer, 1998). If a narrator is attempting to distance himself from the memory, he is likely to report more change and less continuity, and thus these two items were measured. Additionally, versions of the questions are phrased in both general terms and terms specific to this memory.

Sense of Agency

Broderick (2009) reported that one way pro-life women responded to their own decisions to abort was by downplaying their agency in making the decision. These items test people's attempt to distance themselves from unwanted memories by doing something similar. Gray, Gray, and Wegner (2007) have used a composite of seven items to measure agency: self-control, morality, memory, emotion recognition, planning, communication, and thought. Participants rated the degree to which these seven features described them in the episode they reported.

Temporal distancing

How long ago did this event take place?

How long ago did this event occur?

_____ years or _____months (depending on which condition participants are in)

Ross and Wilson (2002) demonstrated that negative events were reported as feeling farther away than positive events occurring at the same time. To measure if such an effect would be replicated here, participants were asked to report when this event occurred (in months or years), and were also asked to report on a scale of 1-5 how long ago the event occurred. The comparison of actual years when the event occurred to the scale rating of when it occurred enables an examination of whether certain groups or experimental conditions were more or less likely to report events from the same calendar time as having occurred subjectively farther in the past.

Directive function

I think of this memory in order to handle present or future situations.

Participants rated how much they use this memory to guide future decisions. Incorporating this memory into the sense of self would be indicated by a high score on this measure, while distancing it from the self would be indicated by a low score on this measure.

Vividness

Some people report mentally "seeing" the events of a memory they report, while others just describe facts that they remember. How visual is the event you wrote about?

How confident are you about the details of the event reported?

These two items provide a sense of the detail with which the narrator is re-experiencing the event. Events that are less vivid and the narrator is less confident may be less threatening to a positive sense of self.

Self-Relatedness

My evaluation of self-worth depends on the success or failure of my behavior in a given situation.

This memory tells me something about my identity.

These items indicate other ways a person can distance the memory from threatening the sense of self, either by claiming that one's sense of self-worth does not

change based on one episode or by asserting that it does not reflect the true identity of the narrator.

Self-enhancement measures. After filling out the memory ratings, participants answered a series of questions not directly related to the events described or to personal memory. The purpose of these questions was to test if the process of telling a negative memory that is challenging to a positive sense of self would lead participants to present themselves as more ethical and engage in more charitable behavior, in an attempt to maintain a positive sense of self. Three tasks were used. The first two, *voting behavior*, and *emergency help,* are detailed above in the baseline measures section.

Donating behavior. Participants were offered an extra 25 cents, but given the option of donating it to UNICEF. It was predicted that participants who had just told a memory that threatens self coherence would be more likely to act selflessly in an attempt to maintain a positive self image. It was hypothesized that a more general desire to view oneself as charitable would be induced by a negative memory, leading to greater donating behavior.

No comparable test for the donating behavior DV was used in the baseline measure section because this test involved a bonus as an incentive to complete a long survey, and, since the survey used in the baseline was short, it was not deemed similar enough to achieve a comparable baseline for donating behavior.

Narrative Coding

Internal States. Narratives were coded for the presence of internal state language based on the coding scheme developed by Bauer et al. (2003). Any use of internal states

was coded into one of four mutually exclusive categories: a) emotions (e.g. embarrassed, excited), b) cognitions (e.g. thought, decided), c) perceptions (e.g. saw, heard), or d) physiological states (e.g. tired, nauseous). Terms were categorized based on their usage in the narrative and not based on their literal meaning. For example, if a narrator wrote, "I *saw* what she meant," *saw* was categorized as a cognition, as it is used here to mean *understood*, and not to refer to perception. Context was also used in determining whether a term was included in the coding system. For example, if a person began a narrative with "I remember…" or indicated "I think the event happened like this…" these usages of *think* and *remember* were not coded as cognition terms. Each internal state word was coded as an individual instance. For example, if a person wrote, "I was sad and nervous," this phrase would coded as two emotional states, including both *sad* and *nervous*. Additionally, each internal state was further coded as referring to self (e.g. I felt so guilty after stealing the candy bar) or other (e.g. I knew she was angry about something), and statements that referred to a joint internal state (e.g. we were so angry at each other) were coded as both self and other. Emotions were coded in two additional ways: they were first coded as positive (e.g. happy, love), negative (e.g. sad, angry, upset), or neutral (e.g. not sad, not happy, interest, or any terms used without a clear valence, such as "powerful feeling"), and then coded as whether the emotion was explicit (e.g. I was happy) or implicit (e.g. I laughed). These additional codes were employed in order to fully reproduce the coding performed by Bauer et al. (2003), though not every distinction is analyzed in this paper. Two coders analyzed 49 narratives, or 15% of the data set. Their agreement was 87.4% for categorizing internal state terms, 98.9% for categorizing the term as self or other, 94.9% for coding emotions as explicit or implicit, and 97.5% for

coding emotion terms as positive, negative, or neutral. Disagreements and ambiguities were resolved through discussion. For example, the word *feel* is often used to express an opinion rather than an emotion, and it was decided that unless a feeling state was implied, *feel* in this context would be coded as a cognition. For words that were unclear as to whether they constituted an emotion, the Linguistic Inquiry Word Count (Pennebaker, Francis, & Booth, 2007) database was consulted. It should be noted that these instances were rare. While it is often common to code 20-25% of a database, because of the large volume of narratives and the consistency with which agreement was achieved, it was decided to stop reliability coding after 15%. One coder finished coding the remainder of the narratives.

Redemptive sequence. A different coder completed the *redemptive sequence* and *harm* coding than the *internal state* coding. Narratives were coded for the use of the *redemptive sequence,* whether the story changed in tone from negative at the beginning to positive at the end, in line with McLean and Pals Lilgendahl (2008). Two coders analyzed 80 narratives, or 25% of the data set, and rated it for presence or absence of the redemptive sequence. Percent agreement was 96.3%, and one coder completed coding the remaining narratives.

Harm. Narratives were analyzed and coded for the presence or absence of another person being harmed in the narrative. Narratives were given a code of 1 if the narrator explicitly mentioned that another person was harmed, and a code of 0 if no individual person was harmed. For example, if a person reported a memory of stealing, while one could claim that the store owner was being harmed, it would only receive a code of 1 if the narrator specifically wrote that the store owner was harmed. Two coders

analyzed 80 narratives, or 25% of the data set, and percent agreement was 97.5%. One coder completed coding the remaining narratives.

Results

Results are divided into the following sections: first, descriptive statistics are reported; second, analyses of the memory ratings are reported; third, narrative analyses are reported; fourth, analyses of the self-enhancement measures are reported. A summary of the different analyses used appears in Table 3. Analysis of memory ratings and memory narrative content elucidate the effects of temporal distance and perspective on recalling negative, self-discrepant events for men and women at different ages. The analysis of self-enhancement behavior tests how the narrating conditions (time and perspective), the participants (gender and age), or the content and ratings of the memories affect how participants respond to hypothetical (voting behavior and emergency help) and actual (donating behavior) moral dilemmas. The higher scores on the self-enhancement measures are conceptualized as ways that participants maintain a positive sense of self.

Descriptive Statistics

Table 4 reports the number of participants who selected each trait, separated by age group and gender. For each trait that was selected by more than 20 people, 2 X 2 chi square analyses were performed to test if use of this trait differed by age group or gender. No comparison achieved significance, all χ^2 (df = 1) < 3.04. For traits with fewer than 20 participants, chi square was not appropriate. Additionally, a Fisher's exact test, the nonparametric test commonly used for small comparisons, was not used because

differences in selection of a trait with fewer than 20 participants in a data set of 320 participants was not considered substantial. Thus, further analyses can assume that differences found between age and gender groups do not reflect differences in the traits chosen.

Memory Ratings

Descriptive statistics for memory ratings are presented for the two age groups in Table 5. Notably, older adults scored significantly higher than younger adults on three of the 13 rating scales. Specifically, they rated their memories as more important to who they are, reported greater confidence in the details of the event, and were more amazed at the changes they had undergone. Additionally, Table 6 presents the age of the memories reported, as indicated in months and years by participants. Recent events were reported from an average of 5 months in the past for both age groups. For distant events, older adults reported events from farther in the past, $t(108) = -5.48$, $p < .001$, with emerging adults reporting events occurring an average 5.91 years in the past and older adults reporting events occurring an average 12.63 years in the past, resulting in memories for the emerging adult group from events that occurred at an average age of 20.63 ($SD = 4.92$, range = 7-27), and older adults reporting events that occurred at an average age of 27.96 ($SD = 10.41$, range = 6-55).

Using 13 rating scales separately increases the probability of Type I Error, and makes interpreting results more difficult. In order to better interpret results on the memory ratings, a factor analysis was performed. Factor analysis is a statistical procedure used to explain variability among multiple variables by combining multiple items into

'factors,' combinations of items that vary in similar ways. There are two ways of evaluating a factor analysis (Tabachnick & Fidell, 2007). The first is the Kaiser criterion, which accepts all factors with an Eigenvalue greater than 1. The second is the Scree test, which involves looking at a graphical representation of Eigenvalues and identifying the place at which there is a change in slope, often called "the elbow" of the graph.

A Principal Axis Factor Analysis with a Varimax (orthogonal) rotation of 12 memory rating items was conducted on data gathered from 320 participants. Although originally there were 13 ratings, in early analysis one item, "When I think of myself when I was little, I am often amazed at how different I was and how many changes I have gone through to become the person that I am," was removed. Because this item contains double-barreled language, when participants indicate agreement with this item, it is unclear if they are agreeing with the amount of change they have gone through, or with the fact that they are amazed. Because of the lack of clarity in interpreting this item, it was removed from all analyses.

An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the sample was factorable (KMO=.712). The results of the factor analysis are shown in Table 7. The analysis, using the Kaiser criterion, yielded a four-factor solution. However, looking at the Scree plot (Figure 2) suggests that the first factor is stronger than the remaining three. Despite this, all four factors are used, as they all were composed of items that fit together in a theoretically coherent way.

Five items loaded onto Factor 1. The first three items were the ones predicted to fit in to the *personal meaning* category, as outlined in the method section. The remaining

two items were "this memory tells me something about my identity" and "I think of this memory in order to handle present and future situations," and both had negative loadings for this factor. That these two items would load together with the personal meaning items was not predicted, but does make intuitive sense given that the events were negative. The more meaningful the events were, the less a person wants to consider them part of his identity, and the less he will refer back to them in the future. Thus, this factor was labeled "personal meaning," and will be referred to as such throughout the results section.

Two items loaded onto a second factor related to time since the event. The first was "how long ago did this event occur" and the second was "how much have you changed since this event," and the connection between these two is intuitive. It should be stressed here that this is a subjective measure of how far in the past the event feels, as opposed to an actual recording of how long ago it was, as is tested below. Factor 2 will be referred to as "temporal distance"

The two items that load onto the third factor pertain to the experience of recalling the event, as both confidence and visual imagery suggest that the participants has a more clear recollection of the event. A third item, agency, had a moderate loading on this factor as well (a factor between .4 and .6 in an exploratory factor analysis is considered moderate, Hair, Anderson, Tatham, & Black, 1998) , and it is intuitive to suggest that the clearer a recollection is, the more a person can feel a sense of agency. Factor 3 will be referred to as "clarity of recollection."

Finally, the fourth factor includes "my evaluation of self-worth depends on the success or failure of my behavior in a given situation," and "when I think of the past I

notice certain qualities that I had then and still have now." Both of these items suggest connecting the self to past events, and both refer to general statements about memory rather than to specifics about the episode reported. Factor 4 will be referred to as "connection to past self."

Each of the four factors was then analyzed in a 2 (time; recent, distant) X 2 (perspective; first-person, third-person) X 2 (gender; male, female) between-subjects analysis of variance (ANOVA). All analyses are presented separately for the younger and older age groups, as explained in the introduction, because differences between these groups were expected, and analyzing separately makes results more interpretable by minimizing three- and four-way interactions. Means and standard deviations for the factors are presented when significant differences were found, and use standardized scores. The ANOVA for the emerging adult group revealed a significant main effect of time on *temporal distance, F* $(1, 148) = 97.65, p < .001, Cohen's f = .80$[1], with older events ($M= .59, SD = .68$) rated as longer in the past than more recent events ($M= -.57, SD = .77$). Additionally, there was a significant main effect of perspective on *clarity of recollection, F* $(1, 148) = 4.31, p < .05, Cohen's f = .17$, with participants reporting greater clarity for events told from third-person perspective ($M= .09, SD = .98$) than for the first-person perspective ($M= -.28, SD = 1.21$). No other factors showed any main effects or interactions for the emerging adult group. Additionally, t tests comparing older and emerging adults found no significant differences between the two age groups on the four factors.

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[1] For all tests of mean differences, effect sizes are reported. *Cohen's d* is used for t tests, which is interpreted with the following conventions: small = .20, medium =.50, large =.80. *Cohen's f* is used for ANOVA statistics, and is interpreted with the following conventions: small =.10, medium =.25, large =.40.

In the older adult group, the same significant main effect of time on *temporal distance* was found, $F (1, 148) = 171.12$, $p < .001$, *Cohen's f* $= 1.04$, with older events rated as longer in the past ($M= .74$, $SD = .73$) than more recent events ($M= -.80$, $SD = .76$). Additionally, a significant main effect of *personal meaning,* $F (1, 148) = 5.36$, $p < .05$, *Cohen's f* $= .18$, found that older events ($M= .26$, $SD = .90$) were rated as more personally meaningful than more recent events ($M= -.09$, $SD = 1.05$). Finally, significant three-way interactions were found on both *temporal distance,* $F (1, 148) = 4.71$, $p < .05$, *Cohen's f* $= .74$, and *personal meaning,* $F (1, 148) = 4.02$, $p < .05$, *Cohen's f* $= .31$. These interactions are displayed in Figures 3 and 4.

Simple effect analyses were conducted for these interactions. For *personal meaning,* women rated first person distant memories as significantly more meaningful than first person recent memories, $p < .05$, and men rated recent events as significantly more meaningful in the first person than in the third person, $p < .05$ (see Figure 3). No other pair-wise comparisons were significant. For *temporal distance,* the only significant pair-wise comparisons were that events from within one year were always rated as less distant than events from more than two years in the past (see Figure 4). Given the inconclusive nature of the simple effects analysis, a look at a graphical representation of these interactions suggests that, overall, women rate their memories as more personally meaningful than men, except in the first-person recent condition. Similarly, men rate their memories as further in the past than women, except in the first-person recent condition.

