SELF-DEFINING AUTOBIOGRAPHICAL MEMORY IN RELATION TO ADULT SELF-CONCEPT AND PSYCHOLOGICAL WELL-BEING

BY

ANGELENIA B. SEMEGON

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To my greatest teacher,
my son, Shane Aron Semegon.

discouraging as well as triumphant moments . Shane, you were there through it all, my light and

inspiration.

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ANGELENIA B. SEMEGON

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Chair: Robin West
Co-Chair: Manfred Diehl
Major Department: Psychology

The purpose of this study was to examine the link between individuals' self-concept and

autobiographical memory in relation to psychological well-being. There were three primary

objectives: 1) to explore the relationship between adults' self-representations and self-defining

autobiographical memories, in relation to age; 2) to investigate the relationship of valence of

self-defining autobiographical memories to psychological well-being, personality and affect; and

3) to test the potential role of valence of self-defining memories as a mediator of the relationship

between individual differences and well-being.

One hundred twenty-three adults participated in the study. Participants were tested

individually in two separate testing sessions. During the first session, participants narrated three

self-defining autobiographical memories, from which personal attributes were identified

(memory-derived attributes). Participants rated the valence of these memories. In addition,

several individual difference variables and a measure of psychological well-being were also

administered in the first session. During a second session, a semantic recognition task was

administered in which response latencies were obtained for the memory-derived attributes and

general self-attributes. In addition, participants rated the salience of both types of attributes.

Both younger and older adults responded more quickly to memory-derived attributes than to general self-attributes. Also, older adults responded more quickly to general self-attributes than younger adults. Additionally, the memory-derived attributes were more salient than general self-attributes for both younger and older adults, and memory-derived attributes were higher in salience for older adults than younger adults were. In contrast, the salience of general self-attributes were comparable for younger and older adults.

Several notable relationships were found among the valence of autobiographical memories, individual difference variables and psychological well-being. The positive valence of self-defining autobiographical memories predicted a small portion of the variance in scores on psychological well-being.

These findings show promise for future investigations of the connection between autobiographical memory and self-concept. Additionally, examining the relationship among autobiographical memory, individual differences in personality and affect, and psychological well-being may be a fruitful avenue for future research exploring the role of individuals' self-concept as a resource that allows older adults to compensate for age decrements in ways that optimize well-being.

CHAPTER 1
INTRODUCTION AND LITERATURE REVIEW

The purpose of this study was to examine the link between two major theoretical frameworks, self-concept theory and autobiographical memory theory. Researchers have studied self-concept and autobiographical memory extensively, yet separately. In this study, a semantic recognition paradigm is described as an innovative method to investigate the relationship of autobiographical memory and self-concept across the life span.

A life span perspective and a multidimensional view of self-concept provide the overarching theoretical approaches for this review. In addition, a review of the autobiographical memory literature is included, highlighting the developmental trajectory, as well as the functions of autobiographical memory. Specifically, the functions of autobiographical memory will be emphasized. This review will provide the foundation necessary to further consider the interconnected relationship of these two perspectives.

Self-Concept Theory

Theorists often use the terms "self-concept", "self-perception", "self-knowledge", "self-esteem", and "self-representation" interchangeably despite subtle differences in their meaning (Baumeister, 1998). In the context of this study, I have adopted the conceptualization offered by a number of prominent theorists according to which the self-concept is viewed as a multidimensional and dynamic cognitive structure that serves a number of adaptive and self-regulatory functions (Brandtstädter & Greve, 1994; Higgins, 1996; Markus & Wurf, 1987). This conceptualization implies that individuals' self-concept is an "organized knowledge structure that contains traits, values, episodic and semantic memories about the self and that controls the processing of self-relevant information" (Campbell et al., 1996, p.141). Theorists have most often conceptualized these multi-faceted aspects of the self as self-schemas (Markus, 1977), self-

theories (Epstein, 1973), or self-digest (Higgins, 1996). Each of these conceptualizations focuses on the cognitive representation of the self that embodies the sum of an individual's collection of knowledge about his or her own person. This self-knowledge arises through social interaction as well as interaction with the environment resulting in a personal theory or mental concept of what the self is like. Regardless of how theorists conceptualize the self-concept, they seem to agree that it is not static and that it is constructed and reconstructed throughout an individual's lifetime to meet the person's changing psychological needs and the demands of varying life contexts. The evolving multidimensional nature of the self-concept is particularly apparent during the formative years of childhood and adolescence (Damon & Hart, 1988; Harter, 1998); however, the multidimensional nature of the self-concept continues to be evident across the entire lifespan (Baumeister, 1998; Brandstädter & Greve, 1994).

Development of Self-Concept

The sequence of self-concept development from infancy through adolescence has been well documented (Case, 1992; Damon & Hart, 1988; Fischer, 1992; Harter, 1998; Harter & Monsour, 1992; Lewis & Brooks-Gunn, 1991). An extant body of research (Damon & Hart, 1988) has shown that during early childhood, the self-concept is mostly based on a child's physical characteristics. As the child matures, social characteristics are incorporated into the self-concept and, increasingly, psychological characteristics are drawn upon in later childhood and adolescence (Damon & Hart, 1988; Harter, 1998). Thus, by the end of adolescence, individuals' self-concept has developed into role-specific multiple selves (Harter & Monsour, 1992). One of the challenges of early adulthood relates to the coordination of these multiple selves into a coherent overall self-representation (Donahue, Robins, Roberts, & John, 1993).

Given that self-concept is based on cognitive representations, developmental changes in children's self-concept are intimately connected to cognitive development. Therefore, it is

imperative to consider cognitive development as an underlying foundation upon which self-representations are constructed. Likewise, developmental changes in cognitive resources are also associated with changes in the structure and content of individuals' self-concept. The following section focuses on the role of cognitive development with regard to developmental differences related to both the content and structure of children and adolescents' conceptions of self.

Self-concept in infancy and toddlerhood

The earliest conceptualizations of self as an object become apparent as infants evince the ability to recognize themselves. Lewis and Brooks-Gunn (1979) noted limited self-recognition in 9-12 month-old infants when provided with contingency cues, those that rely on the babies' own movements. However, when the cues were noncontingent, such as delayed videotape or photographs, the infants in that age group did not demonstrate self-recognition. Furthermore, Lewis and Brooks-Gunn (1979) found that, by 18 months of age, children became less interested in contingency cues and more attentive to noncontingent cues. At 21 months of age, most children no longer rely on contingency cues for self-recognition. Although inter-individual variability is evident in self-recognition tasks, nonetheless self-recognition is well established in children by two years of age (Lewis & Brooks-Gunn, 1979). Establishing the hallmark of self-recognition is integral to establishing the emergence of the individual's sense of self. Lewis and Brooks-Gunn (1979) assert, "knowledge of oneself in an existential sense is necessary for knowledge of oneself in a categorical sense" (p. 318). That means, when a child recognizes him/herself in photographs, or videos the child is displaying knowledge that he or she exists outside of the parameters of the present moment. This knowledge of self allows the child to incorporate more complex ideas and information about himself or herself. From these early beginnings, the complexity of the child's self-concept develops along a predictable trajectory over the course of childhood.

Self-concept in early childhood

During early childhood years, a distinct shift in the child's understanding of self occurs. Specifically, the child becomes increasingly aware of his or her individual characteristics that can be directly observed (Damon & Hart, 1988). These observable characteristics are the foundation of the young child's conception of self. The young child's self-concept is very concrete (Damon & Hart, 1988; Harter, 1996) and consists of discrete characteristics related to his or her physical (i.e., "I have curly hair"), social (i.e., "Jamie is my friend"), activity related (i.e., "I like to play soccer") and psychological (i.e., "I'm kind") attributes. Children include the physical, social, and activity related traits before they begin to include rudimentary psychological characteristics (Harter, 1983).

In addition to having very concrete conceptualizations of themselves, young children are incapable of maintaining more than one category or behavioral event simultaneously (Case, 1992; Fisher, 1980; Harter, 1988). Therefore, children tend to describe themselves in a global all-or-none fashion and are unable to recognize or include in their self-descriptions traits that may co-occur. For example, children evince this all-or-none conception of self when they describe themselves in terms of being all good or all bad. Because of this tendency to globalize, children's conceptions of self are often generalized across many contexts. Similarly, Fisher (1980) noted that young children were incapable of holding two opposing attributes simultaneously. Studies that are more recent have also shown that children are unable to acknowledge having more than one emotion at the same time (Ruble & Dweck, 1995), even if the emotions are of the same valence (Harter, 1998).

Self-concept in middle childhood

During middle childhood, children continue to maintain a relatively concrete conception of self (Harter, 1998). However, the self-concept undergoes changes in both its structure and

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content (Fisher, 1980; Harter, 1988; Ruble & Dweck, 1995). One of the structural changes that occur during middle childhood is seen when children create unidirectional associations that are connected to one another (Fisher, 1980). Fisher (1980) calls this process representational mapping. Harter (1988) expounds upon the role of representational mapping in middle childhood by noting that children often engage in representational mapping that involves the linking of various forms of opposites within a given concept. For example, according to Harter (1998) "in the domain of physical concepts, children can oppose up and down, taller and shorter, thinner and wider, although they cannot yet demonstrate the reversible operations necessary for conservation" (p.569).