Two possibilities exist in interpreting results for *temporal distance* ratings. Ratings may reflect how long in the past events actually were, or they may reflect psychological distancing from the events. An additional 2 (time; recent, distant) X 2

(perspective; first-person, third-person) X 2 (gender; male, female) between-subjects

ANOVA was performed for each age group using participants' more objective

indications of when the event occurred (in months or years) as a dependent variable. If

the results on this test mirror the results on ratings of *temporal distance*, then the

temporal distance factor can be interpreted as an objective rating of when events

happened. However, if the same main effects and interactions are not found, the *temporal*

distance factor can be interpreted as a subjective rating of when events occurred,

indicating that participants may be using this scale to distance themselves from negative

events. As expected, a significant main effect of time amongst younger participants, F (1,

152) = 119.49, $p < .001$, *Cohen's f* = 1.14, indicated that older events (M= 5.91, SD =

4.50) were farther in the past than recent events (M= .41, SD = .34), and no other tests

achieved significance. For older adults, a significant main effect of time, F (1, 152) =

121.69, $p < .001$, *Cohen's f* = 1.22, indicated that older events (M= 12.63, SD = 9.94)

were farther in the past than recent events (M= .42, SD = .34). Critically, however, the

time X perspective X gender interaction reported above on ratings of *temporal* distance,

did not achieve significance, F (1, 151) = .07, p = .80, and no other main effects or

interactions achieved significance. This finding suggests that the results reported above

with the *temporal distance* factor reflect a subjective feeling of how long ago the event

occurred, or psychological distancing, and not an actual representation of when the events

occurred.

   To summarize the findings in the analysis of memory ratings, four factors

emerged, *personal meaning, temporal distance, clarity of recollection,* and *connection to*

past self. In the older group, events from farther in the past were rated as more personally

meaningful than recent events. This finding opens a possible confound in subsequent analyses of time for the older participants. While an original hypothesis was that more distant events would be less challenging to the positive sense of self, because older participants rated distant events as *more* meaningful, distant events may be considered closer to the self because of this. In order to avoid this and other possible confounds between the different manipulations and the content of the memories, the four factors derived from the memory ratings are used as covariates in all analyses of the self-enhancement measures. Additionally, interactions were found on the *personal meaning* and *temporal distance* factors. These interactions seem to reflect how men and women differentially respond to the different instructions, and a closer analysis of this finding will be undertaken in examining later results.

Narrative Analysis

Examples of narratives are provided in Appendix B, which includes a sample narrative from each of 16 possible combinations of age, gender, time, and perspective. All the narratives in Appendix B are related to the trait of honesty. This trait was chosen simply because it was one of the most commonly selected traits, enabling samples for all possible demographic and instruction combinations.

Three types of narrative analyses were conducted. First, narratives were coded for use of four types of internal states (emotions, cognitions, perceptions, and physiological states). Second, each narrative was rated for whether it ended on a positive note (redemptive sequence). Third, each narrative was rated for whether it included mention of specific harm caused to another person.

Internal states. An analysis of internal state terms faces the methodological issue of whether to examine internal state terms as frequencies or as proportions of the narratives, i.e. by dividing the internal state terms by the word count of the narrative. In this report, internal states will be analyzed as proportions over the overall narratives for three reasons. First, many of the hypotheses relating to internal states concern gender, and independent samples t test shows that women ($M = 212.49$, $SD = 102.08$) wrote significantly longer narratives than men ($M = 185.89$, $SD = 90.29$), $t(318) = 2.47$, $p < .02$, *Cohen's d* = .28. Second, a preliminary correlation of word count with the four types of internal state language found word count significantly correlated to all four terms (see Table 8). To test if the correlations between the various internal state terms were independent of word count, a meditational analysis was conducted (see Figures 5 and 6). Since emotion and cognition words had the strongest correlation (see Table 8), these terms were used in a sample mediational model (Baron & Kenny, 1986). Analyses were conducted separately for men and women. Initial correlations indicated that while frequency of cognition terms and emotion terms were significantly correlated amongst both men and women, $r(158) = .35$, $p < .001$, and $r(158) = .41$, $p < .001$, respectively, when accounting for the influence of word count, partial correlations found no significant relationship between frequency of cognition and emotion terms, $r(158) = .06$, $p = .49$, and $r(158) = .07$, $p = .35$, respectively. A Sobel's test is commonly used in meditational models to measure if a correlation between two items accounts for significantly more variance than that already accounted for by a third variable (Sobel, 1982). confirmed that the relationship between cognition and emotion word use explained no additional variance beyond that already accounted for by word count, $z = .024$, $p = .98$ for men, and

$z = .029$, $p = .98$ for women (see Figures 5 and 6). Thus, all further reports of internal state usage will refer to internal states as a proportion of the overall word count in each narrative.

As shown in Table 9, women wrote narratives that contained proportionally more emotion terms than men, and men used proportionally more physiological states than women. Given that Bauer et al. (2003) found a strong connection between different internal state terms for women but not for men, correlations of the four different internal state terms were computed separately for men and women (see Tables 10 and 11). Only one significant correlation was found, between cognitions and physiological states for men, and no correlations were found for women. Thus, internal states were deemed inappropriate to be combined into one overarching variable and are analyzed separately for each type of internal state. Because so few perceptual terms and physiological state terms were used (less than 1% of narrative content overall), further analyses only included emotion and cognition word use.

Emotion words were divided into two separate categories: emotion for self and emotion for other. This was done because these two categories provide different types of information about what the narrator conveys by using emotion. Both these variables and cognition terms demonstrated skewed distributions.

Emotion words for the self exhibited a positive skew, *Skewness* = 1.45, *SE of skewness* = .14. A logarithmic transformation was performed, resulting in an acceptable skew, *Skewness* = .25, *SE of skewness* = .14. Emotion words for others also exhibited a positive skew, *Skewness* = 1.56, *SE of skewness* = .14. A reciprocal transformation was

performed on emotion words for others, resulting in an acceptable skew, *Skewness* = .24,

SE of skewness = .14. Cognition terms also exhibited a positive skew, *Skewness* = .89, *SE*

of skewness = .14. A square root transformation was performed on cognition terms,

resulting in an acceptable skew, *Skewness* = .17, *SE of skewness* = .14. The different

transformations were chosen on the basis of which transformation best fit each variable.

It should further be noted that since all of these transformations require dividing by the

variable of interest, and all three of these variables included zero values, instead of

computing the transformation with the original score (e.g. 1/x) a constant of 1 was added

to every term before this transformation (e.g. 1/[x+1]). To prevent the constant from

interfering with interpretation of the data, whole number scores representing percentages,

such as 2% were used instead of proportions, such as .02 (Kirchner, 2001).

Independent samples *t* tests were performed to compare emerging and older adults

on their use of cognition words, emotions words for self and emotion words for others.

No differences were found between the two age groups, all *p*'s > .18.

Cognition words were used as the dependent variable in a 2 (time: recent, distant)

X 2 (perspective: first-person, third-person) X 2 (gender) ANOVA for each age group.

No significant effects were found for the emerging adult group. Among older adults,

there was a significant main effect of time, $F(1, 152) = 6.08$, $p < .05$, Cohen's $f = .19$,

such that participants wrote narratives of distant events ($M = 2.26$, $SD = 1.36$) with a

greater proportion of cognition terms than recent events ($M = 1.95$, $SD = 1.22$).

Emotion terms for self and emotion terms for others were each used as the

dependent variables in 2 (time: recent, distant) X 2 (perspective: first-person, third-

person) X 2 (gender) ANOVAs for each age group. For emerging adults, results revealed a significant main effect of gender on *emotions for self*, $F(1, 152) = 4.51$, $p < .05$, Cohen's $f = .16$, such that women ($M = 1.72$, $SD = 1.52$) used proportionally more *emotion for self* terms than men ($M = 1.27$, $SD = 1.25$), and a main effect of perspective, $F(1, 152) = 9.64$, $p = .005$, Cohen's $f = .24$, such that more *emotion for self* terms were used for narratives in the third-person perspective ($M = 1.80$, $SD = 1.42$) than in narratives in the first-person perspective ($M = 1.18$, $SD = 1.33$). No significant effects of *emotion for others* were found for emerging adults.

For older adults, there were no significant effects of *emotion for self*. In the analysis of *emotion for others*, there was a marginally significant time X gender interaction, $F(1, 152) = 3.70$, $p = .056$, Cohen's $f = .20$. As can be seen in Figure 7, although men and women demonstrated a similar proportion of emotion words in their narratives of recent events, men used proportionally fewer emotion words in their narratives of distant events, and women used proportionally more. Because tests of both emotion and cognition words found effects of the independent variables, these internal states were used as covariates in subsequent analyses.

Redemptive Sequence. The redemptive sequence, ending a negative memory narrative on a positive note, was only used by 58 of the 320 participants in the sample, providing little opportunity to analyze this aspect of participants' narratives. Given that redemptive sequence was a dichotomous measure, it was used as a grouping variable in independent samples t-tests, with the four memory rating factors and the three self-enhancement measures as dependent variables. None of these tests found any significant differences. Redemptive sequence was not used in further analyses.

Harm. Eighty-nine of the 320 participants wrote narratives in which they explicitly referred to another person being harmed. This total included 47 emerging adults (25 men, 22 women), and 42 (22 men, 20 women) older adults, indicating no significant differences between age and gender groups, p's >.53. As with the redemptive sequence, since harm to others was a dichotomous variable, it was used as a grouping variable in independent samples t-tests, with the four memory rating factors and the three self-enhancement measures as dependent variables. Amongst emerging adults, a significant main effect of harm was found on *personal meaning, t*(154) = 2.64, $p < .01$, Cohen's $d = .48$, such that narratives that included harm to another person ($M = .23$, $SD = .88$) were rated as significantly more meaningful than narratives in which another person was not harmed ($M = -.22$, $SD = 1.03$). Additionally, a significant main effect of harm was found on *clarity of recollection, t*(154) = -2.02, $p < .05$, Cohen's $d = .35$, such that narratives that included harm to another person ($M = -.37$, $SD = 1.18$) were rated as significantly less clearly recalled than narratives in which another person was not harmed ($M = .02$, $SD = 1.07$). No significant effects of harm were found on the self-enhancement measures. Amongst older adults, no significant effects of harm were found on either the memory rating factors or the self-enhancement measures.

Correlations between narrative analysis and memory ratings. Correlations were computed to check for relationships between narrative features and memory ratings. As can be seen from tables 12 and 13, for each age group, five out of 36 correlations were significant, which is above chance. For emerging adults, significant positive correlations were found between ratings of *personal meaning* and emotion words used for both self and other, as well as for harm. Harm also demonstrated a significant negative correlation

with *clarity of recollection* and a significant positive correlation with emotion words used for others. For older adults, significant positive correlations were found between cognition word use and ratings of *temporal distance* and *connection to past self.* Additionally, significant positive correlations were found between emotion words used for others and ratings of *personal meaning* and *clarity of recollection*. Finally, a significant positive correlation was found between harm and emotion words used for others. While these correlations suggest some overlap between methods, they also demonstrate that the narrative items and memory ratings are clearly measuring two separate constructs. Amongst emerging adults, the strongest correlation was an $r(158) = .27$, and among older adults, the strongest correlation was an $r(158) = .30$. Given these moderate effect sizes, there is no reason to suggest that any of the measures are redundant, and such findings confirm the usefulness of using both memory ratings and narrative content measures.

Self-Enhancement Measures

After reporting the negative memory and completing the memory ratings, participants were asked two hypothetical questions, and were then offered bonus money and asked if they would keep it or give it to UNICEF. These measures were used to measure if participants would answer them in the most ethical way in order to promote a positive sense of self. Results on the three self-enhancement measures are reported below. Since age comparisons are an important part of this study, independent-samples t-tests were performed for each self-enhancement measure, with age group as the grouping variable, followed by more comprehensive statistical tests.

Voting behavior. The first item participants saw after completing the memory ratings was the *voting behavior* scale in which participants indicated how much money someone would have to offer them to convince them to vote for a candidate of a party opposite to one they identified with. Higher scores on this scale indicate less willingness to accept money, or a more "moral" position.

An early examination of the *voting behavior* measure found a moderate left skew in responses on this measure, $M = 12.94$ on a 1-15 scale, $SD = 2.86$, *Skewness* = -1.46, *SE of Skewness* = .14. To compensate for this skew, a cubic transformation was performed (Kirchner, 2001). The resulting data demonstrated a substantially lower skew, *Skewness* = -.78, *SE of Skewness* = .14. While these data still demonstrate a moderate skew, parametric statistics were performed, as the *F*-test has been shown to be robustly insensitive to moderately skewed distributions (Lindquist, 1953; Peselow, Sanfilipo, Fieve, & Gulbenkian, 1994). In the statistics that are reported below, test statistics (*t*, *F*, Cohen's *d* and *f*) will be used from the data with the cubic transformations, but means and standard deviation reported will refer to the original scale in order to maintain a meaningful reference point.

A t-test found a significant main effect of age group on this measure, with older participants ($M = 13.62$, $SD = 2.35$) requiring a larger incentive to vote for a candidate they disagree with than younger participants ($M = 12.27$, $SD = 3.16$), $t(317) = 4.42$, $p < .001$, Cohen's $d = .51$. It should be noted that no age differences were found on *voting behavior* in baseline measures.

Additionally, given the gender differences already found on baseline measures, in which women reported being less likely to vote for a candidate they don't agree with, a 2 (condition: baseline, test) X 2 (gender) ANOVA was computed separately for each age group, to test whether gender differences remained stable after telling a negative memory. For emerging adults, no significant effects or interactions emerged, indicating that emerging adults were neither more nor less likely to vote for a candidate they did not agree with in the baseline test than after telling a negative memory. For older adults, the analysis revealed a main effect gender, $F(1, 204) = 13.94$, $p < .001$, Cohen's $f = .23$, in which women were less likely to accept money to vote for a candidate they did not agree with. The analysis also found a main effect of condition, $F(1, 204) = 13.31$, $p < .001$, Cohen's $f = .22$, in which participants were less likely to accept money for a vote after reporting a negative memory than in baseline testing (see Table 2). No interactions were found, suggesting that men and women showed similar increases in scores, reflecting a greater unwillingness to accept money to vote after telling a negative memory narrative than in baseline measures.

For both age groups, a 2 (time: recent, distant) X 2 (perspective: first-person, third-person) X 2 (gender) ANCOVA was performed, with the four memory ratings factors (*personal meaning, temporal distance, clarity of recollection,* and *connection to past self*) and three internal state measures (emotions for self, emotions for others, and cognition terms, all transformed) as covariates. It should be noted that baseline measures found that women reported being significantly less likely to accept money across both age groups. For the emerging adult group, the analysis revealed a significant main effect of perspective, $F(1, 141) = 5.08$, $p < .05$, Cohen's $f = .18$, where participants were less

likely to accept money in the third-person perspective ($M = 12.84$, $SD = 2.84$) than in the first-person perspective ($M = 11.70$, $SD = 3.38$).

For the older adult group, the analysis revealed a significant main effect of gender, $F(1, 140) = 5.58$, $p < .05$, Cohen's $f = .22$, where women ($M = 14.09$, $SD = 1.81$) displayed higher scores than men ($M = 13.08$, $SD = 2.77$). This main effect was qualified by a significant three-way time by perspective by gender interaction, $F(1, 140) = 8.70$, $p < .005$, Cohen's $f = .29$. This interaction is displayed in Figure 8. Simple effects analyses found that women rated themselves as less likely than men to accept money to vote for the opposing party in the 1st person recent condition, $p < .05$, and in the third person distant condition, $p = .001$. Additionally, in the third person condition, men rated themselves as less likely to accept money to vote for the opposing party in the recent than in the distant condition, $p < .05$, and in the distant time period, men rated themselves as less likely to accept money to vote for the opposing party in the first person than in the third person. Thus, by looking at Figure 8 and these simple effects, it is clear that women's responses on these items do not differ significantly across conditions, while men report being more likely to accept money in the first person recent and in the third person distant conditions. The fact that, in baseline testing, women reported being less likely to accept money to vote suggests that the instruction conditions in which the manipulation caused the most change are the third-person recent and first-person distant conditions, in which men were reportedly less likely to accept money for voting behavior, eliminating the gender differences that were present in the baseline tests and in the other two conditions.

Emergency Help. As with the *voting behavior* scale, the *emergency help* scale also displayed a moderate left skew, $M = 3.54$ on a 1-4 scale, $SD = .70$, *Skewness* = -1.59, *SE of Skewness* = .14. To compensate for this skew, a cubic transformation was performed, and the resulting data demonstrated a substantially lower skew, *Skewness* = -.82, *SE of Skewness* = .14.

A t-test found a significant main effect of age group on this measure, with older participants ($M = 3.64$, $SD = .59$) choosing the more pro-social items than younger participants ($M = 3.44$, $SD = .79$), $t(317) = 2.22$, $p = .01$, Cohen's $d = .25$. Again, it should be noted that no age differences were reported in baseline testing of this measure. Additionally, when comparing responses on this measure to those in baseline testing, it was found that participants reported that they would provide significantly more help to the accident victims in this dilemma after telling a negative memory ($M = 3.54$, $SD = .70$) than in baseline testing ($M = 3.32$, $SD = .89$), $t(140) = 2.16$, $p < .05$, Cohen's $d = .27$. For both age groups, a 2 (time: recent, distant) X 2 (perspective: first-person, third-person) X 2 (gender) ANCOVA was performed, with the four memory ratings factors and three internal state measures (emotions for self, emotions for others, and cognition terms, all transformed) as covariates.

For the emerging adults, no significant effects of any condition or any of the covariates were found. For the older adult group, no significant effects of condition were found, but Factor 2, *temporal distance,* emerged as a significant covariate, $F(1, 140) = 4.49$, $p < .05$. To understand this relationship, the correlation between temporal distance factor scores and responses on the *emergency help* measure was computed, $r(153) = -.20$, $p = .01$, suggesting that the more participants indicated feeling temporally far away from

the event reported, the less they indicated that they would engage in pro-social behavior at a cost to themselves.

Donating Behavior. Because this measure involves a dichotomous dependent variable, parametric tests are inappropriate for analyzing results. Thus, an independent-samples Mann-Whitney U Test was used to compare responses of the older and younger age groups on this measure. The test found no significant differences between age groups, $z = -1.63$, $p = .10$. In the younger group, 64 out of 160 participants gave money to charity; in the older group, 50 out of 160 participants gave money to charity. Though this finding trends in the opposite direction of the other two self-enhancement measures, it failed to achieve significance.

Despite the lack of a significant effect of age group, responses on the *donating behavior* measure were analyzed separately by age group because of the a priori reasons discussed in the introduction, both for the sake of more interpretable results and because of possible differences, especially by gender in how the two age groups respond to negative memories. Because responses on this measure include a dichotomous dependent variable, a logistic regression was performed for each age group, with the same 3 dichotomous predictors (time, perspective, gender) and 7 covariates (4 memory ratings factors and 3 internal state terms) as in the other two self-enhancement measures. All covariates were centered around zero for the purpose of this analysis, as is common practice in logistic regression. Additionally, dummy coding was used for the three independent variables (Cohen & Cohen, 1983). With regards to interpreting data from logistic regression, the Omnibus Chi Square test is commonly used for interpreting goodness of fit of the model with the data. However, Hosmer and Lemeshow (1989) have

shown that with one or more continuous predictors, this test is insufficient, and have proposed their own test to examine goodness of fit, and thus this test will be used for the data presented here.

For emerging adults, the Hosmer Lemeshow test was nonsignificant, $\chi^2(8) = 7.42$, $p = .49$, indicating that the overall model with all the predictors does not provide a better prediction of responses than the null hypothesis. However, despite the overall model not achieving significance, some independent variables still revealed significant predictions of donating behavior. Statistics for the individual predictors are shown in Table 14. Notably, two memory ratings factors were significant predictors of whether participants donated money to charity, the *personal meaning* and *clarity of recollection* factors. In other words, when memories were reported as more personally meaningful their narrators were more likely to give to charity; when memories were reported as being remembered more clearly, participants were less likely to give to charity.

For older adults, the Hosmer Lemeshow test was again nonsignificant, $\chi^2(8) = 5.72$, $p = .68$. Statistics for the individual predictors are shown in Table 15. Notably, the *personal meaning* factor emerged as a significant predictor, but in this case, surprisingly, when memories were rated as higher in meaning participants were *less* likely to give to charity. Additionally, emotion for others emerged as a significant predictor such that when narratives contained more emotion terms for other people, participants were more likely to give to charity. Finally, there was a marginally significant time by gender interaction. As can be seen from table 16, Mann-Whitney U tests confirmed that women in the recent condition gave more to charity than all three other groups, all *p*'s < .05.

Given the surprising finding that emerging adults gave more charity for narratives rated higher in personal meaning and that older adults gave less charity for these narratives, further testing was conducted to attempt a deeper understanding of these data. Specifically, because older adults had rated older events as higher in personal meaning than more recent events, an additional logistic regression was conducted, but it was split by time condition. As can be seen in tables 17 and 18, the results reported in the previous paragraph are confined to specific time conditions. In the recent condition, gender and *personal meaning* emerged as significant predictors and *connection to past self* was a marginally significant predictor, such that women were more likely to give to charity, and participants who rated their narratives as higher in personal meaning and connection to past self were less likely to give money to charity. In the distant condition, using more emotion terms for both self and other predicted a greater likelihood of giving to charity, but none of the independent variables or rating scales significantly contributed to predicting charitable giving. This analysis suggests that ratings of *personal meaning* indicate something different for older adults in the recent and distant conditions. The interpretation of this finding will be expanded on in the discussion.

Discussion

Results from this study demonstrate evidence of psychological distancing from negative autobiographical memories in many ways. Differences on self-enhancement measures and on memory ratings were found between men and women, between older and emerging adults, and between responses to different manipulations, such as the time of the event and the perspective from which it was recalled. Differences were also found in the content of narratives and in participants' ratings of these memories, and these measures demonstrated predictive effects on self-enhancement measures. In all, these data suggest that people who have just reported a negative autobiographical memory will take action to defend a positive sense of self. Past studies have demonstrated that people maintain a positive sense of self by recalling past negative memories as farther in the past than past positive memories (Escobedo & Adolphs, 2010, Wilson & Ross, 2001), and that reporting a memory can influence later actions in a related domain, such as giving charity to a university after a positive memory about that university (Kuwabara & Pillemer, 2010). The data presented here extend the corpus of literature on these topics by demonstrating that participants increased behaviors that support a positive conception of self, even when that behavior was not directly related to the memory reported.

One challenge that arises in interpreting memory ratings is the question of whether participants' ratings reflect properties of how the events are remembered, or participants' distancing from the events. It should be stressed that it is possible for both to be occurring simultaneously. For example, participants who responded with strong agreement to the item, "how personally meaningful is the event" strongly disagreed with the statement "this memory contributes to my identity." This finding suggests that

participants identified events as having consequences for them, but they did not accept these events as part of their sense of identity, suggesting some distancing of the self from the event. Additionally, the results comparing *temporal distance* ratings to indications of when chronologically the event occurred showed that male participants rated events as farther in the past than women in most conditions (see Figure 4), despite there being no significant differences in their indications of when events actually occurred in chronological time. These findings suggest that memory ratings cannot be treated as objective assessments of events, but rather must include at least some element of psychological distancing to account for why men rate events as farther in the past than women. Distancing achieved through rating scales can minimize the threat posed by the negative event by maintaining the individual's sense that the event was either farther in the past or less meaningful (Tullett, Teper, & Inzlicht, 2011). As results involving memory ratings are discussed, interpretation will consider both the use of ratings as a distancing mechanism and the possibility that these ratings reflect actual properties of events as potential interpretations.

A summary of results is provided in Table 19. In what follows, each of the six hypotheses is discussed in light of the relevant findings. Due to the fact that many of the results are interrelated, some hypotheses will be discussed out of order so that they can be presented in a way that best addresses each individual hypothesis and its relationship to the study as a whole.

Hypothesis 1: It was predicted that, when instructed to recall events from farther in the past, the positive sense of self would be less threatened, leading participants to less promotion of the positive sense of self.

Emerging adults demonstrated no effects of recent versus distant memories, suggesting that hypothesis 1 was not supported for this age group. The lack of substantial effects of time helps may deepen an understanding of *temporal self appraisal theory* (Wilson & Ross, 2001). Despite numerous experiments that have found that participants rate negative events as farther in the past and positive events as closer to the present (e.g. Escobedo & Adolphs, 2010; Ross & Wilson, 2002), this study suggests that not all older events are actually less threatening to a person's positive sense of self, but saying the events happened farther in the past is a means of distancing. Negative events from the distant past can be as threatening as recent negative events.

Alternatively, this finding may reflect what Suh et al. (1996) found, namely that negative events from the distant past that are remembered tend to be more intensely negative events, which may compensate for any distance created by the fact that they are farther in the past. Moderately negative memories from the past are more likely to have been forgotten, and so the only memories participants can report are ones that were negative enough to still be remembered. The distance that may be created by time is thus counterweighted by the strength of the memory. The converse is also possible: participants may not be willing to write about intensely negative episodes from more recent time period, and thus, the recent time frame selects memories that do not challenge the positive sense of self to the same degree that older memories do, counteracting any impact of a more recent event. It is also possible that providing participants with instructions that contained specific time periods made interpretations of time less subjective, washing out effects of temporal self-appraisal. It should be stressed that these

null results must be interpreted with caution, and follow-up studies are required to substantiate these interpretations.

As opposed to the lack of effects of time amongst emerging adults, a number of effects and interactions involving time were found with older adults. They reported that events from farther in the past were more meaningful than recent events, and wrote narratives of older events using more cognition terms, suggesting a greater emphasis on their original thoughts at the time. This finding sheds light on the role of age in this study, and on the importance of using samples of diverse ages, but can be interpreted in one of two ways. One possibility is that the age of the memory plays a role in interpreting why results were different for older and younger participants (see Table 6). For distant memories, the average emerging adult recalled an event from 6 years in the past. Given that the average emerging adult was 23 years old, this suggests that emerging adults were recalling events from their late teen years and their early formative years of becoming an adult. This is an age where many mistakes are made, and lessons are learned. Conversely, older adults were on average 41 years old, and recalled memories from an average of 12-13 years in the past, suggesting that memories were from a time in their lives when they were more established as adults, and thus it is possible that they perceive events from this time as more significant and transgressions as more meaningful.

However, results on the donating behavior measure and interactions found on participants' ratings of meaning suggest a different interpretation of the role of time. It is possible that older adults' higher ratings of meaning for distant events reflect attempts to distance themselves from recent events. Such an interpretation would suggest that, instead of distant events actually being more meaningful to older adults, they are in fact

less threatening, and are thus rated as more meaningful. These two possibilities will be more closely analyzed in the discussion of hypothesis 6, which is presented next because of its relevance to the discussion of time.

Hypothesis 6: Memories rated as more personally meaningful were predicted to be more threatening to the positive sense of self and thus would predict increased promotion of the positive sense of self.

It should be emphasized that the personal meaning factor is composed of five ratings, three of which (meaning, importance, and emotion) correlate positively and two of which (identity, directive function) correlate negatively, and these last two were not initially conceptualized as part of the meaning measure. Given that all participants wrote negative memories, a strong relationship emerged in the data such that narratives rated higher in personal meaning, importance, and emotion were also rated as contributing less to identity and as being used less when considering future actions, suggesting a consistent use of the personal meaning scale to rate more impactful negative events as higher in meaning.

Amongst emerging adults, this hypothesis and the interpretation of this scale was unequivocally supported. Narratives in which participants reported causing harm to others, suggesting an explicit mention of the negative consequences of the individual's actions, were rated as more meaningful. In support of this approach, events rated higher in personal meaning predicted emerging adults' donations to charity, suggesting that participants were donating more often to charity after telling events of greater consequence, thereby protecting the positive sense of self.

Amongst older adults, use of the personal meaning scale was less clear. As discussed above, older adults reported distant events as more meaningful than recent events, which can be interpreted in one of two ways. Either older events were more influential in their lives, given that they were remembered after an average of 12 years, or more recent events were more challenging to the older adult sense of self, and thus lower meaning ratings reflect an attempt to distance from these events. The most intriguing finding relating to this question was that greater reported meaning amongst older adults predicted *fewer* donations to charity rather than more. If events rated as more meaningful actually were the most meaningful events, this finding would suggest that after reporting more meaningful events, older adults gave less often to charity, an interpretation which runs against all the other findings in this study, where participants engaged in more self-enhancement behavior after negative events. However, if events rated lower in meaning were actually the ones that threatened the positive sense of self more, and ratings reflect an attempt to downplay the significance of the event, this finding would suggest that events that were more threatening to the sense of self were rated as *less* meaningful, and participants gave more often to charity after these events in order to maintain a positive sense of self.

In an attempt to understand this finding, older adult donation to charity was analyzed separately for recent and distant events because older adults rated distant events as significantly more meaningful than recent events. In this analysis, it was found that higher ratings of *meaning* only predicted fewer donations for recent events. Similarly, in this same test, women gave more often to charity than men and higher ratings of *connection to past self* also predicted fewer donations to charity (see Table 17). None of

these effects were found in the distant condition (see Table 18). Taken together, these results suggest that the memory ratings were used by participants as a distancing mechanism, and that when reporting recent events, because of the greater degree of threat posed by these events, the participants who attempted to distance themselves more, in the form of reporting lower meaning, were the same participants who felt most threatened by the events and thus gave most often to charity. This interpretation conceives of rating an event as lower in meaning and donating to charity as two ways of minimizing the threat experienced, just as rating the current self as less connected to the past self is another way of minimizing the threat, as was also found on this measure.

This interpretation makes sense in light of the three-way interactions found on *personal meaning* and *temporal distance.* In both of these interactions, women exhibit distancing behavior in the first-person recent condition, the one in which events are most recent and most salient. They do this by rating first-person recent events as less personally meaningful than the other three conditions (see figure 3), and by rating the same first-person recent events as temporally more distant (see figure 4). Since women were more likely to give to charity than men after reporting recent events (see Table 17), these results together suggest that women experienced the most psychological threat from first-person recent memories (as is discussed in hypothesis 4), and attempted to minimize this threat by rating these events as less meaningful, more temporally distant, and by more often giving charity afterwards.