Representational mappings also play an important role with regard to the content of children's self-concept (Harter, 1998). The nature of representational mappings, particularly those associated with categorizing opposites, combined with the child's inability to hold two opposing attributes simultaneously, contributes to young children's overly optimistic views of their own person (Harter, 1998). Children exaggerate the opposing categories "good" and "bad" and demonstrate a proclivity to see themselves and others in a positive light (Harter, 1988, 1998). Essentially, during middle childhood, children are only capable of acknowledging the positive aspects of their self-concept. This one-dimensional thinking continues to prevent the child from incorporating opposing attributes into the self-concept (Harter, 1998). Cognitive development in late childhood is reflected in the increasingly more complex conceptions of self.

Self-concept in late childhood

During late childhood, changes in the structure and content of the self-concept are associated primarily with cognitive developments that allow children to engage in two-dimensional thinking. Harter (1998) asserts that the "coordination of self-representations that

were previously differentiated or considered to be opposites" (p.571) is a principal advantage of two-dimensional thinking. Children begin to combine various aspects of themselves as well as generalize behavioral instances into broader definitions of self. This allows the child to begin to create trait labels. Incorporating behavioral instances from two or more related activities allows the child to create a generalized self-attribute or knowledge about a trait. For example, a child may combine beliefs about successes as a soccer player along with successes playing tennis to form a generalized belief that he or she is a talented athlete. In a similar manner, two-dimensional thinking allows children to acknowledge both their success as well as their limitations. This permits children to create more realistic evaluations of their own abilities (Harter, 1998).

During late childhood, two-dimensional thinking also allows children to recognize their capacity to have more than one emotion at the same time (Harter, 1983). For example, children visiting grandparents may acknowledge feelings of happiness to see grandparents and at the same time express feelings of sadness about missing a pet left for the duration of the visit. Unlike in early and middle childhood, during late childhood, children incorporate positive as well as negative emotions, evaluations, and aspects of personality into their sense of self. As children enter adolescence, cognitive development allows adolescents to conceptualize increasingly more abstract views of self-concept.

Self-concept in adolescence

During adolescence, changes in the structure and content of the self-concept are primarily associated with cognitive developments that allow adolescents to engage in abstract thinking (Case, 1985; Damon & Hart, 1988; Harter, 1998). Adolescents apply abstractions not only to themselves but also to others and their environment (Harter, 1998). This significant change in

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cognitive development provides the foundation for an increasingly complex view of self (Harter, 1988).

Cognitive advances allow adolescents to hold opposing views of themselves and to understand that the way they view themselves may vary as the situation changes. For example, adolescents may see themselves as both introverted and extroverted by thinking of situations that led to feelings of shyness along with other instances in which they felt outgoing (Damon & Hart, 1988). Young adolescents do not tend to feel distressed by these discrepant views of self (Harter & Monsour, 1992). Harter and Monsour (1992) assert that although young adolescents are capable of creating abstract constructs of themselves, they are not yet capable of holding and comparing multiple self-constructs concurrently. Therefore, they do not yet experience conflict in thinking about these disparate self-attributes. Adolescents become capable, during mid-adolescence, of conceptualizing multiple self-constructs and also of comparing these different views of self (Harter & Monsour, 1992). A tendency to experience feelings of psychological distress often accompanies this awareness of discrepant views of self (Harter & Monsour, 1992). In some cases, this distress may result in the adolescent reverting to the all-or-none thinking typical of earlier ages (Harter, 1998). The ability to integrate these multiple and often disparate conceptions of self does not fully develop until late in adolescence (Harter & Monsour, 1992). Over time, adolescents begin to understand that although they may have different views of themselves according to the situation, a core part of the self remains consistent across situations (Harter, 1998). This awareness allows older adolescents to acknowledge their discrepant conceptions of self in a manner that helps them resolve any psychological conflict associated with the previous stage. As this developmental process occurs, individuals' self-concepts become

progressively more differentiated as well (Harter & Monsour, 1992), as one would expect for adults.

Self-concept in adulthood

Although the different steps of self-concept development are well documented from childhood through late adolescence and early adulthood (Damon & Hart, 1988; Harter, 1998), similar knowledge is still limited for the years beyond early adulthood. However, there has been an increased emphasis on the role of the self-concept in adult development and aging (Brandtstädter & Greve, 1994; Diehl, Hastings, & Stanton, 2001; Freund & Smith, 1999; Markus & Herzog, 1991). Several theorists have suggested that, as a dynamic cognitive structure, adults' self-concept may become an important resource in negotiating the challenges associated with the aging process with respect to maintaining psychological well-being (Brandtstädter & Greve, 1994; Cross & Markus, 1991). Variations in the content, structure, and organization of the self-concept have increasingly been examined to document the resourcefulness of the self in adjusting to the challenges of adult development and aging (Brandtstädter & Greve, 1994; Campbell et al., 1996; Cross & Markus, 1992; Diehl et al., 2001; Donahue et al., 1993; Freund & Smith, 1999; Higgins, 1996; Kling, Ryff, & Essex, 1997; Linville, 1987).

For instance, Brandtstädter and Greve (1994) have proposed that, as adults are faced with threats and challenges to their construal of self, the adaptive nature of the self-concept plays a crucial role in normal aging. One way in which individuals avoid the negative impact of aging is directly linked to the maintenance of a more positive self-concept (Brandtstädter & Greve, 1994). In particular, Brandtstädter and Greve (1994) have described assimilative, accommodative, and immunizing processes that they believe are at work as individuals negotiate the challenges associated with the aging process. These three processes allow the individual to

preserve a positive sense of self by minimizing discrepancies between an individual's objective self and his or her normative sense of self.

Assimilative processes are those associated with action-oriented steps an individual takes in order to achieve and/or maintain a positive sense of self. Adults employ assimilative processes such as modifying their activities in a manner that allows them to continue preferred current roles (e.g., playing a sport for shorter periods of time). Productive use of assimilation is dependent on both the resources available as well as the individual's perceptions of control and self-efficacy with regard to outcomes.

Accommodative processes are those that involve changing one's goals and aspirations to accommodate the current situation, including modifying expectations for success. These processes rely on the individual's cognitive flexibility with regard to making adaptive changes that reflect the individual's current abilities as well as his or her beliefs about the desirability of particular goals. Campbell and her colleagues (1996) have also suggested that decreases in aspirations may account for the increase in life satisfaction found in most older adults.

Immunizing processes are those that offer the individual protection from possible discrepancies between the actual self and the self the person believes he or she should have achieved. In order to maintain a positive view of self, individuals use immunizing processes such as reevaluating the diagnosticity of particular skills as indicators of success in a particular social arena or cognitive domain. These processes rely on an individual's willingness to alter beliefs. Immunizing processes are also affected by the strength of the social norms that drive self-referential beliefs (Greve & Wentura, 2003).

Cross and Markus (1991) have also examined the dynamic nature of individuals' self-concept via the reorganization of self-representations in the form of possible selves. Cross and

Markus (1991) use the term "possible selves" to describe individuals' representations of themselves in the future. Possible selves are representations of what a person might want to become or characteristics the person might want to develop, as well as roles or characteristics that a person is afraid of developing in the future. Adults reporting high life satisfaction depict different possible selves than those reporting lower life satisfaction (Cross & Markus, 1991). Cross and Markus (1991) assert that individuals' possible selves act as a psychological resource by guiding behavior. Individuals attempt to achieve desired states and avoid undesirable states. An individual's conception of his or her possible self also provides an evaluative context allowing the individual to either protect or defend present self-representations (Cross & Markus, 1991).

Structural organizations of the self-concept, such as self-concept clarity (Campbell et al., 1996), self-concept differentiation (Diehl et al., 2001; Donahue, et al., 1993), or self-complexity (Linville, 1987), provide the individual with valuable resources in the processes of normal aging. Constructs such as self-concept differentiation (Diehl et al., 2001; Donahue et al., 1993) and self-complexity (Linville, 1987) have been linked to psychological well-being. Diehl and his colleagues (2001) found that psychological well-being was associated with self-concept differentiation for adults. Specifically, higher levels of self-concept differentiation were associated with lower levels of psychological well-being. Self-complexity, as defined by Linville (1987), is an individual's ability to hold numerous "self- aspects" while preserving "greater distinction among those self-aspects". Greater degrees of self-complexity act to safeguard the individual faced with stressful circumstances against depression as well as other stress related illnesses (Linville, 1987).

In a similar way, Campbell and her colleagues (1996) found evidence of a strong relationship between self-concept clarity and a number of other psychological variables, such as self-esteem, anxiety, insightfulness into internal processes, Neuroticism, Conscientiousness, and Agreeableness (as measured by the NEO-FFI, Costa & McCrae, 1989). Specifically, Campbell, Assanand, and di Paula (2003) found that structural organizations of self that reflect a united view of oneself, such as self-concept clarity and self-concept differentiation, were especially important to psychological well-being.

Furthermore, several studies suggest that older adults' self-representations may be distinctively different from the self-representations of other age groups. Specifically, these studies document the relationship between variations in self-representations at different points across the lifespan and psychological well-being. Diehl and colleagues (2001) provided evidence of the resourcefulness of the self-concept in regards to aging by examining self-concept differentiation and role-specific self-representations in young, middle-aged, and older adults. Diehl and his colleagues (2001) found that although lower levels of self-concept differentiation were associated with higher levels of positive psychological well-being for both older and younger adults, this effect was more pronounced for older adults. In a study examining the content and function of older adults' self-defining attributes, Freund and Smith (1999) found more similarities than differences. Among 24 various categories, significant differences were noted in only five domains in the content of young-old and old-old adults' self-defining attributes. Freund and Smith noted that old-old adults defined themselves using the following categories – family/relatives, interests and hobbies outdoors, interest reflecting social participation, and interpersonal style – less frequently than young-old adults. In addition, in terms of self-definition, the young-old adults used daily living routines less often than the old-old

adults. Freund and Smith also noted that life review played a role in older adults' self-definition (1999).

Additionally, Ryff's (1991) research showed that adults of different ages use their possible selves to adjust their evaluations and aspirations in accordance with the developmental tasks of a specific age period, including adjustments to age-related loss. Ryff (1991) found a marked difference in the way younger, middle-aged and older adults view themselves. As adults make evaluations of their current levels of functioning, and compare them to their memories of earlier evaluations, they gain an overall sense of decline or improvement (Ryff, 1991). Personal progress is often reflected in the memories of younger and middle-aged adults, with maintenance of previous levels of functions more often reflected in older adults' memories of earlier evaluations (Ryff, 1991).

Taken together, these studies show the adaptive role of adults' self-representations and their relations to various psychological outcomes. Notably, older adults may reconstruct previous self-representations in order to maintain a positive sense of self, functioning, and psychological well-being. Although empirically the role of the self-concept as a resource in adult development and aging has been established, (Campbell et al., 1996; Cross & Markus, 1992; Diehl et al., 2001; Donahue et al., 1993; Freund & Smith, 1999; Linville, 1987) taking such a perspective raises the question whether all self-representations are equally important.

In accordance with Brandtstädter and Greve (1994), it seems reasonable to assume that not all self-representations are of equal importance. Specifically, Brandtstädter and Greve (1994) identified three criteria that determine whether self-related cognitions and attributes become part of a person's self-concept and, hence, a resource in the aging process. These criteria are continuity and permanence, discriminative relevance, and biographical meaningfulness

(Brandtstädter & Greve, 1994). Continuity and permanence refer to those attributes that give a person a sense of sameness and identity over time. Discriminative relevance refers to self-attributes that provide the individual with a sense of uniqueness and distinguish him or her from others. Finally, only self-attributes that the person considers important and meaningful for his or her biography will become relevant in negotiating age-related challenges. These qualifications imply that not all self-attributes are equally important in the aging process, but that only self-attributes that meet these three criteria will play a prominent role in adult development and aging (cf. Markus & Wurf, 1987). Furthermore, Brandtstädter and Greve (1994) maintain that although continuity and permanence as well as discriminative relevance are both necessary features, no feature is sufficient by itself.

Brandtstädter and Greve (1994) assert that it is biographical meaningfulness that is the primary factor in determining whether attributes become part of a person's core sense of self. Therefore, it follows that autobiographical memories, those memories that are part of a person's biography, become an essential component of individuals' self-representations over time (Campbell et al., 1996). In the following section, I will review the literature on autobiographical memory with particular emphasis on the link between autobiographical memory and adults' self-representations.

Autobiographical Memory Theory

This section focuses on relevant literature detailing the developmental trajectory of autobiographical memory, including a brief review of the development of general memory as a precursor to autobiographical memory. This is followed by a review of the autobiographical memory literature as it pertains specifically to adults. Age-related differences in autobiographical memory as well as differences in the characteristics of autobiographical attributed to methodology, are included. The functions of autobiographical memory are highlighted, with a

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particular emphasis on the identity function. Although there are many other aspects of autobiographical memory, a complete review of all aspects of autobiographical memory, such as the veracity of autobiographical memories, or the point in time at which autobiographical memory emerges, is beyond the scope of this thesis.

Autobiographical memory is a form of episodic memory that incorporates personally experienced events to create an individual's personal past (Neisser, 1988). A number of scholars have conceptualized multiple layers of autobiographical memory. This multilayered conception is important because these layers may be related to the self-concept in different ways. Brewer (1986) identified four sub-categories of autobiographical memory: personal memory, autobiographical facts, generic personal memory, and memories that make up a person's self-schema. According to Brewer (1986), an individual's personal memory includes recollections about specific events and experiences in his or her past. This type of memory may include affective components along with visual imagery associated with a particular event. For the individual, these personal memories are unique in that they refer not only to a particular event, but also to a specific occasion. Generic personal memories are personal memories of events or experiences that are repeated often, although they vary somewhat and eventually become less distinct. Brewer (1986) asserts that individuals maintain a large body of generic autobiographical information that they use to define their beliefs about themselves. These beliefs are not endemic to a particular event or experience. A personally experienced event that results in an individual having information that is known about the event that does not include visual imagery, or may not even include explicit recall of the experience, per se, falls under the classification of autobiographical fact.

Like generic personal memories, memories that make up the self-schema arise from events that are repeated often. However, like autobiographical facts, memories that make up a person's self-schema do not include visual imagery. Therefore, multiple instantiations of experiences that are very similar and do not include imagery result in a general body of knowledge about oneself. It is clear that such memories begin forming at a very early age and this process continues to form throughout an individual's entire life. In order to examine the developmental trajectory of autobiographical memory, it is important to consider the development of general memory as an antecedent to autobiographical memory.

Development of General Memory

Even infants show the ability to process and later recall information about objects and events in their environment (Meltzoff, 1988; Rovee-Collier & Shyi, 1992). Rovee-Collier and her associates (1992) conducted a series of studies using a mobile reinforcement paradigm to investigate memory development in infants between two and six months of age. In these studies, a ribbon was tied to an infant's ankle and a mobile. The child's kicking motions created movement in the mobile. Once the child made an association between its movement and the movement of the mobile, the infant was tested at various times to determine if the child had processed the information in a way that allowed for recall. Infants as young as 2 months of age, remembered specific movements that had resulted in rewards (Rovee-Collier & Hayne, 2000). Additional studies in which the mobile reinforcement paradigm was utilized revealed that infants also responded to cues that aided memory for action patterns that resulted in rewards days or even months after the original act was reinforced (Rovee-Collier & Shyi, 1992). Further evidence that the basic memory system is available from the earliest months of life include the infant's ability to recognize familiar objects as shown by habituation/dishabituation studies (Borenstein & Ludemann, 1989), their capacity for facial recognition, (Legerstee, Anderson, &

Schaffer, 1998), and their awareness of size and shape constancy (Small, 1990). The evidence provided by these studies suggests that general memory is available at a very early age.

Although memory is clearly available at an early age, it nevertheless undergoes significant developmental changes. For example, encoding and search strategies improve and become more complex with age (Deloache & Brown, 1983). Some researchers attribute these gains in memory performance to maturation (Siegler, 1996). Admittedly there are neurological advances that contribute to increased memory functioning in older children and adults compared to infants and younger children (Greenough, Black, & Wallace, 1987). Nonetheless, even infants and young children show evidence of using self-referent information in a variety of ways that enhance their memory capacity.

For example, strategies infants use when searching for objects increase in complexity (Deloache & Brown, 1983). Heth (1983) suggested that changes in infants' search strategies are the result of the child's ability to use himself or herself as a reference point when engaged in a search for an object. When searching for a hidden object, very young children normally began their search at the last place the object was found. In contrast, three and five year olds began their search at the location closest to themselves. That is, they use themselves as reference points to begin their search. This increase in the level of sophistication of the organizational structure allows the child to begin using more complex schemas, based on personal experience, to aid not only in the retrieval of information but also in the construction of memories (Bransford, Goldman, & Vye, 1991). Howe and Courage (1993, 1996) assert that it is this "establishment of a cognitive self" that provides the foundation for autobiographical memory.

Development of Autobiographical Memory

Why is it necessary to consider the developmental origins of autobiographical memory? The experiences of earlier years continue to be reflected as important themes in our

autobiographical narratives. McAdams (1996) asserts, "children are collecting and processing experiences that will eventually make their way or have some influence on the integrative life story they later construct"(p. 106).

Both the social constructivist view (Fivush, 1988; Haden, Haine, & Fivush, 1997; Nelson, 1989) and the cognitive-self view advanced by Howe and Courage (1993, 1996) offer compelling arguments with regard to the emergence of autobiographical memory and its relationship to the self, although the cognitive-self view places the emergence of autobiographical memory much earlier. There is an on-going debate with regard to whether or not autobiographical memory emerges at the end of the second year with the emergence of the objective self, as theorists embracing the cognitive-self view assert, or a few years later, as a result of social exchanges, as the social constructivists maintain. Although this debate is interesting, it is not directly relevant to the adult development focus of this paper. Thus, I will only briefly describe the cognitive-self viewpoint. I will present the social constructivist viewpoint in more detail because it has additional implications with regard to the functions of autobiographical memory in adulthood and the bi-directional relationship between autobiographical memory and self-concept.