The challenge facing this interpretation is that it involves viewing results on the meaning measure as indicating one thing amongst emerging adults and the opposite amongst older adults. However, since these two age groups were reporting memories

from different ages, and are at different developmental stages in their lives, it is plausible that such an effect could occur. Additionally, this explanation is the only one that provides a framework in which to understand all the effects of meaning, time, and donation to charity in this study, and it provides a framework to understand both three-way interactions as reflecting the same phenomenon. Until follow-up research is conducted to confirm or disconfirm the interpretations proposed here, this interpretation is deemed the most plausible one.

The lack of consistency between the older and younger age groups on reported meaning raises the issue of how the meaning construct is measured. In a review of meaning making literature, Park (2010) has argued that empirical approaches to measuring meaning remain disjointed, and an overarching methodology to studying meaning making has yet to be supported across multiple contexts. Park (2010) outlines three stages in the meaning process. The first is recognizing the appraised meaning of an event as discrepant from a person's global sense of meaning; the second is engaging in cognitive or emotional processing of meaning to make sense of the event; the third is arriving at a stage where meaning has been made, and the event has been assimilated into a person's sense of global meaning, either by changing one's beliefs or goals, or by finding a meaning in the event that fits existing meaning structures. Were the more meaningful events in this study more challenging to the narrators because of the significance of the challenge to meaning posed by the event, or because of the participants' personal stage in the meaning making process? The scale used in this study does not enable such distinctions. A first step to better understanding the relationship between meaning making in personal narratives and self-enhancement behavior would be

to independently validate a more extensive scale of meaning making in autobiographical narratives to elucidate what aspects of meaning are most related to self-enhancement behavior.

Hypothesis 2: it was predicted that memories told in the third-person perspective would be less threatening, leading to less promotion of the positive sense of self.

Main effects of perspective were confined to the emerging adult group. Amongst emerging adults, participants who narrated events from the third person perspective used more emotion terms referring to their own emotional states and rated their memories as being more clearly recalled. Additionally, findings showed a main effect of perspective on voting independent of clarity of recollection or emotion word usage, such that participants were less likely to accept money in exchange for their vote after recalling a memory from the third-person perspective. Taken together, these findings suggest that envisioning an event from the third person perspective in this study led emerging adults to describe events with more emotional detail, and that these memories were more challenging to the sense of self, rather than less, as was initially expected. Conversely, although no main effects of perspective were found in the older adult group, three-way interactions on personal meaning and temporal distance factors suggest that the first person condition was more threatening to the positive sense of self, leading to more distancing, as addressed in the previous section.

The most surprising of the three findings amongst emerging adults is that participants used more emotion terms in the third-person perspective. McIsaac and Eich (2002) found that participants used fewer internal state terms when instructed to use the third-person perspective, and Robinson and Swanson (1993) found a drop in emotional

intensity when participants were instructed to change one's recollection from first-person to third-person. How can these results be understood?

A number of possible explanations will be proposed, but it should be stressed from the outset that none of them can be fully accepted without replication, given the lack of clarity in the literature. The first explanation relates to understanding the *clarity of recollection* findings. The other two effects involving *clarity of recollection* both suggest that these memory rating items reflect a distancing mechanism rather than an actual description of the narrator's recall experience. It was found that higher scores on *clarity of recollection* predicted less charitable giving, and narratives that contained harm were rated by emerging adults as higher in *personal meaning* but lower in *clarity of recollection.* Taken together, these measures suggest that participants rated events as lower in *clarity of recollection* as a means of distancing themselves from the event. Such an interpretation fits Broderick's (2009) study reported earlier, in which pro-life women described their decisions to abort as containing a lesser degree of agency, one of the three items that contributes to the *clarity of recollection* factor. Thus, a reasonable interpretation of this finding is that emerging adult participants find narratives in the third person *less* threatening, and hence rate them as higher in *clarity of recollection.* Such an interpretation also fits the finding that patients with PTSD often report narratives of trauma in the third-person (Berntsen et al., 2003), which is explained as a means of distancing from the event (Rice, 2010). The problem with taking this approach is that it suggests the memories narrated from the third person were less self-threatening, but this study found it led participants to demonstrate more self-enhancing behavior, and write with more emotions. To understand this, one possible interpretation is that because

participants felt less of a threat in the third-person perspective, they were able to more openly discuss the actual emotions, and were more likely to internalize the negative consequences of the event they narrated, leading to a greater need for self-enhancement behavior.

Another possible interpretation is that, in line with past research, envisioning an event from the first person perspective encourages an episodic memory search and using the third person perspective encourages a semantic memory search (Robinson & Clore, 2002). A semantic memory search highlights the summaries with which such an event may be stored, such as "personal transgression," "mistakes early in life," or "embarrassing moments." An episodic search would highlight the details of the event, working to reconstruct as many details of the event as possible. Thus, participants would be more affected by memories envisioned in the third person because the semantic memory categorization of these events as negative would be more prominent in the recollection (Libby et al., 2005). This interpretation is supported by the finding that participants engaged in more self-enhancing behavior after telling a memory from the third person perspective independent of the effects of emotion word use and ratings of *clarity of recollection*, suggesting that an explanation based on the recalled detail and ratings of the memory is insufficient.

An additional confounding element to understanding the effects of perspective is the finding that all of the main effects of perspective were confined to the emerging adult group, exhibiting no main effects among older adults. This effect was not expected. One possibility in understanding this finding is that younger participants are more flexible in the imagery they use in their recall, while older participants recall their memories in the

same way, regardless of instruction. However, there was no data in this study that could speak to such a hypothesis, and a follow-up study should clarify this finding.

Another possible explanation stems from the nature of the negative memories described by participants. Since emotional and negative events pose a threat to the person reporting them, it is possible that older adults have developed skills for coping with such negativity through more life experiences, and as such are more capable of discussing their emotions relating to an event. For the emerging adults, the distance created by the third person perspective enabled them to fully address their emotional experiences. Once they were able to describe their experiences, they felt its full weight, and were influenced to respond with greater self-enhancing behavior on the *voting behavior* scale.

Finally, one potential confound in the findings reported was discovered after testing. Questions were provided along with the instructions to help participants visualize the event from either the first- or third-person perspective, as was done in Libby et al. (2005). As can be seen from the study instructions (see Appendix A), the third-person condition questions all involved details about the narrator, whereas the questions in the first-person condition all referred to external items, either people or objects. It is possible that this element of the instructions, rather than the use of the third-person visualization itself, led emerging adult participants to a greater self-focus in recalling the event. However, this interpretation does not explain why the effects would be found among the emerging adults and not the older adults.

Past research on visual perspective is mixed. On the one hand, studies suggest that more emotional memories tend to naturally be recalled from the first-person perspective

(D'Argembeau et al., 2003), and that instructions to use the third-person perspective serves to create emotional detachment from an event (McIsaac & Eich, 2002; Robinson & Swanson, 1993; Spurr & Stopa, 2003; Sutin & Robins, 2008). On the other hand, studies have found that the third-person perspective is associated with more negativity (Berntsen & Rubin, 2006; Holmes et al., 2008), more self-awareness (Nigro & Neisser, 1983), and more perception of change (Libby et al., 2002, 2005). This study's results can only be properly understood with replication and a closer analysis of the effects of perspective.

Hypothesis 3: older adults will find past negative memories more threatening to the sense of self, and thus will engage more in promotion of the positive sense of self.

Two ways of analyzing age differences are discussed: directly comparing age effects and looking at the other effect found in the separate analyses for each group. Although the two age groups demonstrated no differences on the memory ratings factors or on the analyses of narrative content, older adults exhibited higher scores than emerging adults on the self-enhancement measures, both for the *voting behavior* and the *emergency help* measures. Such a finding suggests that older participants were more influenced by telling negative narratives of their past behaviors than younger participants. The possibility that the older group would have been more likely to choose the more ethical options independent of the manipulation was ruled out by the baseline measures, which found no differences between age groups on either measure. These age differences emerged despite no significant differences in memory ratings and no significant difference in narrative content.

Thus, age comparisons on self-enhancement measures support the Socioemotional Selectivity Theory (SST) approach that older participants are more driven towards emotion regulation after telling a negative memory than are younger participants. Emerging adults, in contrast, are less affected by these negative memories, and SST suggests it is due to their developmental stage that emphasizes gathering information for the future and not emotion regulation in the present.

When considering the different effects of other measures by age, it is notable that more effects of time and meaning emerged among older adults, as well as more effects of gender (discussed below). This fact provides an interesting point when considering design for further studies involving life narratives and autobiographical memory. Whether due to developmental status or to their greater range of impactful life experiences, the older adult sample serves as a population in which the content of memories and the reaction to them may be more fruitfully studied. This result should be considered for future research on the relationship between autobiographical memory and the self.

Hypothesis 4: Women will find negative past memories more threatening to the positive sense of self, and will thus engage more in promotion of the positive sense of self. Gender differences will also be stronger in older adult participants than in emerging adult participants.

It was predicted that, because women tend to remember their personal memories with greater detail (Bauer et al., 2003; Reese et al., 1993), especially memories of emotion (Bloise & Johnson, 2007; Davis, 1999) and derive more personal meaning from

their memories (Thompson et al., 1996), women would be more affected by the manipulations than men, and thus would be more likely to demonstrate self-enhancing behaviors. It was also predicted that differences would be more pronounced among older adults than emerging adults, as the drive for establishing identity tends to overshadow gender differences in emerging adulthood (Fivush & Buckner, 2003).

Results found that the only difference between men and women in the emerging adult group was the tendency of women to write narratives with more emotion terms, specifically terms referring to their own emotions as opposed to those of others. Given the lack of other gender differences, it is interesting to note that emerging adult women still wrote narratives with more emotion terms. Studies have found that mothers and fathers use more emotion words and a greater variety of emotion words when speaking to their daughters than when speaking to their sons (Adams et al., 1995; Kuebli & Fivush, 1992; Kuebli, Butler & Fivush, 1995), and longitudinal studies have found that mothers are often more elaborative with daughters than with sons from 40-70 months of age (Reese et al., 1993). The study's finding regarding emotion terms suggests that, even when other gender effects are not present, possibly because of developmental status, emotion word use endures as a stable gender difference (see also McLean & Breen, 2009).

Amongst older adults, gender differences were more pronounced, as predicted. Women wrote with more emotion terms overall. They also wrote with more emotion terms referring to other people's emotions for events from the distant past, suggesting a greater connection to the internal states of distant past events. In three of the four narrative conditions, women rated their memories as more personally meaningful and less

temporally distant than men. In the fourth condition, first person recall of recent events, men reported events as more meaningful and less temporally distant. These two interactions were not expected and are difficult to understand. As suggested above, the most plausible interpretation is that because women are more connected to their memories, recalling the most recent negative events from the first person perspective is a more psychologically difficult task for them than for men, and they responded by rating these events as farther away and less meaningful as a means of distancing.

Interpreting these two interactions as stemming from women's attempt to create distance from the first-person recent event resonates with the results on the *donating behavior* measure, in which women in the recent condition more often gave money to charity than women in the distant condition, and gave more often than men in both conditions. These three interactions suggest that women were particularly affected by narratives of recent events, and responded by downplaying the importance of these events by rating them as farther in the past and less meaningful, and engaged in the additional strategy of donating to charity in order to maintain a positive sense of self.

Women also reported that they would be less likely to accept money to vote for a candidate they did not believe in, demonstrating greater self-enhancement than men. However, as can be seen in Table 2, women had also responded that they would be less likely than men to accept money to vote in baseline measures. After narrating a negative life experience, both men and women increased their resistance to accept money to vote, suggesting that the difference between men and women here is not related to the memory narrative. Thus, in the study, both men and women decreased their reported likelihood to

accept money, reflecting self-enhancement, but gender effects did not differ from those found in baseline measures.

The final result involving gender is the three-way interaction on the *voting behavior* measure, where women reported that they were less likely than men to accept money to vote for a candidate they did not believe in, but only in the first-person recent and third-person distant conditions. A look at the details of this interaction in Figure 8 suggests that women's responses on this measure remained relatively consistent across the different conditions, but men more openly accepted money in the two conditions where differences are found. In an attempt to understand this interaction, a return to Figures 3 and 4 indicates that men rated the first-person recent and third-person distant conditions as the two most meaningful, and both of these as less temporally distant than their opposite perspective counterparts from the same time frame. Continuing the approach that views the events rated as most meaningful as the events from which the narrator is least threatened (and conversely that rating events low in personal meaning indicates an attempt to distance from a threatening event), this interaction would be interpreted as showing that after the events in which men felt least threatened, they also claimed to be most open to expecting money for a bribe. In other words, this interaction fits the interpretation proposed earlier by suggesting that men claimed to be less likely to accept money for a vote as a means of protecting a positive sense of self in the narrative conditions when they felt most threatened, namely the first-person distant and third-person recent. The disadvantage of this explanation is that it does not explain why men would feel a greater need to defend the positive sense of self in these conditions, and the

possibility remains that it may simply be a result of the specific memories chosen by participants.

Hypothesis 5: content of the memory narratives (measured by internal states, redemptive sequence, and harm to others) will be predictive of subsequent promotion of the positive sense of self.

The analysis of participants' references to harming others found that, among emerging adults, narratives including harm were rated as more personally meaningful and less clearly recalled. This analysis helps deepen an understanding of how people perceive their own actions by suggesting that a major element of assessing the morality of one's actions is a calculation of the consequences that a person's actions have on others. No effects of harm were found for older adults participants.

The other major finding of the content analyses was that, amongst older participants, greater use of emotion terms predicted a greater likelihood of donating to charity. Follow-up analyses (see tables 17 and 18) found that this effect was confined to the distant condition. This effect is interpreted such that older adults who recalled more of the internal states of others for distant events could more saliently appreciate their own reasoning for their actions, and the reactions of other people. This awareness can make their own transgressions more threatening to the positive sense of self, both in heightening the sense of damage caused to other people (Baumeister et al., 1990), as was found for emerging adults on the measure of harm, and in preventing a person from explaining away his actions by attributing thoughts, intentions, or feelings to something other than what was initially experienced (Broderick, 2009). Additionally, this interpretation suggests that the reason emotion words were only predictive of charitable

giving in the distant condition is that when events are further in the past, recalling the emotions may be more indicative of a better recall of the thoughts and feelings of the past event, whereas for recent events it may simply reflect a style of presenting information.

An alternative explanation is that the people who use more emotion terms were simply more empathic people, thus explaining their greater desire to give to charity. However, given that the effect of emotion terms was only found for older adults when writing about distant events, this alternate explanation is unlikely.

In sum, asides from unexpected effects with the perspective variable among emerging adults, the hypotheses of this study were largely supported, but indicate that further research is necessary to disambiguate some results. Effects of time and gender and were largely confined to the older adult group, and numerous indicators show that the older adult group engaged in more self-promoting behavior after reporting an event in which they did not act according to a self-identified stable, positive trait. Additionally, findings from content analysis and personal meaning ratings highlight the importance of examining individual content of specific memories before drawing conclusions about the impact of negative memories, the time at which they occurred, or the perspective from which they were recalled. The extensive interconnectedness between these measures stresses that the role of negative past memories is enmeshed with individual difference factors, as indicated by the gender and age differences, and situational factors, in the form of when the event occurred, and the extent to which it is perceived as consequential by the individual.