Autobiographical memory in childhood

The cognitive-self view postulated by Howe and Courage (1993, 1996) contends that autobiographical memory, by definition, requires a person to already have a sense of "self". These authors assert that autobiographical memory develops in a continuous fashion and that it is dependent on the budding sense of self as a foundational element (Howe & Courage, 1996). This viewpoint rests heavily on the research outlined earlier regarding increases in complexity and sophistication in general memory organization as the child begins using his or her own person as a point of reference. It also rests on evidence of a stable sense of self represented by

the language usage of toddlers (Fraiberg, 1977; Howe & Courage, 1993). Children, around two years old, quickly learn pronouns "I" and "me" and apply them appropriately. Listening to the conversations of others would not provide a child with the unique perspective necessary to use these self-referential pronouns correctly, without a well-formed sense of self (Fraiberg, 1977; Nelson, 1989). Proper usage of pronouns calls for inversions from "me" to "you" and "you" to "me". Some theorists regard children's ability to comprehend and apply this conversion of form as evidence of an adequately formed sense self (Fraiberg, 1977; Howe & Courage, 1993).

The social constructionist view of autobiographical memory development in children draws on the model introduced by Vygotsky (1985). This model focuses on the role of social interaction and the development of cognitive skills as a foundation for autobiographical memories. Vygotsky maintained that cognitive skills are developed in exchanges with the environment and in particular through social interaction. According to Vygotsky, social interactions that take place with a more skilled partner guiding the interaction are believed to create a model that the child internalizes for future use. Vygotsky believed these exchanges also taught the child what aspects of an event or experience were relevant. This process occurs through interactions in which the child and an adult (or more skilled partner) are involved in social exchanges that are slightly beyond the child's current level of ability. Through these social exchanges, the child becomes more and more competent; meanwhile the adult adjusts his or her level of assistance to match the child's increasing ability. Eventually, the child will incorporate these skills into an internal repertoire that will allow him or her to master the task without adult assistance. Examination of children's narratives with a more experienced social partner offers support for the social constructivist view of autobiographical memory (Fivush, 1988; Fivush & Fromhoff, 1988; Haden et al., 1997; Welch-Ross, 1997).

Fivush (1988) noted the role of parental involvement in shaping the narrative structure children adopt when relating autobiographical memories. The interaction between a parent and child when the child narrates an event, demonstrates the parent's ideal of structure for narratives as well as the importance of particular aspects of narratives. Early conversations between parent and child about past events call for the parent to provide most of the details of the conversation while the child participates minimally. As the child becomes more accomplished in recounting an event, the parent, optimally, will reduce the amount of support he or she provides. In turn, the child begins to use the parental structure to formulate and organize information about his or her experiences (Fivush, 1988). It is through these conversations that the adult is modeling the child's narrative style (Haden et al., 1997).

In dyadic interactions between parents and their children, the children internalize the parent's style of narration (Haden et al., 1997). When conversations between mothers and their 2 1/2 to 3 1/2 year old children were taped, two distinct styles of interaction were identified for discussions of past events – elaborative and repetitive (Fivush & Fromhoff, 1988; Haden et al., 1997; Welch-Ross, 1997). A parent who provides rich details and offers contextual information, while conveying interest in the child's comments, is using an elaborative style of communication (Fivush & Fromhoff, 1988). Using this style, parents encourage their children to be active partners in the conversation. A parent using a repetitive style of communication often repeats direct questions and highlights the accuracy of the information the child reports without requesting additional details, or elaborating on what the child is saying by offering supplementary information (Fivush & Fromhoff, 1988). Parents using an elaborative style accentuate the process of communication more than the details of the information itself.

Conversely, parents using a repetitive style focus on the details of the information while ignoring the importance of the exchange (Fivush & Fromhoff, 1988).

Haden and her colleagues (1997) studied the impact of parents narrative style used in conversing with their children about past events. Narrative style of the parent (elaborative or repetitive) was highly correlated with the child's competence in recounting the experiences. The narrative style of children whose parents engaged in an elaborative style of communication included richer and more detailed contextual information (Haden et al., 1997). When these children were interviewed two and a half years later, the children with parents who used elaborative-narrative styles were found to have more detailed memories of the original event.

Other studies have documented the relationship between parental narrative style and the child's ability to recount the past in narrative form (Fivush & Fromhoff, 1988). The evidence clearly supports the notion of the child's internalization of parental style of narration. The importance of the child's internalization of narrative style is evident in that memories produced and shared may be retained and recalled more readily (Fivush, 1988; Nelson, 1993). The narrative style then guides future memories and serves to organize information about events and acts as the bedrock for determining what information is most salient to the child (Fivush & Fromhoff, 1988).

Although narrative style and structure are established in middle childhood, autobiographical memory remains a collection of unrelated single discrete episodes (Habermas & Bluck, 2000; Habermas & Paha, 2001). The cognitive resources necessary for organizing and establishing links between numerous events to form a coherent life story is not firmly established until adolescence (Habermas & Bluck, 2000; Habermas & Paha, 2001).

Autobiographical memory in adolescence.

Childhood experiences influence the life story. For example, the quality of attachment in the first few years of life may eventually help to influence the overall tone of individuals' life stories (McAdams, 1993). Secure attachment may leave a legacy of trust and optimism setting a more trusting/optimistic tone for the individual's narratives. Conversely, insecure attachment may have the reverse effect. Just as young children internalize the narrative structure provided by parental interaction in earlier years, attachment styles can also be expected to be internalized and to shape adolescents' autobiographical memories as well as the narratives they create (McAdams, 1993). However, it is not until adolescence, that numerous events can be integrated in a way that allows individuals to understand their experiences in a meaningful way (Habermas & Bluck, 2000; Habermas & Paha, 2001).

During adolescence and young adulthood, individuals are faced with the challenge of creating a self that provides their lives with unity, purpose, and meaning (Erikson, 1980). McAdams (1996) asserts that people accomplish this task by developing their life story. The life story is comprised of narratives based on autobiographical memories that have become internalized and reflect an individual's sense of self (McAdams, 1996). One of the functions of these life stories is to coordinate various experiences and aspects of the self in a manner that provides individuals with a sense of continuity over time and brings meaning to these experiences (McAdams, 1996). Abstract thinking is required in order to extract meaning from experiences (Thorne, McLean, & Lawrence, 2004).

Cognitive advances provide adolescents the means to see themselves in a time other than the present (Harter, 1998). Abstraction allows adolescents to look back on childhood and realize they are no longer the children they once were. At the same time, abstraction allows adolescents to imagine themselves in a variety of different futures (Harter, 1998). Additionally, adolescents

are also capable of making distinctions between their actual or current view of self and their possible or hoped for future self (Harter, 1998). This level of awareness establishes the setting so that adolescents can begin to understand not only what they were in earlier years, in the context of who they are now, but also who they may become in the future (McAdams, 2000). In late adolescence, looking to the past in order to explain the present becomes more prevalent (McAdams, 1996). As individuals enter adulthood, autobiographical memory continues to interact with their developing sense of self.

Autobiographical memory in adulthood

In the literature on autobiographical memory in adulthood, researchers have focused on several issues (Bluck, Levine, & Laulhere, 1999; Brewer, 1986; Cohen, Conway, & Maylor, 1994; Pillemer, 1998). Researchers have examined the events that give rise to autobiographical memories as well as various qualities of the memories themselves (Brewer, 1986; Pillemer, 1998). Characteristics of the individuals reporting the memories have also been studied (Brewer, 1986; Fitzgerald, 1984; Wageneaar, 1986). In particular, many researchers have turned their attention to the role the age of the individual plays with regard to various characteristics of autobiographical memory (Bluck et al., 1999; Cohen et al., 1994). Additionally, the methods employed to elicit autobiographical memories have also been shown to influence the findings (Bluck & Alea, 2002). In the following section each of these characteristics of autobiographical memory are explored.

Declines in cognitive functions associated with aging have been well documented (Schaie, 1996), especially in the domain of speed of processing and fluid intelligence (Schaie, 1996). Autobiographical memory does not rely on speed, and is associated with crystallized intelligence, thus one would expect autobiographical memory to remain stable across the life

span. Generally speaking, research findings support this assumption (Bluck et al., 1999). However, age differences in several aspects of autobiographical memory have been reported (Bluck et al., 1999; Cohen et al., 1994; Conway & Holmes, 2004; Linton, 1982). Throughout the lifespan, individuals' ability to create narratives continues to evolve (Singer, 2004). For example, Linton (1982) noted a general loss of detail in the autobiographical memory narratives of older adults. This phenomenon, known as overgeneralization, involves the condensation of details from several different occasions of similar events into a singular generic representation. Overgeneralization occurs primarily with more mundane activities that are a part of people's lives. Events such as holidays, trips to the same location, as well as everyday activities like shopping or attending church, are all susceptible to overgeneralization. In many cases, any memories that are not both rehearsed frequently and rather unique tend to be overgeneralized (Linton, 1982).

In addition to age differences in general aspects of autobiographical memory, certain characteristics of events that impact individuals' memory (Brewer, 1986; Pillemer, 1998; Wagenaar, 1986) have also been identified. The importance of some of these event characteristics may also differ with age (Cohen, 1996; Pillemer, 1998). Some characteristics of an event may be equally important to younger and older adults. For example, events that contain a high degree of emotional investment are remembered for longer periods of time (Brewer & White, 1982). Additionally, people exhibit a high degree of accuracy in identifying events they experienced directly if the events were memorable, as opposed to generic everyday events (Pillemer, 1998; Wagenaar, 1986). Likewise, the details of events that occur more frequently are not remembered as well as those of unique events (Wagenaar, 1986). Conversely, other characteristics of an event may vary in importance with the age of the individual. For example,

Cohen (1996) found that predictors of the vividness of an autobiographical memory differed for different points across the life span. Elapsed time from the event to recollection, and the emotional impact of the event, were associated with the vividness of the memory for younger adults. However, older adults were affected most by the regularity and the number of times the memory had been recalled. In addition, the degree of personal importance of an event was also a significant factor in affecting vividness (Cohen, 1996).

Other age differences in autobiographical memory have been noted with regard to personally relevant information and reporting errors. Bluck and her colleagues (1999) found evidence of an increase in the amount of correct information older adults remembered when asked repeatedly to recall details of a personally relevant event. In this study, participants who had watched the outcome of the O.J. Simpson murder trial eight months earlier were asked to recall the event and report what they remembered. Specifically, participants were asked their whereabouts, how they had heard about the verdict, their reactions, and with whom they had spoken about the verdict. They were also asked to relate what they remembered from watching the verdict as it was being read on TV. Participants were probed three separate times after they reported that they had recounted everything they could remember about the event. They were also asked about their confidence in their memory reports. Both younger and older adults were able to recall additional, correct details after probing (Bluck et al., 1999).

Although Bluck and her colleagues (1999) found no differences between younger and older adults in terms of providing additional false information in response to the probes for more information, Cohen and her colleagues (1994) found significant differences in the number of errors made by older and younger adults. Cohen and colleagues (1994), asked adults ranging in age from 18 to 84 years old to write down detailed descriptions of a recent memory. When they

were asked eleven months later to share their recollections of the event again, the recollections of the older adults (64-84 year olds) varied significantly from the recollections of the younger adults (Cohen et al., 1994). The memory errors the older group made included both errors of omission and errors of commission. Cohen and her colleagues (1994) noted that older adults tended to rely heavily on common schemas to help reproduce the event. In addition, a general vagueness permeated their memories, as accuracy and detail were lost. These differences in recall have been linked to differences in what is both necessary and sufficient to create lasting impressions for older adults (Cohen et al., 1994). In addition, some researchers suggest that the methods used to elicit autobiographical memories may influence these findings.

Differences in the various qualities and characteristics found in studies of autobiographical memories may be determined by whether the memory to be recalled is generated solely by the participant or is designated by the experimenter (Bluck & Alea, 2002). In studies that require the participants to generate memories without any specific cues, researchers have concluded that there is little or no difference in the availability, vividness, or detail of autobiographical memories of older adults when compared to those of younger adults (Cohen & Faulkner, 1988; Hoffman & Hoffman, 1990). Additionally, Rabbitt and Winthorpe (1988) found that frequent unplanned rehearsal was the best predictor of memory vividness and degree of detail in the elderly. Memories that are rehearsed frequently comprise the total available pool of memories accessible to older adults (Rabbitt & Winthorpe, 1988). However, no notable differences have been found in the degree of vividness, complexity, or detail in the self-selected autobiographical memories of older adults (Bluck & Alea, 2002).

Further, it is evident that not all autobiographical memories are of equal importance to the individual. Fitzgerald (1984) examined forgetting curves or temporal ordering of events and

discovered a "reminiscence bump". In a study in which middle-aged and older adults were given cues and asked to report a memory associated with the cue, Fitzgerald (1984) found that a majority of the memories were associated with a particular time period, between late teens and late twenties. This pattern was true for all adult memories.

In addition to these phenomenological characteristics of autobiographical memories, the functions of autobiographical memories have also been investigated. Potential age differences in these functions will be considered after presenting a general conception of the roles of autobiographical memory.

Functions of Autobiographical Memory Across the Life Span

More recently, researchers have turned their attention to the purposes that autobiographical memories may serve (Bluck & Alea, 2002; Cohen, 1998; Singer & Salovey, 1993). Although the debate about the number and nature of different functions of autobiographical memory is still ongoing, theorists have generally accepted the three broad functions of autobiographical memory suggested by Cohen (1998): interpersonal, intrapersonal, and knowledge-based functions. These functions are conceptualized as those that occur between people and those that occur within the person. Cohen (1998) suggests there are additional subcategories within the interpersonal (social interaction, self-disclosure, empathy) and intrapersonal functions.

Interpersonal, knowledge-based, and intrapersonal functions of autobiographical memory

The interpersonal functions of autobiographical memory are those that occur in a social context, such as memories described in conversations as a means to establish relationships, friendships and intimacy, or for empathic understanding of others. For example, autobiographical memory serves the interpersonal function when individuals remember how they have felt or responded in past similar situations. This empathic understanding provides individuals with the ability to decipher the meaning behind others behavior, thoughts, and feelings, and to gain

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insight into how others might be feeling. Likewise, when individuals remember how they felt in similar situations, they can act more appropriately toward others with similar experiences, providing an emotional connection to important others.

The interpersonal function of autobiographical memory is also operating when autobiographical remembering takes the form of self-disclosure with another person through sharing of personally relevant information. Cohen (1998) noted that disclosure of details associated with a negative event, particularly those that make a person feel vulnerable, creates deeper intimacy in a relationship. Additionally, the conversational interaction created by sharing memories allows people to be included in on-going conversations, which in turn provide a sense of belonging. Individuals' autobiographical memories provide them with a wealth of material upon which they base many of their conversations, thereby serving an interpersonal function.

Cohen also recognized the knowledge-based functions of autobiographical memory (1998). Autobiographical memories serve knowledge-based functions when they are stored as general or situation-specific knowledge that can become relevant in general action planning or specific problem solving (Cohen, 1998). These generalized autobiographical memories become organized into a person's basic or global knowledge about the world (Tulving, 1986). Knowledge-based autobiographical memory guides people in everyday processing of information and decision making and provides a foundation for reasonable expectations in particular circumstances (Pillemer, 2003). For example, when a person remembers his or her decision and the outcome from a previous similar experience this knowledge will influence not only the decision the person makes in the present but also his or her expectations of the outcome.

Autobiographical memories serve the knowledge-based function when they contribute to and define a person's general knowledge. This generalized information is then refined or edited

as a result of the individual's expectations as well as the outcomes of a given course of action. This generalized knowledge also contains information that can serve as a guide when addressing possible solutions to various problems.

Autobiographical memories serve intrapersonal functions when they help a person to regulate emotions or "to construct, preserve, or edit the self-concept" (Cohen, 1998, p. 106). In terms of mood regulation, people may choose to focus and rehearse memories of the past that elicit either positive emotions or negative emotions. Memories of happy times and successes influence the individual's view of both the present and the future. Conversely, the individual's focus on experiences associated with generally negative emotions, such as painful experiences, or personal failure can lead to a negative valence that will affect the person's mood. A tendency to select mood-congruent autobiographical memories may create a cyclical pattern in which mood reinforces memory choice, and in turn memory choice reinforces mood (Blaney, 1986). Personal relationships may also be affected by the selection of autobiographical memories that a person choose to rehearse. Memories associated with positive aspects of the relationship result in a more positive view of the relationship. Likewise, if the individual reiterates the more negative aspects or experience in a given relationship, he or she will feel more negatively toward the person(s) involved (Rubin & Berntsen, 2003).

In terms of self-concept, the intrapersonal function of autobiographical memory helps people create and maintain a coherent sense of self throughout life. For example, as discussed earlier, in early childhood, the developing cache of personally relevant memories serves to define a child's sense of self (Nelson & Fivush, 2004). Similarly, in later years, autobiographical memories may preserve the self-concept through selection of those memories that support a person's view of himself or herself (Cohen, 1998). The self-concept may also be revised or

transformed depending on which autobiographical memories the individual chooses to rehearse. Additionally, people may attend to particular aspects of a memory and assign it more importance than other aspects. For example, the manner in which a person remembers his or her role in any given experience is very subjective, and prone to a high degree of creative omissions as well as additions to the story. These privately-remembered autobiographical memories also allow the individual to evaluate his or her actual self against an imagined future self or a proscribed "ideal" self (Cross & Markus, 1991; Cohen, 1998). In this manner, autobiographical memories that are privately remembered serve to construct, preserve, or transform a person's sense of self.

As more researchers investigate the functions of autobiographical memory, a number of terms have appeared to describe the broad functions Cohen (1998) identified, and several subcategories of autobiographical memory functions have been explored. In the autobiographical memory literature, the broad category Cohen (1998) referred to as the intrapersonal function is more commonly labeled the *self-function*. One subcategory, in particular, is important in this research; the term *identity function* will be used here to refer to the subcategory of the intrapersonal function of autobiographical memory associated with continuity of individuals' conceptions of self.

The identity function of autobiographical memory

In addition to the three functions of autobiographical memory explored above – interpersonal, knowledge-based, and intrapersonal functions -- there seems to be growing consensus that autobiographical memory and identity are intimately intertwined (Conway & Pleydell-Pearce, 2000; McAdams, 1996). For example, McAdams (1996) suggests that as an on-going life story, autobiographical memory brings both meaning and coherence to individuals' lives. Similarly, Conway and Pleydell-Pearce (2000) suggest that identities are forged and changed throughout a person's lifetime as autobiographical memories and current personal

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concerns are modified. In line with this notion, a number of researchers have recently turned their attention specifically to the identity function of autobiographical memories (Conway & Pleydell-Pearce, 2000; McAdams, 1996; Pillemer, 1998; Singer & Salovey, 1993, 1996). These theorists have identified a subset of autobiographical memories that are primarily associated with self-concept continuity. In an early study, McAdams (1996) found that people easily recalled specific autobiographical memories that had resulted in changes of their identity. Similarly, Pillemer (1998) found that certain life periods, specifically late adolescence and early adulthood, were more frequently associated with self-defining autobiographical memories than other life periods. These memories remained important to a person's sense of self for the remainder of his or her life.