Negative Self-Meaning in Memory

The results of this study support models of how the self is conceptualized in light of autobiographical memories. Taylor (1989) writes that the modern sense of self is conceived of in relation to one's personal sense of morality. In our modern world, what is considered moral is viewed by most as something subjective. Thus, when a person violates a moral good, he has not violated some higher cosmos or authority, but rather has been untrue to himself. It is this conception of the self as constantly pursuing self-defined goodness and morality that guides our actions in a morally complicated world. Since people and values are constantly changing, the individual's sense of self is conceived in a storied format (Bruner, 1986, McAdams, 1985), and an understanding of the temporal nature of this story is an important part of it. Thus, distancing the self from an event temporally (Wilson & Ross, 2001) protects the self by enabling the individual to view the event as something from which he has grown or learned, despite its negative implications. However, because the storied format of identity contributes to a sense of unity of self across divergent time periods (Taylor, 1989) even events from far in the past can be threatening to the positive sense of self because of the inherent challenge they pose to one's sense of being true to oneself.

Tullett et al. (2011) review the topic of *meaning threats*, situations in which people find their conceptualizations of the world challenged in ways similar to those described in this study. Unanticipated information violates the theories people have of the coherent workings of the world, and this is experienced as threatening. A variety of responses to meaning threats have been documented. Research in the *cognitive dissonance* framework (Festinger, 1957), has shown that participants respond by

changing their beliefs to match behaviors. In *terror management theory* research
(Greenberg, Pyszczynski, & Solomon, 1986) participants respond to reminders of their
own deaths by bolstering other stable beliefs in their lives. Tullet et al. (2011) suggest
that, in service of a higher order need to maintain meaning or coherence (Proulx & Heine,
2010) people minimize threats to meaning by reaffirming stability in another way. This
can occur through *direct strategies*, strategies that directly mitigate the threat to meaning.
For example, Stone, Wiegand, Cooper, and Aronson (1997) asked participants who
believed in the importance of condom use to list the excuses they have used in the past
for not using condoms. Having now threatened this belief of theirs, the experimenters
offered participants the opportunity to donate either to an AIDS preventions program or
to a project to feed the homeless. Given the more direct relationship of the AIDS
prevention program to the meaning threat, participants were more likely to donate to this
charity. When direct strategies are unavailable, people use *indirect strategies,* affirming a
sense of coherence in another domain. For example, people who read an absurd parable
report stronger identification with their culture than those who read a meaningful parable
(Proulx, Heine, & Vohs, 2010). These findings suggest that there are multiple strategies
that can be employed in resolving inconsistencies in self concept and past behavior. In
the study presented here, the event in which participants did not act according to a stable
trait challenged their sense of stability or coherence in the positive sense of self.
Narrative and memory ratings offered participants the opportunity to employ a direct
strategy: downplay the event's significance, the clarity of recall, or simply don't report
events and details that are particularly threatening. The self-enhancement measures gave
participants the chance to employ indirect strategies; by engaging in behavior or memory

ratings responses that confirm a positive sense of self, the threat of the negative memory can be mitigated by other evidence stressing the individual's positive behaviors.

Pasupathi and Wainryb (2010) present the *social intuitionist* approach to morality (Haidt, 2001) as a beginning for understanding how individuals cope with negative memories. In this approach, Haidt argues for a dual process model of moral reasoning: moral judgments are made based on intuition – a fast, evolved mechanism for making moral decisions – and are then justified through a slow, reasoning system that is motivated towards defending the individual. This reasoning system is compared to a lawyer defending a client, rather than a scientist seeking the truth (Haidt, 2001). According to this model, participants recalling a memory of a moral transgression are motivated to defend their actions post hoc.

Pasupathi and Wainryb (2010) stress that the difference between moral psychology research and memory narratives relating to personal transgressions is that the former relies on hypothetical scenarios, whereas the latter involves real, lived situations in which the individual faces an action he or she has already performed and concomitantly believes to be wrong. In other words, a person who believes harming others to be morally wrong will not change that belief simply because one time she hurt someone, and will not necessarily argue that the action is morally correct because such a belief would contradict other actions performed in pursuit of her belief. This added layer of complexity arises from the reality that most of our actions cannot be compartmentalized into individual scenarios, and must include other factors, including thoughts, beliefs, emotions, background information, i.e. the *landscape of consciousness* (Bruner, 1986). Thus, Pasupathi and Wainryb (2010) describe the development of *moral*

agency as a process through which children, and later adults, can make sense of their own moral violations while maintaining a positive sense of self. Since harming others is inevitable in most people's lives, maintaining a positive sense of self despite this harm is a valuable skill.

Pasupathi and Wainryb (2010) cite numerous ways that narratives can achieve this goal, including downplaying one's own agency, stressing that one's beliefs were not malicious, or using the narrative structure to heighten the awareness that the incident of harm was not an isolated event but the culmination of multiple motivations, causes, and beliefs. The complex web of events that can be presented in a narrative offers the individual a means of minimizing the negative implications of a moral violation, a direct strategy (Tullett et al., 2011), by stressing the numerous other factors involved in the event. However, the study reported here demonstrates that there are events in a person's life about which the conclusion is that the individual did the *wrong* thing, negating the efforts of the internal "lawyer," and concluding that one's actions were, in fact, wrong. When this occurs, the next line of defense, the indirect strategies, engage in the same process of protection of the general sense of self by committing actions that show how the event reported is an isolated incident, and the conclusions from it cannot be generalized to the self as a whole.

The contribution of this study is thus in indicating the multiple levels on which self-protection occurs, and that theories of how meaning threats are mitigated can be extended to a corpus of data as complex and diverse as personal memory narratives. Gender and age differences show that individual factors influence the salience of an event. Results from meaning ratings, time, and narrative content demonstrate that

different types of events challenge the self differently. Finally, results from self-enhancement measures show that self-protection extends beyond each specific domain of memory narratives into a general positive self perception.

Future Directions

In order to support the interpretations provided here, and to use these measures consistently in future studies, it would be illuminating to compare the effects found here to effects on these same measures found after reporting positive memories. Because of the scale of this project, such a comparison was not attempted, but it would be advantageous because results would support the interpretations and deepen an understanding of how all the scales, particularly the memory ratings are used differently when the focus of the memory is positive versus when it is negative. One additional advantage of such a comparison is that it would shed light on the current interpretation of the charity measure as a means taken by participants to support a positive sense of self, because no baseline for this measure was possible. A positive memory condition would provide an appropriate comparison group for this measure.

Additionally, a follow-up study is necessary to disambiguate the results found relating to visual perspective, in order to determine if the results found were due to the perspective itself or to a confound in the instructions, given that results contradicted numerous earlier studies.

The findings relating to gender are intriguing, specifically in that gender differences were more apparent for the older adults than for emerging adults. Is there a way to make gender more salient to emerging adults that might lead to a difference in responses? Fivush and Zaman (in press) argue that talk about the past and about emotions are

stereotypically female activities, and that asking participants to engage in this activity highlights gender schemas. To apply this interpretation to the study reported here, it would suggest that older adults view emotional conversation about memory as a more gender-stereotyped activity, thus greater activating gender awareness and leading to more apparent gender differences. However, it is also possible that the gender differences emerge not from a situational awareness of gender but from a gendered way of engaging with memory that has been cultivated through years of conversational and emotional interaction. An interesting follow-up study would assess whether highlighting gender norms amongst emerging adults can lead to greater gender differences, or if situational factors can minimize these differences amongst older adults.

Finally, interpretations presented of numerous interactions in the older adult group suggest that older adults used ratings of personal meaning to distance themselves from events and emerging adults used ratings of personal meaning as a clear indication of their experiences. Future research should focus on constructing a valid measure of personal meaning when referring to autobiographical memories that can distinguish what parts of memory's meaningfulness leads to a change in responses on self-enhancement measures, and how adults of different ages react differently to it.

Conclusions

Results from this study support current models of self and autobiographical memory. Because the two entities are so integrally intertwined, recalling a memory that poses as a *meaning threat* (Tullett et al., 2011) strikes a discordant note within the Self-Memory System (Conway & Pleydell-Pearce, 2000). The memory recalled threatens the individual's sense of stability because it highlights an episode that challenges the

individual's semantic summaries of events (Klein & Loftus, 1993) that are usually relied upon to maintain a sense of stability about that person's traits. Past research has identified numerous ways that people respond to such threats to meaning, namely by downplaying the threat or by doing something positive to support the positive sense of self (Tullett et al., 2011). *Temporal self appraisal* suggests that individuals estimate that this event occurred further in the past to minimize the implied consequences of the event (Wilson & Ross, 2001), and some evidence supporting this approach was found in this study. Broderick (2009) found that people downplay their agency, in what seems to be an attempt to shift the responsibility off of them. In this study, participants in the older adult group downplayed the meaning of events, and this can be interpreted as a similar direct response. Stone et al. (1997) found that participants gave to charity to support AIDS prevention after they discussed not wearing a condom despite professed beliefs in its importance. Stone et al. (1997) stress the relationship between the memory and the charity to which participants donated. The study reported here adds the original finding that participants gave to charity, and increased their professed pro-social behavior on hypothetical dilemmas in order to support a positive sense of self, even though the charity and the dilemmas were not related to the memory reported.

The data reported here also contribute to understanding autobiographical memory by highlighting the importance of group differences, specifically in terms of age and gender. Findings indicate that older adults, especially older adult women, were more affected by the manipulation than were emerging adults. As has already been discussed, this finding supports current models of contextualized gender differences (Deaux & Major, 1987; Fivush & Buckner, 2003), such that gender is downplayed in emerging

adulthood by identity formation goals and highlighted in middle adulthood by marriage, raising families, jobs, and other situational factors. Finally, results support Socio-emotional Selectivity Theory (Carstensen et al., 1999), which claims that earlier in adulthood, individuals are more willing to accept personal and emotional discomfort for the sake of information gathering, whereas at older ages, emotion regulation plays a more prominent role in individuals' daily functioning.

Results from this study represent an important and unique contribution in that they are a rare example in psychology research of data collected from an adult population that is neither comprised of college students or of elderly adults. The finding that gender differences were not consistent across these groups, and that adults age 30-78 responded differently to manipulations than emerging adults, suggests that autobiographical memory research that relies solely on college students and older adults suffers from a lack of generalizability. Specifically, a careful examination of the emotional implications of negative memories, and of the self-protection that ensues, may not be possible with an emerging adult population because this group is not driven to self-protect to the same degree as older adults.

Results comparing recent distant memories raise important methodological issues in studying memories of the past. The amount of time since an event occurred is an attractive variable to psychologists as it is an interval variable and not simply a response on a questionnaire rating. However, this study shows that five years in the past for a 22-year-old and for a 42-year-old are hardly equivalent. Comparisons based on time must consider the possible influences of both the time since an event occurred and the individual's developmental status at the time of the event and the time of recollection.

The results of this study emphasize that personal memory narratives can serve as a valuable window into memory processes and into the social phenomena that they underlie. Despite the vast diversity in personal event memories, this study has shown that analyzing these memories can make an important contribution to understanding development at different ages, memory organization, and individual differences. By doing this, a clearer understanding of the interrelationship between self and autobiographical memory has emerged.

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Table 1: Ladder of possible power transformations (adapted from Kirchner, 2001).

Power	Transformation
x^3	Cubic
x^2	Square
x	Identity (no transformation)
$x^{0.5}$	Square root
$x^{1/3}$	Cube root
$\log(x)$	Logarithmic
$-1/x^{0.5}$	Reciprocal root
$-1/x$	Reciprocal
$-1/x^2$	Reciprocal square

Table 2: Voting behavior means (standard deviations) for baseline testing and experiment organized by age group and gender.

	Emerging Adults		Older adults	
	Women	Men	Women	Men
Baseline	12.00 (3.18)	11.10 (3.58)	13.14 (2.79)	11.19 (3.23)
Experiment	12.50 (3.25)	12.04 (3.06)	14.10 (1.80)	13.13 (2.73)

Table 3: Summary of Measures Used

Name	Description	Type
Internal states	Measure of proportion of narrative of given internal state terms, including emotion, cognition, perception, and physiological states.	Narrative Analysis
Redemption	Dichotomous rating of each narrative, whether it ended on a positive note.	Narrative Analysis
Harm	Dichotomous rating of each narrative, whether it involved explicit mention of harm caused to a specific individual.	Narrative Analysis
Memory ratings	13 questionnaire items completed by all participants after report of the memory narrative. 12 of these items were split into four factors, namely, *personal meaning, temporal distance, clarity of recollection,* and *connection to past self.*	Questionnaire items
Voting Behavior	Participants were asked, hypothetically, how much money someone would have to bribe them in order to vote for a candidate they do not support.	Self-enhancement measure
Emergency Help	Participants responded to a hypothetical dilemma in which they were to help a person in need at a cost to their own job prospects.	Self-enhancement measure
Donating Behavior	Participants were offered extra money, but given the opportunity to donate it to UNICEF. This is a dichotomous measure.	Self-enhancement measure

Table 4: Number of participants who chose each trait, by age group and gender.

	Emerging Adults		Older Adults		
	Men	**Women**	**Men**	**Women**	χ^2
Honest	13	11	17	16	.04
Friendly	7	7	4	9	1.03
Mature	1	4	1	1	-
Faithful	2	3	0	4	-
Brave	2	4	2	1	-
Considerate	7	8	6	5	.16
Kind	8	8	3	12	3.04
Moral	6	1	1	2	-
Polite	1	4	5	1	-
Intelligent	18	12	17	13	.07
Assertive	0	2	1	2	-
Trustworthy	8	5	6	3	.06
Thoughtful	4	5	6	4	-
Reliable	3	6	10	7	1.53
Outgoing	0	0	1	0	-

Table 5: Means (standard deviations) for responses to the memory ratings for emerging and older adults.

Item	Emerging Adults	Older Adults	t (318)
How personally meaningful is the event you reported?	3.91 (1.08)	4.10 (1.00)	-1.67
How important is this memory to who you are?	3.46 (1.23)	3.81 (1.12)	-2.61**
How would you rate your emotions relating to this event?	3.44 (1.09)	3.45 (1.12)	-.07
How long ago did this event take place?	2.97 (1.0)	3.09 (1.07)	-1.09
Some people report mentally "seeing" the events of a memory they report, while others just describe facts that they remember. How visual is the event you wrote about?	3.93 (1.15)	4.06 (.99)	-1.04
How confident are you about the details of the event reported?	4.31 (.78)	4.55 (.62)	-2.97**
How much have you changed since this event?	3.38 (1.31)	3.19 (1.34)	1.27
Agency	23.11 (5.75)	24.03 (6.47)	-1.33
This memory tells me something about my identity.	3.28 (1.63)	2.95 (1.59)	1.84
I think of this memory in order to handle present or future situations.	3.11 (1.68)	2.91(1.69)	1.10
My evaluation of self-worth depends on the success or failure of my behavior in a given situation.	3.02 (1.42)	2.78 (1.28)	1.58
When I think of my past I notice certain qualities that I had then and still have now.	2.45 (1.24)	2.36 (1.08)	.68
When I think of myself when I was little, I am often amazed at how different I was and how many changes I have gone through to become the person that I am.	2.35 (1.40)	2.74 (1.57)	-2.34*

Table 6: Means (standard deviations) of time since event in months and years for emerging and older adults by time condition. T values are reported for 158 df for recent events, but 108 df for distant events because of unequal variances.