Although there is a well-reasoned theoretical foundation, empirical evidence regarding the identity function of autobiographical memory is still limited. There are a few studies, however, that clearly illustrate the connection between the identity function of autobiographical memory and self-concept continuity. For example, Bluck, Habermas, and Rubin (2001) presented participants with various statements that represented interpersonal, intrapersonal, and knowledge-based functions of autobiographical memory and asked participants to rate how often their autobiographical memories fulfilled each of these functions. They found that one of their scales consistently assessed the identity or self-continuity function of autobiographical memory (Bluck et al., 2001). Additionally, Pasupathi (2001) analyzed adults' conversation using a qualitative coding procedure, and documented the use of autobiographical memory to convey important experiences and to share personal characteristics (i.e., one's identity) to a conversational partner.

Age variation in the functions of autobiographical memory.

Autobiographical memory functions at the interpersonal, intrapersonal, and knowledge-based level throughout the life span (Bluck & Alea, 2002; Cohen, 1998) however; these functions may not be emphasized equally at different ages (Bluck & Alea, 2002; Bluck & Habermas, 2001; Webster & Cappeliez, 1993; Wilson & Ross, 2003). Although, there is little empirical evidence that the functions of autobiographical memory vary in importance across the life span, a number of theorists have made compelling arguments suggesting that the functions of autobiographical memory can be expected to vary in importance across the life span (Bluck & Habermas, 2001; Webster & Cappeliez, 1993; Wilson & Ross, 2003). For example, Webster and Cappeliez (1993) proposed that the functions of autobiographical memories could be expected to reflect the primary concerns and developmental tasks of a given age. They postulated that autobiographical memories primarily act to promote social interaction in late adulthood, whereas in early adulthood autobiographical memories are more often the basis for problem solving. Likewise, in that self-concept formation is of primary importance in childhood and early adulthood, with less emphasis being placed on identity construction in middle and late adulthood (Erikson, 1980) one would expect a greater emphasis on autobiographical memories that serve the identity function in late adolescence (Webster & Cappeliez, 1993).

Autobiographical memories may also reflect developmental challenges associated with each stage of identity development. Conway and Holmes (2004) asked participants to narrate autobiographical memories from various stages of life. The narratives were then coded for Eriksonian psychosocial themes. Themes associated with the developmental challenge of each life period were clearly reflected in the autobiographical memory narratives associated with that life period. Conway and Holmes (2004) found additional evidence that autobiographical memories were tied to psychosocial themes. Conway and Holmes (2004) asked participants to

provide autobiographical memories associated with a variety of cue words representative of various psychosocial developmental stages. They found participants' age at the time of the cued event memory correlated with the expected developmental stage.

Central Concepts in the Current Research

Not all autobiographical memories are created equal. Some are more likely to hold an important position in the life story than others are. Narratives contain quite a bit of mundane information that is not part of one's sense of self. Only some autobiographical memories have an impact on a person's self-concept (Brandtstädter and Greve, 1994). This subset of critically important autobiographical memories has been referred to as *self-defining memories* (Pillemer, 1998; Singer & Salovey, 1996). Self-defining memories are the focus of this research. In particular, the objective of the present research is to examine how self-defining memories are associated with other forms of self-representation, such as personality features, or psychological well-being.

Self-defining memories are distinct from other autobiographical memories because they are emotionally charged, remarkable, recurring, and may be related to unresolved psychological conflicts (Singer & Salovey, 1993, 1996). Memories meeting these criteria are often the result of an event in a person's life that caused a noticeable change (Pillemer, 1998; Singer & Salovey, 1996). Pillemer (1998) referred to such events as "momentous events". Moreover, events remembered in self-defining memories are often used as reference points when a person engages in life review or life reflection. Although empirical evidence examining the relationship between self-representations and self-defining autobiographical memory is nascent, many researchers have postulated a theoretical link between these two bodies of inquiry (Brandtstädter & Greve, 1994; McAdams, 1996; Pillemer, 1998; Singer & Salovey, 1996) and there is evidence, albeit limited, supporting this notion. Self-defining autobiographical memories may become

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semantically represented as part of an individual's self-concept. For example, as a person repeatedly recalls an event in which he or she acted in a manner that was kind, in turn the person may create a semantic representation of this event (i.e., "I am kind"). Self-defining memories, from this perspective, should be related to other aspects of self-representation (i.e., self-concept clarity, extraversion, etc.). Additionally, psychological well-being may also be impacted as a person focuses on particular autobiographical memories while downgrading other memories. In this manner, self-defining autobiographical memories may play a role in mediating the effect of other individual difference variables on psychological well-being.

Autobiographical Memory and Psychological Well-being

There are a handful of studies that illustrate the connection between certain aspects of autobiographical memories and psychological well-being (Josephson, Singer, & Salovey, 1996; McAdams, Reynolds, Lewis, Patton, & Bowman, 2001). Particularly, these studies have demonstrated a relationship between themes and emotional valence of individuals' autobiographical memories and indicators of psychological well-being such as agency, self-mastery, and empowerment (Grossbaum & Bates, 2002; McAdams, Hoffman, Mansfield, & Day 1996; Seidlitz and Diener 1997; Woike, Gersekovich, Piorkowski, & Polo, 1999).

Seidlitz and Diener (1997) asked participants to complete a daily diary for 43 days in which they recorded the best and worst event of the day. Additionally, participants completed questionnaires measuring mood and general life satisfaction each day. On the 44th day participants were asked to recall as many positive and negatives autobiographical memories from the past 43 day period. Seidlitz and Diener (1997) found participants with high scores on measures of psychological well-being recalled more positive autobiographical memories and fewer negative autobiographical memories.

Grossbaum and Bates (2002) found that autobiographical narratives with themes of agency, communion, redemption and contamination were each associated with life satisfaction and specific domains of psychological well-being. Grossbaum and Bates (2002) asked middle-aged adults to report five autobiographical memories from each of the following categories of experience; an early childhood experience, a high and low point in their lives, a turning point, and one additional important memory. Participants also completed a measure of life satisfaction (Diener, Emmons, Larson, & Griffin, 1985) in addition to a measure of psychological well-being (Ryff, 1989). The autobiographical memory narratives were coded for emotional valence, themes of agency and communion, redemption, and contamination. The levels of positive emotional valence of the memory narratives were positively correlated with several domains of psychological well-being, such as Self-Acceptance, Positive Relations with Others, Environmental Mastery and Purpose in Life. Emotional valence of the narratives was also predictive of Life Satisfaction scores (Grossbaum and Bates, 2002). Specifically, positive valence was associated with greater satisfaction in life and negative valence was associated with lower levels of life satisfaction. In addition to Life Satisfaction, meaningful associations were noted between themes of the autobiographical narratives and certain domains of psychological well-being. Specifically, contamination themes, those in which the affective tone of the narrative shifts from positive to negative, were predictive of the psychological well-being domains of Environmental Mastery and Personal Growth. Narratives with themes depicting Agency correlated significantly with Positive Relations with Others, as well as Personal Growth. Narratives depicting Communion themes were significantly associated with psychological domains of Positive Relations with Others, Environmental Mastery, Purpose in Life and Personal Growth.

McAdams, Reynolds, Lewis, Patten, and Bowman (2001) investigated the relationship between themes in autobiographical memories and psychological well-being among young and middle-aged adults. Middle-aged participants were asked to give a verbal account of eight autobiographical memories from each of the following categories of experience: a high and low point in their lives; a turning point; earliest memory; an important childhood, adolescent, and early adult experience; and one additional important memory. Participants also completed four measures of psychological well-being which included the Satisfaction with Life Scale (Diener, et al., 1985), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Center for Epidemiological Studies Depression Scale (Radloff, 1977) and a Sense of Coherence scale (Antonovsky, 1987). The autobiographical memory narratives were coded for themes of agency and communion, redemption and contamination sequences, and emotional valence. McAdams and his colleagues (2001) found significant relationships between the types of themes depicted in autobiographical narratives and psychological well-being. The themes and in particular, the emotional tone reflected in autobiographical memories, appears to be associated with psychological well-being. As adults focus on the positive aspects of a given autobiographical memory, it may act as a psychological resource that significantly influences, or even bolsters, psychological well-being.

Autobiographical Memory, Personality, and Affect

McAdams (2001) asserts, "people differ from each other with respect to their *life stories in* ways that are not unlike how they differ from each other on conventional psychological characteristics, traits and motives"(p.101*).* McAdams (1996) suggests that personality should be examined at three distinct levels: dispositional traits (level 1), characteristic adaptations (level 2) and the Life stories (level 3). Numerous studies have examined personality at each of these levels: dispositional traits (Costa & McCrae, 1992; Johnson & Srivastava, 1999), characteristic adaptations (Little, 1999; Mischel & Shoda, 1995), and life stories (Habermas & Bluck, 2000;

McAdams & Bowman, 2001; Singer, 1995). Theorists have recently begun to turn their attention to the association across these levels of personality. However, the focus to date has been on either the relationship between dispositional traits and characteristic adaptations (Roberts & Robins, 2000) or characteristic adaptations and life stories (McAdams & Bowman, 2001; Woike, 1995; Woike & Polo, 2001). Studies examining the relationship between dispositional traits and life stories are relatively rare.

In one such study examining the relationship across levels of personality, McAdams and his colleagues (2004) found evidence of a relationship between life stories and individual differences related to dispositional traits (McAdams, Anyidoho, Brown, Huang, Kaplan, & Machado, 2004). McAdams and his colleagues (2004) found that the complexity and themes of autobiographical narratives were significantly associated with Big-Five personality traits (Costa & McCrae, 1992). In this study, McAdams and his colleagues (2004) asked adult participants to provide written autobiographical memory narratives associated with specific word cues (e.g., a high point, a moral decision). The narratives were then coded for complexity and themes of agency and communion and emotional valence. Narrative features and participants' scores on the Big-Five Inventory were examined – Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness (Johnson & Srivastava, 1999). McAdams and his colleagues (2004) found significant positive correlations between Agreeableness and communion themes as well as Openness and narrative complexity. Emotional valence of autobiographical narratives and the Big-Five dispositional traits (Johnson & Srivastava, 1999) were also examined in this study (McAdams et al., 2004). Although, McAdams and his colleagues (McAdams et al., 2004) did not observe any significant differences in the emotional valence of younger and older adults autobiographical memories, they noted significant correlations between specific traits and the

emotional valence of autobiographical narratives. Specifically, they reported a negative

correlation between Neuroticism and positive emotional valence and a positive correlation

between Conscientiousness, Agreeableness and positive emotional valence (McAdams et al.,

2004).

In the only other study to date explicitly examining the relationship between dispositional

traits and life stories, significant associations between phenomenological characteristics of

autobiographical memories and dispositional traits were noted (Rubin & Siegler, 2004). Rubin

and Siegler (2004) asked participants to provide 15 different autobiographical memories in

response to 15 different cue-words. Participants rated each memory on a variety of

phenomenological characteristics. In addition, participants also completed the NEO-Five Factor

Inventory (Costa & McCrae, 1992). Rubin and Siegler (2004) reported significant positive

correlations between both the Extroversion and the Openness domain as measured by the NEO-

Five Factor Inventory (Costa & McCrae, 1992) and phenomenological qualities of

autobiographical memory associated with recollection and beliefs about the memory. Upon

closer examination, Rubin and Siegler (2004) noted that specific facets of each domain were

responsible for the significant relationship. Specifically, those facets of Extraversion and

Openness that were associated with positive emotions had the highest correlations with

characteristics associated with recollection and beliefs about the autobiographical memory.

There is evidence that affect associated with autobiographical memories not only plays a

role in mood regulation but also may be related to stable individual difference variables such as

goal pursuit strategy (Moffitt & Singer, 1994), and personality traits (Rubin & Siegler, 2004) .

Moffitt and Singer (1994) examined goals and self-defining memories of young adults. They

found people who recalled a greater number of self-defining memories associated with important

goals also rated their self-defining memories with more positive affect. On the other hand, people who recalled self-defining memories with more negative valence also reported goals aimed at avoiding outcomes. Rubin and Siegler (2004) found evidence of a link between individual differences in personality traits like those measured by the NEO-Five Factor Inventory (Costa & McCrae, 1992) and certain aspects of autobiographical narratives. Specifically, Rubin and Siegler (2004) found participants' scores on measures of Extraversion and Openness correlated with certain phenomenological characteristics of the autobiographical memory narratives. For example, participants' scores on measures of Extraversion significantly correlated with their reports of how well they can "hear" the events depicted in their autobiographical memory. Upon further inspection, Rubin and Siegler (2004) noted that scores on facets of the Extraversion and Openness scales that related to "openness to emotional experiences" provided the highest correlations with the greatest number of phenomenological characteristics of autobiographical memories.

Objectives of the Current Research

The purpose of this study is to examine the link between individuals' self-concept and autobiographical memory, examining not only age variations in memory, but also exploring varying aspects of self-representation in relation to autobiographical memory. There are three primary objectives: A) to explore the relationship between adults' self-representations and self-defining autobiographical memories, in relation to age; B) to investigate the relationship of valence of self-defining autobiographical memories to psychological well-being, personality and affect; and C) to test the potential role of valence of self-defining memories as a mediator of the relationship between individual differences and well-being. This study uses both quantitative and qualitative methods to assess these relationships.

Self-Representations and Self-Defining Memories

Empirical research on the identity function of autobiographical memory has been rather scarce; in particular, there are no studies that have empirically investigated the connection between semantic representations in adults' self-concept and self-defining autobiographical memories. A growing body of literature suggests that individuals' self-representations may act as an important resource in the aging process (Brandtstädter & Greve, 1994). Correspondingly, theorists in the area of autobiographical memory (AM) contend that autobiographical memories are used to bring coherence and meaning to individuals' lives. Specifically, researchers who have adopted a functional perspective of AM (Bluck & Alea, 2002) have argued that one of the intrapersonal functions of AM, the identity function, may be of particular importance for individuals as they negotiate the challenges of adult development and aging. Therefore, one of the primary objectives of this study was to empirically document the relationship between the identity function of autobiographical memory and adults' self-representations and to investigate potential age differences in this relationship.

Because self-defining memories, by definition, are those memories that contain essential information about the self, it is reasonable to assume that over time this information becomes semantically represented as part of a person's self-concept. Consequently, a semantic recognition paradigm was utilized in this research. After participants had recalled three self-defining autobiographical memories, they responded to self-attributes derived from their memory narratives (memory-derived attributes). The memory-derived attributes were mixed into a list of self-attributes derived from an established list of general self-attributes used in previous research (Diehl et al., 2001; Sheldon, Ryan, Rawsthorne, & Laird, 1997). This was done to examine the special status of attributes derived from self-defining memories. Specifically, the memory-derived attributes were expected to represent central features of the self, whereas only some of

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the attributes from the general list were expected to represent important characteristics for the individual. Comparisons of these two types of attributes were conducted to investigate the relationship between adults' self-representations and self-defining autobiographical memories.

There were several steps necessary to gather memory-derived self-attributes used in the semantic recognition task. First, participants were asked to share self-defining autobiographical memories. Then, coders extracted semantic representations of explicit as well as implicit self-attributes from participants' memory narratives. Next, the semantic representations extracted from participants' narratives were added to a list of 40 general self-descriptors (Sheldon et al., 1997). The resulting list of general attributes and memory-derived self-attributes were used in the semantic recognition task.

A semantic recognition task developed for research on self-schemas and motivated reasoning (Markus, 1977; Sanitioso, Fong, & Kunda, 1990) was utilized to investigate the relationship between self-representations and self-defining autobiographical memories. Latencies in response to activated self-representations were used to test that semantic representations resulting from self-defining AMs are accessed faster than other self-descriptive attributes. The list of general and memory-derived self-attributes were also used in a self-descriptive rating task. In this task, participants were asked to rate the degree to which each attribute was personally descriptive, with the expectation that memory derived attributes would be rated as more personally descriptive.

Relationships among Valence of Self-defined Memories, Individual Differences, and Well-Being

The relationship between individual differences associated with self-concept and psychological well-being has been well established in previous literature (Campbell et al., 1996; Cross & Markus, 1992; Diehl et al., 2001; Donahue et al., 1993; Freund & Smith, 1999; Linville,

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1987). However, as reviewed earlier, studies examining the relationship between autobiographical memory as it relates to individual differences and psychological well-being are relatively rare. There are indications in the literature that the valence of self-defining autobiographical memories may be related to personality factors and may also be related to psychological well-being. The second goal of this research was to further examine the relationship of the valence of self-defining autobiographical memories, as it relates to individual differences and psychological well-being. Although many researchers conceptualize psychological well-being as a lack of negative symptoms, my interest is on optimal functioning in late adulthood. Specifically, I am interested in the ways in which older adults compensate for age decrements by optimizing well-being. Therefore, in this study psychological well-being was operationalized through the use of a scale developed by Carol Ryff (1989) that measures optimal functioning across multiple domains. In addition, the individual difference measures used in the study were chosen because they have been found to correlate with psychological well-being and are most likely to be an important resource for people facing challenges associated with the aging process.

Self-defining memories are autobiographical memories that are especially consequential to a person's self-concept. Although there is little research that explicitly addresses the impact of self-defining autobiographical memories on psychological well-being, there are a number of studies that illustrate the connection between certain aspects of autobiographical memories and psychological well-being (McAdams et al., 1996; Josephson et al., 1996). Particularly, a number of studies have demonstrated a relationship between emotional valence of individuals' autobiographical memories and indicators of psychological well-being (Grossbaum & Bates, 2002; McAdams et al., 1996; Seidlitz and Diener 1997; Woike et al., 1999). Similarly, a number

of investigators have provided evidence for a relationship between personality variables and self-representations embedded in life stories (Conway & Pleydell-Pearce, 2000; McAdams, 1993, 1996, 2001). .

In order to address the second objective, qualitative characteristics of autobiographical memory narratives were examined. Specifically, the emotional valence of participants' self-defining memories was noted. Autobiographical memory narratives are often coded for emotional tone and assigned a valence rating. Coding for valence has typically occurred as researchers explore complexity of the narratives along with multiple themes (e.g.; communion) illustrated by the narratives. However, in this study emotional valence was the primary quality of interest. Therefore, asking participants to provide their own rating with regard to the valence of each memory narrative seemed most efficient.