	Emerging Adults	Older Adults	*t*(158)
Recent Events	4.89 months (4.08)	5.02 months (4.08)	-.18
Distant Events	5.91 years (4.50)	12.63 years (9.94)	-5.48**

** *p* < .001

Table 7. Factor loadings emerging from the factor analysis performed on the memory ratings for all 320 participants.

Rating Item	Component			
	1	2	3	4
How personally meaningful is the event you reported?	.844	.077	.063	.078
How important is this memory to who you are?	.854	.118	.074	-.069
How would you rate your emotions relating to this event?	.617	.139	.166	.161
This memory tells me something about my identity.	-.694	-.032	.041	.318
I think of this memory in order to handle present or future situations.	-.548	.021	-.173	.374
How long ago did this event take place?	.073	.797	-.149	-.041
How much have you changed since this event?	.206	.815	.011	.057
Some people report mentally "seeing" the events of a memory they report, while others just describe facts that they remember. How visual is the event you wrote about?	-.029	.264	.782	-.063
How confident are you about the details of the event reported?	.235	-.186	.673	.044
Agency	.054	-.139	.444	.000
My evaluation of self-worth depends on the success or failure of my behavior in a given situation.	.064	-.203	.031	.772
When I think of my past I notice certain qualities that I had then and still have now.	-.152	.222	-.021	.672

Table 8: Correlations between internal state terms and word count

	Emotion	Cognition	Perception	Physiological
Word Count	.51**	.63**	.30**	.33**
Emotion		.35**	.05	.08
Cognition			.14	.19*
Perception				-.05

*p < .05 **p < .01

Table 9: Means (standard deviations) for four internal state proportions items by gender

	Emerging Adults					Older Adults				
	Women		Men			Women		Men		
	Mean	(SD)	Mean	(SD)	t	Mean	(SD)	Mean	(SD)	t
Emotion	.024	(.018)	.019	(.016)	2.07*	.022	(.017)	.017	(.013)	2.07*
Cognition	.021	(.012)	.021	(.014)	.28	.023	(.014)	.023	(.016)	-.02
Perception	.005	(.006)	.005	(.006)	.62	.007	(.009)	.006	(.009)	.39
Physiological	.001	(.003)	.003	(.007)	-2.04*	.001	(.002)	.001	(.004)	-.78

*p < .05

Table 10: Correlation between internal states for women

	Cognition	Perception	Physiological
Emotion	.08	-.11	-.09
Cognition		-.07	-.04
Perception			-.01

Table 11: Correlation between internal states for men

	Cognition	Perception	Physiological
Emotion	-.11	-.08	-.07
Cognition		.00	-.19*
Perception			-.14

*p < .05

Table 12: Correlations between narrative analysis and questionnaire ratings – emerging adult participants (N = 160). Pearson's correlations are used for all items except for redemptive sequence and harm, for which Kendall's nonparametric correlations are used.

	Temporal distance	Clarity of Recollection	Connection to Past Self	Emotions – Self	Emotions – Other	Cognitions	Harm	Redemptive Sequence
Personal Meaning	.01	-.05	.09	.19*	.19*	.09	.16*	-.06
Temporal distance		.01	.00	.13	-.05	.06	.10	-.02
Clarity of Recollection			.03	.02	-.03	-.08	-.15*	.05
Connection to Past Self				.07	-.03	.01	-.04	-.06
Emotions – Self					.06	-.02	-.02	-.07
Emotions – Other						.11	.27**	.04
Cognitions							-.06	.11

Table 13: Correlations between narrative analysis and questionnaire ratings – older adult participants (N = 160). Pearson's correlations are used for all items except for redemptive sequence and harm, for which Kendall's nonparametric correlations are used.

	Temporal distance	Clarity of Recollection	Connection to Past Self	Emotions – Self	Emotions – Other	Cognitions	Harm	Redemptive Sequence
Personal Meaning	-.01	.05	-.10	.13	.16*	-.02	.04	-.04
Temporal distance		-.01	.00	.08	-.01	.21**	-.05	-.05
Clarity of Recollection			-.03	-.06	.18*	-.07	.04	-.01
Connection to Past Self				.02	-.05	.21**	-.03	.02
Emotions – Self					.14	.02	-.02	-.04
Emotions – Other						.03	.30**	-.02
Cognitions							.06	-.06
Harm								.06

Table 14: Logistic regression for donating to charity in the younger age group

	B	S.E.	Wald	df	Sig	Exp(B)
Gender	-.375	.677	.307	1	.57	.687
Time	-.055	.791	.005	1	.94	.946
Perspective	.099	.682	.021	1	.88	1.104
Gender by Time Interaction	-.030	.992	.001	1	.97	.971
Gender by Perspective Interaction	.528	.972	.295	1	.58	1.696
Perspective by Time Interaction	-.381	1.00	.144	1	.70	.683
Gender by Time by Perspective	.213	1.41	.023	1	.88	1.238
FAC1 – Personal Meaning	.410	.187	4.821*	1	.02	1.506
FAC2 – Temporal Distance	.313	.251	1.555	1	.21	1.368
FAC3 – Clarity of Recollection	-.378	.164	5.316*	1	.02	.685
FAC4 – Connection to Past Self	-.063	.166	.143	1	.70	.939
Emotion Terms - Self	-.113	.345	.106	1	.74	.894
Emotion Terms - Other	-.192	.625	.094	1	.75	.825
Cognition Terms	.233	.471	.245	1	.62	1.262
Constant	-.575	.526	1.19	1	.27	.563

Table 15: Logistic regression for donating to charity in the older age group

	B	S.E.	Wald	Df	Sig.	Exp(B)
Gender	-.443	.739	.359	1	.549	.642
Time	-.497	.835	.353	1	.552	.609
Perspective	.428	.749	.326	1	.568	1.534
Gender by Time Interaction	2.028	1.075	3.559*	1	.059	7.599
Gender by Perspective Interaction	.374	1.070	.122	1	.726	1.454
Perspective by Time Interaction	-.027	1.017	.001	1	.979	.973
Gender by Time by Perspective	-.370	1.575	.055	1	.814	.690
FAC1 – Personal Meaning	-.442	.210	4.438*	1	.035	.643
FAC2 – Temporal Distance	-.441	.285	2.396	1	.122	.643
FAC3 – Clarity of Recollection	-.006	.226	.001	1	.978	.994
FAC4 – Connection to Past Self	-.362	.221	2.692	1	.101	.696
Emotion Terms - Self	.458	.392	1.362	1	.243	1.580
Emotion Terms - Other	1.617	.719	5.056*	1	.025	5.038
Cognition Terms	.428	.533	.646	1	.421	1.535
Constant	-2.125	.728	8.509	1	.004	.119

Table 16: Older group participants who gave to charity (out of a total of 40 for each age group)

	Men	Women
Recent	8	20
Distant	11	11

Table 17: Logistic regression for donating to charity in the older age group in the recent condition

	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	1.758	.852	4.255*	1	.039	5.800
Perspective	.579	.735	.620	1	.431	1.784
Gender by Perspective Interaction	-.209	1.204	.030	1	.862	.811
FAC1 – Personal Meaning	-.585	.279	4.392*	1	.036	.557
FAC2 – Temporal Distance	-.242	.392	.382	1	.537	.785
FAC3 – Clarity of Recollection	-.052	.300	.031	1	.861	.949
FAC4 – Connection to Past Self	-.645	.353	3.336	1	.068	.525
Emotion Terms - Self	.266	1.006	.070	1	.791	1.305
Emotion Terms - Other	.057	.533	.011	1	.915	1.059
Cognition Terms	.876	.797	1.209	1	.271	2.402
Constant	-1.977	.773	6.538	1	.011	.138

Table 18: Logistic regression for donating to charity in the older age group in the distant condition.

	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	-1.142	.872	1.716	1	.190	.319
Perspective	.570	.821	.482	1	.488	1.768
Gender by Perspective Interaction	.142	1.168	.015	1	.904	1.152
FAC1 – Personal Meaning	-.141	.384	.134	1	.714	.869
FAC2 – Temporal Distance	-.669	.474	1.991	1	.158	.512
FAC3 – Clarity of Recollection	-.393	.417	.887	1	.346	.675
FAC4 – Connection to Past Self	-.050	.329	.023	1	.880	.952
Emotion Terms - Self	3.586	1.181	9.229*	1	.002	36.102
Emotion Terms - Other	1.555	.736	4.459*	1	.035	4.734
Cognition Terms	-.098	.788	.015	1	.901	.907
Constant	-.520	.793	.431	1	.512	.594

Table 19: Summary of findings, organized by measures used

Dependent variable	Effects found – emerging adults	Effects found – older adults	Age effects
Narrative Analysis			
Internal state terms	• Women use more emotion terms that refer to emotions experienced by the self • More emotion words used in third-person condition	• Events in distant condition written with more cognition words • Interaction of time and gender for emotions for others – women use more emotion words than men in distant condition, and no differences found in recent condition.	None
Redemptive sequence	None	None	None
Harm	• Narratives involving harm were rated as more personally meaningful, and as less clearly recalled		None
Memory Ratings			
Personal Meaning	None	• Events in distant condition rated as more personally meaningful. • Three-way interaction found (see Figure 3)	None
Temporal Distance	• Events in distant condition rated as older than events in recent condition	• Events in distant condition rated as older than events in recent condition. • Three-way interaction found (see Figure 4).	None

Clarity of Recollection	• Third-person events rated as more clearly recalled	None	None
Connectedness to Past Self	None	None	None
Self Enhancement Measures			
Voting Behavior	• Participants less likely to accept money to vote in third-person condition than in first-person.	• Women were less likely than men to accept money to vote. • Three-way interaction found (see Figure 7).	Older adults less likely to accept money to vote
Emergency Help	None	• Rated temporal distance (but not actual time) predicted less pro-social behavior.	Older adults choose pro-social options more often.
Donating Behavior	• Memories rated as more personally meaningful and as less clearly recalled predicted more charitable giving	• Memories rated as more personally meaningful predicted less charitable giving. • Memories written with more emotions for others predicted more charitable giving. • Time by gender interaction – women in the recent condition were more likely to give to charity than women in distant condition and men in both conditions.	None

Figure 1. Socio-emotional selectivity curve as presented in Carstensen et al. (1999)
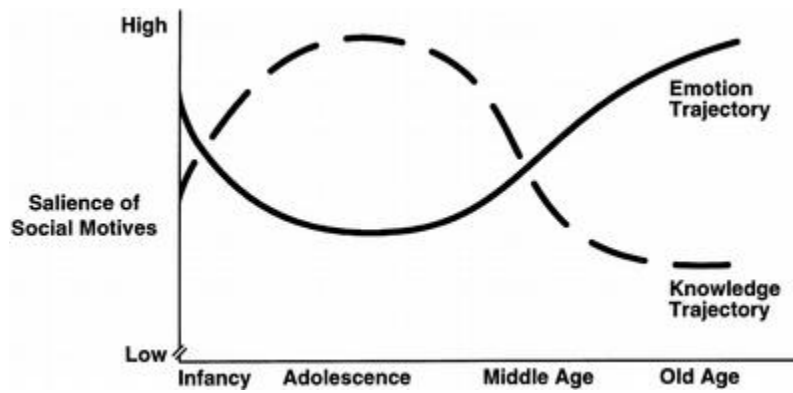

Figure 2. Scree plot for factor analysis of 12 memory rating items. Y axis represent eigenvalues.
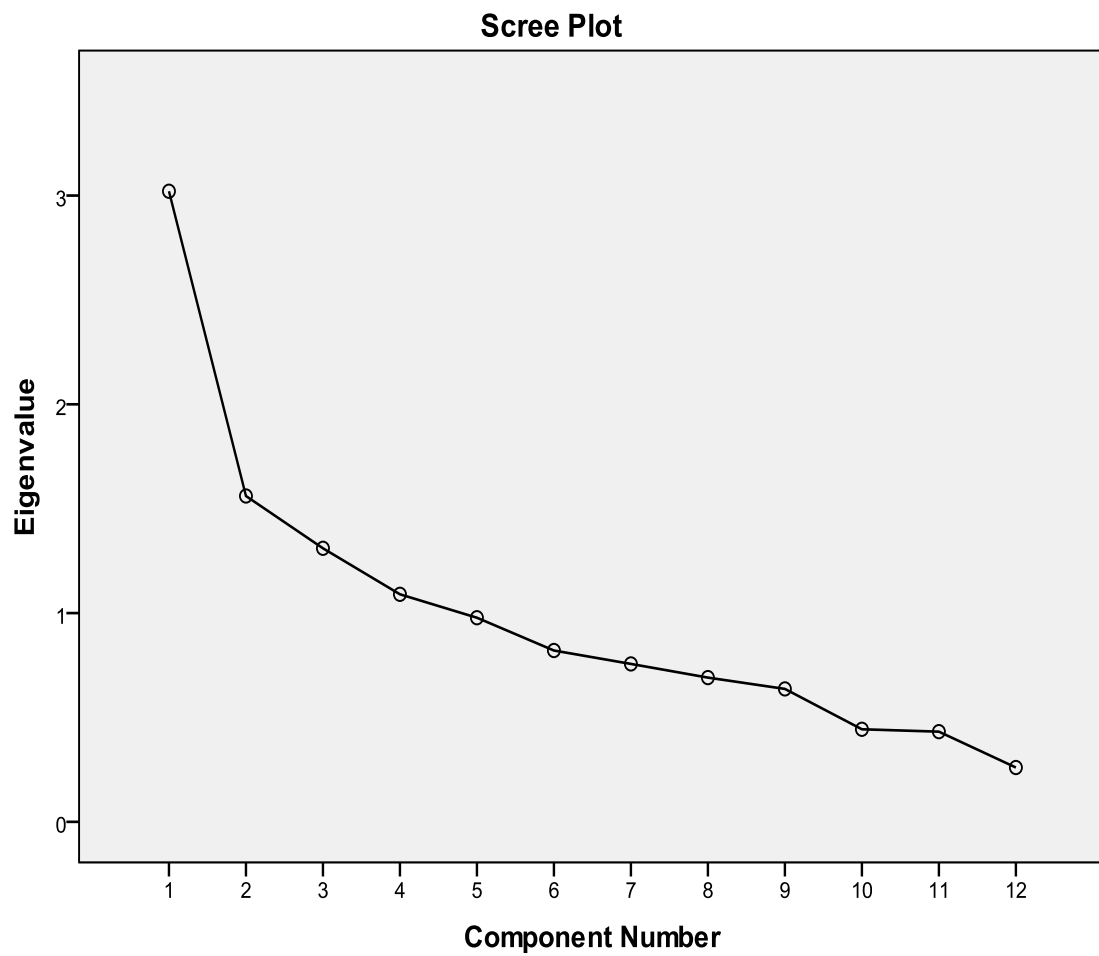
Figure 3. Mean-centered ratings of personal meaning among older adults, grouped by gender and by time and perspective conditions. Error bars represent standard errors.

Factor 1 - Personal Meaning

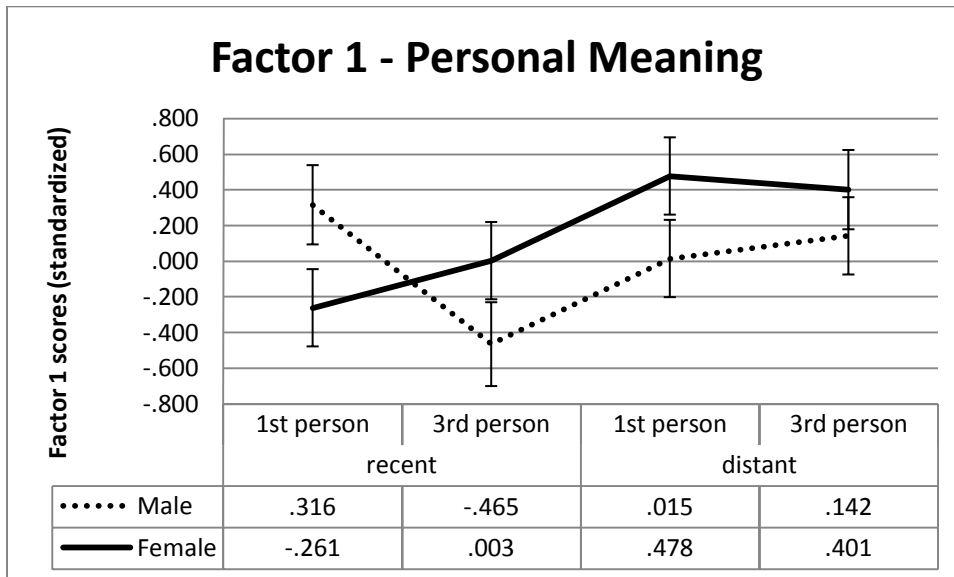|	1st person	3rd person	1st person	3rd person
	recent		distant	
Male	.316	-.465	.015	.142
Female	-.261	.003	.478	.401

Figure 4. Mean-centered ratings of personal meaning among older adults, grouped by gender and by time and perspective conditions. Error bars represent standard errors.

Factor 2 Temporal Distance

	1st person	3rd person	1st person	3rd person
	recent		distant	
Male	-1.002	-.611	1.034	.738
Female	-.560	-1.001	.647	.537

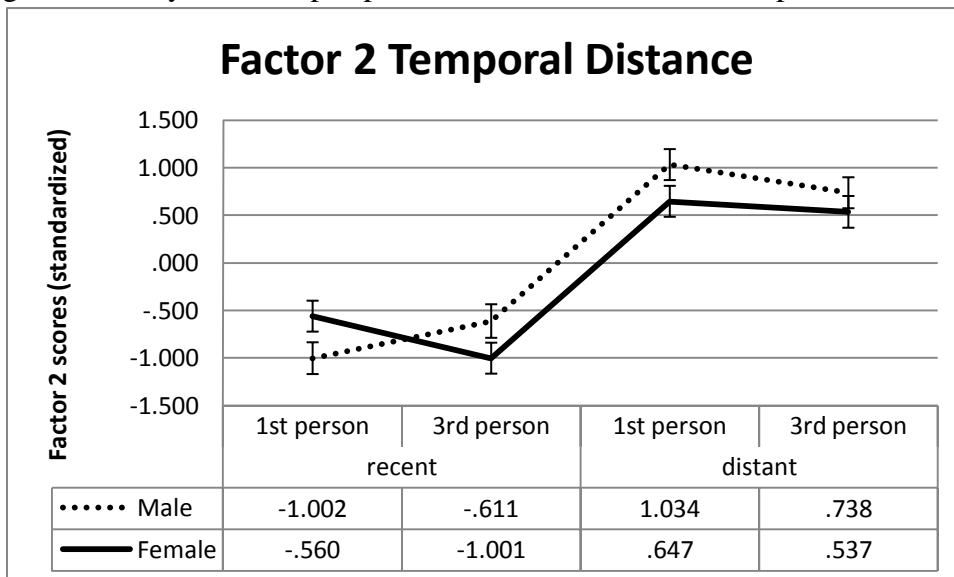Figure 5: Mediational model of word count and cognition and emotion terms for men. All *p* values < .001.
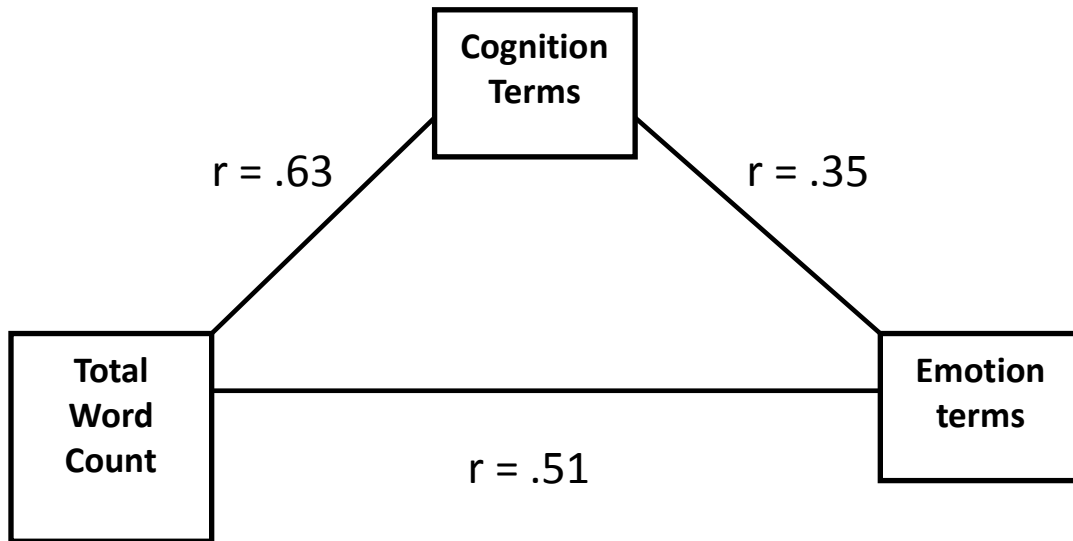
Figure 6: Mediational model of word count and cognition and emotion terms for women. All *p* values < .001.
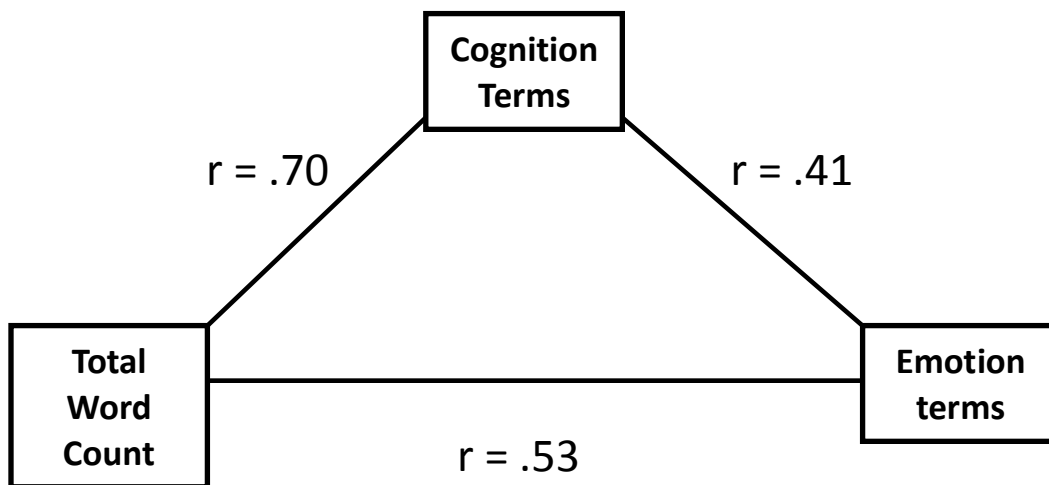
Figure 7: Emotion terms for others for older adult participants, grouped by gender and time. Y axis indicates emotion terms as a proportion of overall narrative. Error bars indicate standard errors.
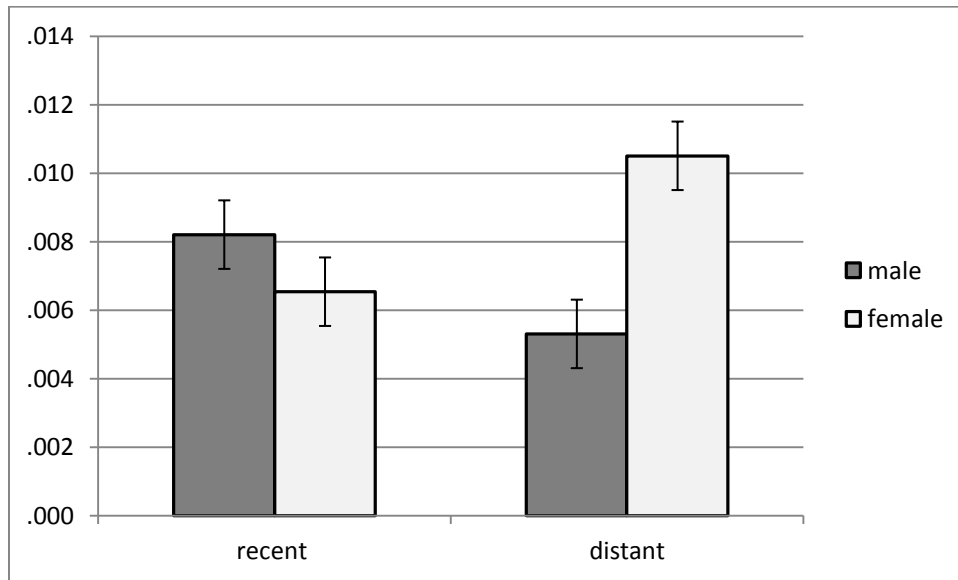
Figure 8: Voting behavior scores for older adults, grouped by time, perspective, and gender. Error bars indicate standard errors.
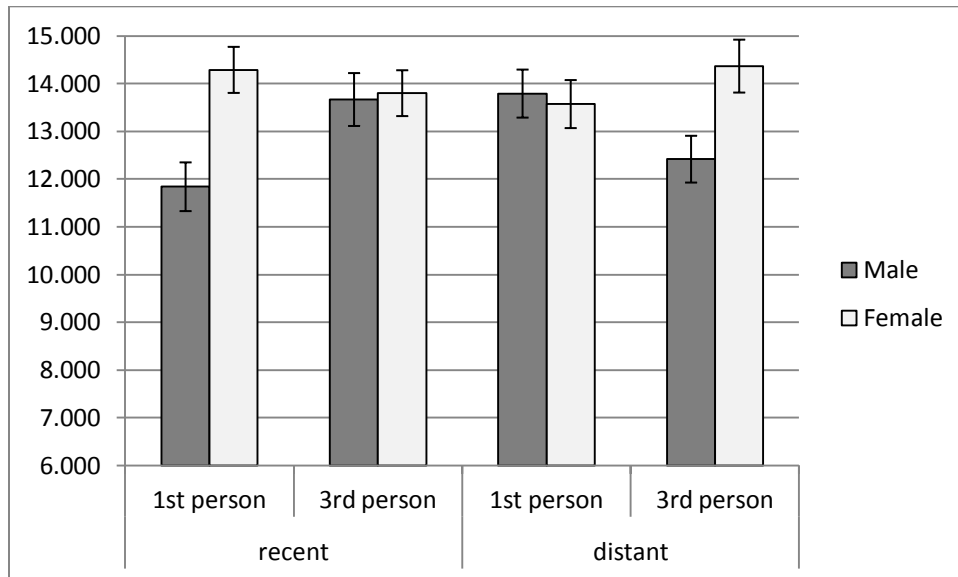
Appendix A: Detailed survey completed by participants

DEMOGRAPHIC FORM

Gender

___Female

___Male

Age _____

Ethnicity

___Asian

___Black

___Hispanic

___Native American

___Indian

___White

___Other (specify) _____

Instructions to Participants

Below there is a list of traits that people commonly use to describe themselves. Please choose three traits that you think describe you and are important to who you are from this list. IF YOU CHOOSE MORE THAN THREE, YOUR SURVEY WILL NOT BE APPROVED FOR PAYMENT.

Honest	Friendly	Mature	Outgoing
Faithful	Brave	Considerate	Kind
Moral	Polite	Intelligent	Reliable
Assertive	Trustworthy	Thoughtful	

Next page

The purpose of this exercise is to sample an episode from your life.

People's lives vary tremendously, and people make sense of their lives in a variety of ways. We are not interested in pathology, abnormal psychology, neurosis, and psychosis. We are not trying to figure out if something is wrong with you. Nor are we aiming to pass judgment on the "goodness" of your life. We won't even know who wrote it when we read it. Instead, we want to read your story as if it was part of a book, seeing what kinds of characters, scenes, and themes you identify.

This exercise is organized around the idea of an episode. An event or episode is a specific happening that occurs in a particular time and place. It is most helpful to think of such an event as constituting a specific moment in your life which stands out for some reason. Examples might be a surprise birthday party that your friends threw for you on your 18th birthday, a particular conversation with your spouse or friend in November of last year, or your reactions to learning of an illness of someone close to you one day in 1986. Your last summer's vacation and a difficult week at work, by contrast, are not events because they occur over an extended period of time, even though they may be very important to you. Thus, your vacation would be more like a series of events than an event. We want you to concentrate on a single event, rather than on a series of events or an extended period of time.

> ➤ There are 4 options for the instructions at this point, varying visual perspective and time of the memory. Different texts are included in square brackets

Options A and B

On a previous page you identified three traits that are important to who you are. Think of the most important one. Now think of an event when you didn't act according to that trait. Please pick an event that occurred in the last year [at least two years ago]. Please visualize and write about the event from an observer's perspective; in other words, so that you can see yourself in the memory, as well as your surroundings.

Once you have chosen the event, to help you visualize it, answer the following questions:

1. Can you see what you were wearing?
2. Can you see what you were doing?
3. Can you see what your facial expression was?
4. Can you see how you were wearing your hair?
5. Can you see whether you were standing or sitting?

Now that you have thought about the event, please write a description of what happened. You should take approximately eight minutes to write about this event. In the box below, we will ask you to describe an event from your life. For the event, we ask that you try to write a description that is at least two paragraphs in length.

in the last year

Options C and D

On a previous page you identified three traits that are important to who you are. Think of the most important one. Now think of an event when you didn't act according to that trait. Please pick an event that occurred in the last year [at least two years ago]. Please visualize and write about the event from the same visual perspective that you originally had; in other words, looking out at your surroundings through your own eyes.

Once you have chosen the event, to help you visualize it, answer the following questions:

1. Can you see any furniture in the room or place where you are?
2. Can you see any windows in the room?
3. Can you see anything hanging on the walls?
4. Can you see anyone else in the room or place where you are?
5. If so, can you see what they are wearing?

Now that you have thought about the event, please write a description of what happened. You should take approximately eight minutes to write about this event. In the box below,

we will ask you to describe an event from your life. For the event, we ask that you try to write a description that is at least two paragraphs in length.

(After the memory has been described, participants are to answer the following memory ratings)

1. How personally meaningful is the event you reported?

1	2	3	4	5
Not meaningful	Not so meaningful	A little meaningful	Somewhat meaningful	Very meaningful

2. How important is this memory to who you are?

1	2	3	4	5
Not at all important	Somewhat unimportant	Neutral	Somewhat important	Very important

3. How would you rate your emotions relating to this event?

1	2	3	4	5
No emotions	Slightly emotional	Somewhat emotional	Very Emotional	Intensely emotional

4. How long ago did this event take place?

1	2	3	4	5	6
Very recently	Recently	Not so long ago	A while ago	A long time ago	A very long time ago

5. Some people report mentally "seeing" the events of a memory they report, while others just describe facts that they remember. How visual is the event you wrote about?

1	2	3	4	5
Not at all visual	Mostly not visual	Neutral	Somewhat visual	Highly visual

6. How confident are you about the details of the event reported?

1	2	3	4	5
Unconfident	Not so confident	Somewhat confident	Confident	Very confident

7. How much have you changed since this event?

1	2	3	4	5
No change at all	A little change	Some change	Change	A lot of change

8. How long ago did this event occur

_____ years or _____months (depending on which condition participants are in)

Please rate your level of agreement with the following statements

9. My evaluation of self-worth depends on the success or failure of my behavior in a given situation.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree	Disagree Somewhat	Strongly Disagree
1	2	3	4	5	6	7

10. When I think of my past I notice certain qualities that I had then and still have now.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree	Disagree Somewhat	Strongly Disagree
1	2	3	4	5	6	7

11. When I think of myself when I was little, I am often amazed at how different I was and how many changes I have gone through to become the person that I am.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree	Disagree Somewhat	Strongly Disagree
1	2	3	4	5	6	7

12. I think of this memory in order to handle present or future situations.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree	Disagree Somewhat	Strongly Disagree
1	2	3	4	5	6	7

13. This memory tells me something about my identity.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree	Disagree Somewhat	Strongly Disagree

1	2	3	4	5	6	7

14. To what degree did the following terms describe you in the story you just told?

o self-control

1	2	3	4	5
Not at all	Not really	Neutral	Somewhat	Very much

o morality

1	2	3	4	5
Not at all	Not really	Neutral	Somewhat	Very much

o memory

1	2	3	4	5
Not at all	Not really	Neutral	Somewhat	Very much

o emotion recognition

1	2	3	4	5
Not at all	Not really	Neutral	Somewhat	Very much

o planning

1	2	3	4	5
Not at all	Not really	Neutral	Somewhat	Very much

o communication

1	2	3	4	5
Not at all	Not really	Neutral	Somewhat	Very much

o thought

1	2	3	4	5
Not at all	Not really	Neutral	Somewhat	Very much

What political party do you identify with?

Democrat   Republican   Other

How much money would someone have to offer you to vote for the opposite party?

	$.5
	$1
	$2
	$5
	$10
	$25
	$50
	$200
	$500
	$1000
	$5000
	$10,000
	$100,000
	More than $100,000
	No amount of money would convince me

The following is a fictional scenario. Imagine yourself in this scenario and please choose one of the options towards the bottom for how you would react in this scenario.

You are on the way to a job interview for which you are the top candidate. You have been unemployed for two months, and are excited for the opportunity. You also have training as a paramedic, something you took on during college. You are about to get into the subway to go to the interview, and you pass a car accident, and see that there are five people bleeding. There isn't really anybody around, as it is a residential neighborhood in the middle of a work day, and the next person to come to the scene might be another 5 minutes or longer. You know that your help might mean the difference between minor and more serious injuries for these people. If you stop to call 911, you can't go into the subway (you'll lose reception) so you'll miss your train and be late for your interview by 15 minutes, something that will hurt your chances getting the job, but you may be able to explain to the interviewers. If you stop and help people until the ambulance comes, you'll be half an hour late, and would have to hope that they would be willing to reschedule your interview. Since there are five people injured, the ambulance might not be enough equipped, and your help is of great value. You could stay at the scene until everybody is stable, which would make you an hour late, miss the interview entirely, and lose your chance of getting the job, but prevent all five people from sustaining serious injuries.

What do you do?

a.   Walk into the subway.

b.   Call an ambulance and then go into the subway.

c.   Call an ambulance and help out until it comes.

d.   Call an ambulance and help out until all the victims are stable.

Please explain why you chose this option:

_____

_____

_____

Finally, you were offered 50 cents (1 RPU) to participate in this study. You have the option to receive an additional 25 cents for your participation, or we can donate that extra money to the United Nations Children's Fund. Which do you prefer to do?

    a. Take the 25 cents   b. Donate it to charity

Appendix B: Sample honesty narratives

Emerging Adults

<u>Subject 104 – 19-year-old male, recent 1st person perspective,</u>

I have a friend that occasionally gets on peoples' nerves, and by virtue of that, is sometimes not actively included in events surrounding other friends, and is sometimes lied to avoid a conflict. In December we were out camping (sans the aforementioned friend) and some of the older members of the group were drinking beer while talking around the campfire. I got a phone call from my friend concerning his previous engagements that prevented him from attending the trip. He asked what was going on at the campsite, and I explained to him that we were hanging around and reminiscing and some of us were drinking beer.   He had been over to my house a few days prior and had left behind two sizable boxes of high-end beer in my refrigerator requesting that I hold on to them. When he heard that there were others drinking beer, he asked if it was his beer that they were drinking. It was, as it was economically viable to take his beer from my house instead of buying more. I told him that George had brought his own beer, and that was what the group was drinking, for fear of causing a controversy lest he discover that we were consuming beer that he had bought.

<u>Subject 140 - 19-year-old female, recent 1st person perspective</u>

We were all gathered because the staff members of my residential school were being interviewed for an event that occurred and they wanted to know how we felt about it. I was asked my opinion of the event. My best friend was involved in the incident where she was treated unfairly but the adults were asking me the questions. I have a lot of

respects for my elders so I tried to be as respectful as possible. I was a bit more lenient in my description of the adult's behavior and I was immediately shot looks at by my friends. I was scared to say anything more. I knew that if I said anything to compromise the staff's position my time in the house would be a living hell so I had to embellish her kindness a bit. I could see my friend disappointed and she knew why I did it. In the end it all worked out but that was one of the times I was not as honest as I could have been.

<u>Subject 183 - 24-year-old male, recent 3rd person perspective</u>

i was standing in my kitchen washing dishes, and my girlfriend asked me whether or not one of my former girlfriends had been sending me messages. she had in fact been sending me messages, but i lied and said no. my current girlfriend is extremely jealous, and i knew she would be upset if i told her the truth, even though the messages had been innocent.

<u>Subject 229 - 24-year-old female, recent 3rd person perspective</u>

For Christmas of 2009 my sister was really excited about the gift she bought me and talked about it for a couple weeks before Christmas day. She said it would be something I would fall in love with and I would be very happy when I opened the gift. I was excited and wouldn't wait to open it and see this great gift. Christmas day came and I opened the wrapped box to find this very ugly bedding. Not only did it look very ugly but it was a satin bed set which I can't stand the feeling of. I couldn't hurt my sisters feeling so I acted like I loved it. My sister doesn't come to my house at all so I returned it to the store and picked out something I did like. I would never tell her I returned it and when we talk on the phone I tell her I still use the bedding.

<u>Subject 270 - 24-year-old male, distant 1st person perspective</u>

My dad was asking me about why I did not have a parking permit in my car. I lied and said that I was pulled over for having it hanging on my rear view mirror. The truth was that I didn't have one and that I was never pulled over by any cop.

<u>Subject 301 - 22-year-old female, distant 1st person perspective</u>

That was a final exam of one of my college courses. And I was not very good at that class but I really want to get a high grade. Because it means a lot to me and I want to get scholarship. I sat behind a boy who is very clever and did well in that course. So I asked him to pass over his paper and he did so. I feel very guilty at that time.

<u>Subject 350 - 26-year-old male, distant 3rd person perspective</u>

I was 16 years old and working as a caddy at a golf club. It was my first season working at this particular golf club and it had not been going very well. The members were extremely cheap and did not pay me what I felt I deserved. This left me very frustrated and angry. One day I decided it was time for payback. At the club, whenever I was assigned someone to caddy for, i was given a ticket, which the member would sign at the end of each round to determine my pay. One day, I stole a couple of blank tickets from the office and forged the pay and signature on both of them for members that did not exist. I knew I could get away with it because my boss was not very bright. In the end, I walked away with $200 I did not work for.

<u>Subject 386 - 26-year-old female, distant 3rd person perspective</u>

I had been with my boyfriend and father of my son for 5 years. for the last year of our relationship i realized i couldn't spend my life with him. i was 22 and he was 35. we

didn't like any of the same things but we had made a life together, bought a house, had a child. he worked 12 weeks out of town and one week off at home. It was the morning after he had returned home and we were making coffee and talking in the kitchen. i looked at him and realized he just disgusted me and i had no attraction to him whatsoever, but i felt bad about it. i didn't love him any more and barely liked him. he drank a lot but he was a good person when he wasn't drunk, but i started to see less and less of that nice person. i have never cared about what others think of me, and i'm almost honest to a fault but that morning i lied. we were having our coffee and he asked me if something was wrong and i said no. he told me he loved me and i said 'i love you too' . as soon as i told him that, i felt sick and guilty but knew i would have to tell him the truth eventually. that was the first time i ever lied about who i felt about someone, but it was also the last. i left him and met my current husband, i always tell him the truth even if i think it might hurt him at first. it's better than cheating myself or allowing myself to experience how i really feel or trying to hide it.

Older Adults

Subject 131 – 39-year-old male, recent 1st person perspective

I was looking through my mother's filing cabinet. She had wanted me to find a copy of her homeowner's insurance policy. She was at work at the time and needed the information spoken to her on the telephone.   While going through her cabinet I found an envelope that was stuffed with about 4 thousand dollars, that I was quite sure she did not remember it being there as the envelope was in bad shape and in an awkward position in that drawer.   Being a little short of cash, I took 800 dollars right away. Two weeks later I took another 800.

<u>Subject 171 – 47-year-old female, recent 1st person perspective</u>

I was at a convention with my closest friends. We had a very long and exciting day, and were winding up down in the hotel lobby talking. We had just come back from dinner. Some friends wanted to head to the downtown area to go to a nightclub or see a comedy show. I said that I would go. We were making plans to meet back in the lobby in a half hour. As I was getting ready to head up to the hotel room, another woman who I am friends with joined the group, and she was crying. She had an emotionally upsetting day, and wanted to talk about it. She wanted to head out with us, and was happy that I was going because she wanted to talk to me. I said that I was going to go up to my room and take a quick shower and get changed. Once I got up to my room, I decided I really didn't want to be around my friend that night, because she was emotionally exhausting me. I felt bad for her situation but I really just wanted to go out and have a good time, and I knew she would grab me and talk and cry to me all night if I went out. I called another friend from my hotel room and lied, said that once I had gotten out of the shower I realized that I was exhausted, and just didn't feel good enough to go.

<u>Subject 205 – 34-year-old male, recent 3rd person perspective</u>

I was selling a drink to a customer and they wanted to know about a supplement they could add. I was not totally honest in my explanation. I told the customer that I used it all the time (which was not honest) and that it was incredible for losing weight. I am not one to tell a white lie or any lie but I did it in this instance and was not very happy. Afterwards I felt guilty and said that I would not ever do it again. I have kept that promise to myself

<u>Subject 253 – 48-year-old female, recent 3rd person perspective</u>

Driving to another town with my father to do his monthly shopping. I always have my cell phone at hand and regularly check it to see what the latest is, whether is it a text message I have received, breaking news flash or an update on Facebook. While driving, I briefly checked Facebook. My father then asked, do you ever text while driving? I immediately answered no. But that was not the truth. Texting while driving has been in the news a lot because there have been fatal auto accidents that have occurred because of it. And while I have been very aware of this, I have continued to text while driving. This was a very rare occasion that I would not tell the truth to my father.

Subject 292 – 56-year-old male, distant 1st person perspective

At a large amusement park, I spotted a fifty dollar bill lying on the ground near the exit to a roller coaster. I stepped on the bill to cover it up, so I could eventually reach down and pick it up. Immediately after I stepped on the bill, several people began obviously looking for the bill. I could hear them mentioning it, and looking all around where I was standing. As I continued to stand there, they continued to look, and were somewhat agitated. It was very uncomfortable, as I was standing in a very central location by the ride exit, where one wouldn't normally stand for more than a moment or two. I pretended I was looking for a friend whom i expected to exit at any moment. Finally one of the people asked if I could move, to see if perhaps I had stepped on the bill by mistake. I did so, and the bill was revealed. I expressed surprise, and relief that their search had been successful. I do not know if I was believed. I left the area of the ride quickly.

Subject 326 – 38-year-old female, distant 1st person perspective

When I was 7 years old in first grade I wanted to bring some forsythia branches to my teacher. My father and I walked to the neighbor's yard down the block where they had a

large forsythia bush. He cut several branches for me. I was nervous about getting caught the whole time. When we were finished we walked back to our house down the street. When we got there my dad stopped in the front yard. He asked me what I thought about taking the branches from the neighbor's yard. I said, "I don't know". He asked me what it was called when you take something that doesn't belong to you. Again, I said, "I don't know" even though I knew the word he was looking for was "stealing". He let me off the hook by not pressing the issue, but I knew I had done something dishonest when I lied to him and pretended not to know what he was talking about. I also began to feel guilty for taking the branches without asking.

Subject 374 – 52-year-old male, distant 3rd person perspective

I was going through the mail and my wife sat down and picked up one of our monthly bills. Her expression changed when she saw that we were over due and the amount we needed to pay. I tried to reassure her but it did no good. She began to cry and kept asking me questions about our finances.   I am honest, however I could not muster the courage to really tell her that we were broke and about to lose our home. I know had hidden from her all the details because approximately 12 years before we had gone through a similar situation and she did not handle it very well. In fact, she became depressive.   I could not allow the same thing to happen. At the time, I thought it was the right thing to do. I now know that being dishonest is not the way to go. Eventually she found out about the foreclosure and was very disappointed in me. It was a very difficult time for our family.

Subject 410 – 40-year-old, female distant 3rd person perspective

My parents are full time RV'ers. They leave their car here at my house as they travel. They paid the insurance for the car, they paid the auto repairs. The car had been acting up when they had visited last, and they specifically instructed me not to drive it more than a few miles within town to avoid damages.   But, I thought I was in love. And my boyfriend at the time was living in another state. I knew that if I asked them if I could take their car to go see him, they would say no, and possibly have a fit just at the idea. So I just didn't tell them, and I took their car to go see my boyfriend in another state. I basically stole their car for a week. They just didn't know it.   Later, on our next visit, we discussed the car and they asked me if I had driven it more than a few miles within town as they'd instructed me to - I lied and told them I had not. I still feel bad about this today, as they trust me.