When measuring valence of the autobiographical memory, scales measuring positive and negative valence separately were employed to avoid the limitations and possible confounds inherent in a unidimensional scale of affect. A unidimensional scale of affect creates an unnatural response set that forces participants to endorse either positive or negative feelings associated with a particular memory thereby ignoring the fact that people are capable of having mixed feelings about an event. That is, they may simultaneously experience both positive and negative feelings about an event. Asking participants to rate their affective experience on a unidimensional scale may also effectively serve to dilute the ratings as participants report median scores lying between the end points. The focus of this study is on self-defining autobiographical memories as a psychological resource, therefore I have focused on the positive valence of autobiographical memory.

The self is embedded within an overall set of constructs such as personality variables, possible selves, self-esteem, psychological well-being, and so on. These constructs may vary in strength across age groups (Diehl et al., 2001). Therefore, self-report measures of individual differences were also administered to allow for exploratory analyses with regard to the relationship between the valence of self-defining memories and these other individual difference variables: self-concept clarity, positive affect, neuroticism and extraversion. These variables were selected for these exploratory analyses because they have been related to psychological well-being in past research (Campbell, 1996; Diehl et al., 2001; Harris & Lightsey, 2005; Schmutte & Ryff, 1997). Additionally, neuroticism, extraversion, and affect have been linked with autobiographical memory in two recent studies (McAdams et al., 2004; Rubin & Siegler, 2004).

Valence as a Mediator

Theorists have argued that adults may use their self-representations and related self-defining memories to adjust their self-concept in response to age-related challenges and/or losses. If this assumption is correct, then the positive valence of self-defining AM should mediate the relations between individual difference variables (i.e., self-concept clarity, positive affect, extraversion,) and psychological well-being.

Many theorists have suggested that individuals' subjective well-being is linked to stable individual differences (Campbell et al., 1996; Costa & McCrae, 1984; Seidlitz, Wyer, & Diener, 1997). Exploration of the identify function of AM, as it relates to stable individual differences and psychological well-being, may provide insight into the underlying process that links individual differences and psychological well-being. Specifically, the valence of self-defining autobiographical memories may mediate the impact of individual differences with regard to psychological well-being. The emotional tone of autobiographical narratives has been shown to

significantly predict psychological well-being (Grossbaum & Bates, 2002; McAdams et al., 2001). McAdams and his colleagues (2001) examined individuals' capacity for finding benefit from adverse situations and noted that people who were able to perceive benefit ultimately show better psychological adjustment. Specifically, people who able to find benefit from adverse events reported higher levels of positive affect than their counterparts who were less capable of finding benefit from adverse events (McAdams et al., 2001). Kennedy, Mather, and Carstensen (2004) noted that the valence of autobiographical memories reported by older adults tends to be significantly more positive than the valence of younger adults' autobiographical memories. These researchers suggest that older adults' tendency to remember their experiences in a more positive light may be responsible for the differences in subjective well-being reported by older and younger adults (Kennedy et al., 2004). Additionally, individuals were able to enhance their current feelings of well-being by focusing on various components of autobiographical memories (Kennedy et al., 2004).

Given the lack of investigation of the relationships between self-defining memories and well-being, there are a number of different approaches that might be feasible in examining the extent to which our self-defining memories mediate the relationship between individual differences and well-being. For instance, one approach would be to examine the impact of positive valence of autobiographical memories with regard to individual difference variables that affect psychological well-being in a negative manner. For example, one might consider the relationship among positive valence of autobiographical memories, depressive symptoms and psychological well-being. Using this approach would call for examining the role of positive valence of autobiographical memories in overcoming depressive symptoms in a manner that would maintain psychological well-being. Another way to view this would be to say that high

well-being, as a positive feature of the self, is not so strongly connected to specific personality variables and positive affect, but that these variables influence well-being only through their impact on self-definition. In particular, the positive valence of one's self-defining memories may influence well-being more so than these other individual difference variables. The latter approach is the one selected for this particular investigation.

Several studies have established a relationship between psychological well-being and a wide range of individual difference variables associated with distinct personality traits (Campbell et al., 1996; McAdams, 1996). However, for this study, I focus on those individual difference variables that have been shown to predict variations in psychological well-being and that have been shown to vary in their importance for psychological well-being. Specifically, self-concept clarity, positive affect, Extraversion and Neuroticism were employed (Adkins, Martin, & Poon, 1996; Mroczek, 2001). In addition Ryff's (1989) model of psychological well-being, focusing on optimal functioning across multiple domains, was also used to investigate the relationship among these key variables: valence of self-defining autobiographical memories, individual differences, and psychological well-being. Because the intercorrelations for the subscales of Ryff's (1989) well-being measure are moderate to high, a composite score of all the subscales is often used as an indicator of positive psychological functioning. That is the approach used here. Rather than break down well-being into particular aspects (subscales of Ryff's well-being measure), the emphasis, for this first investigation of these relationships, is placed on <u>overall</u> well-being as it relates to self-concept and individual differences.

Hypotheses of this Study

Self-Representations and Self-Defining Memories

To document the link between semantic representations in adults' self-concept and self-defining autobiographical memories, response latencies from the semantic recognition

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task and salience ratings of the self-attributes were examined.

Hypothesis 1a: Because of their centrality for a person's self-concept, we hypothesized that in a semantic recognition task, <u>both</u> younger and older adults would respond significantly faster ($p < .05$) to memory-derived attributes (MDAs) than to general self-descriptive self-attributes (GSAs).

Hypothesis 1b: We also expected, that after controlling for normal age-related slowing in reaction time, both younger and older adults would respond equally fast to MDAs. In contrast, with regard to GSAs, we hypothesized that younger adults would respond faster than older adults would.

Hypothesis 1c: Memory-derived attributes were compared against general self-descriptive self-attributes with regard to differences in attribute salience. Specifically, because of their importance for self-definition, we hypothesized that memory-derived attributes would be rated as significantly ($p < .05$) more salient than general self-descriptive attributes.

Hypothesis 1d: Because some literature suggests that self-defining autobiographical memories may become more important with regard to self-concept maintenance as people age, we hypothesized that the main effect of attribute type may vary by age, i.e., we predicted an Attribute Type X Age Group interaction). Specifically, we hypothesized that older adults would rate their MDAs as significantly ($p < .05$) more salient than young adults would, and younger adults would rate GSAs significantly higher than older adults would.

Relationships among Valence of Self-defined Memories, Personality, and Well-being Participants' rated the emotional valence of their self-defining memories. Correlation analyses were performed to examine the associations of the valence of self-defining memories with psychological well-being and individual difference variables, such as self-concept clarity, positive affect, extraversion and neuroticism.

Hypothesis 2a: The level of positive emotional valence of self-defining autobiographical memories was expected to correlate positively with self-concept clarity, positive affect, and extraversion. Conversely, positive emotional valence of self-defining autobiographical memories was expected to correlate negatively with neuroticism.

Hypothesis 2b: Positive valence of autobiographical memories was also expected to be positively correlated with psychological well-being as measured by the Ryff (1991) psychological well-being scale.

Valence as a Mediator

The role of positive valence of self-defining memories as a mediating variable between individual difference variables and psychological well-being was examined using regression analysis. Baron and Kenny (1986) state, "a given variable may be said to function as a mediator to the extent that it accounts for the relationship between the predictor and the criterion" (p.1176). Baron and Kenny's model was used to conduct exploratory analyses. Although relationships have been found between the individual difference variables used in this study and psychological well-being, and relationships have been found between positive valence and psychological well-being, the inter-related associations amongst these variables have not been investigated.

Hypothesis 3: The positive valence of self-defining memories was expected to mediate the effects of individual difference variables on the outcome variable, psychological well-being (see Figure 1-1).
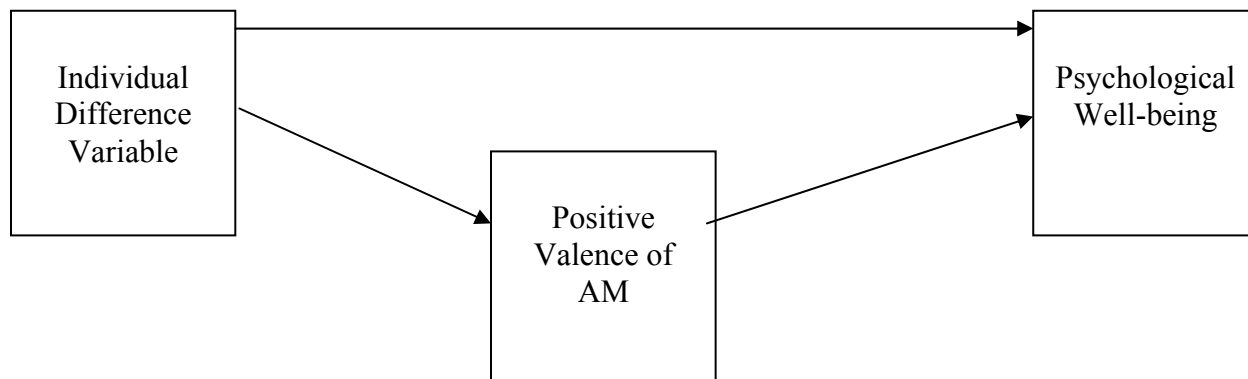
Figure 1-1. Proposed Model of the Mediational Relationship Among Positive Valence of Self-Defining Autobiographical Memory, Individual Difference Variables, and Psychological Well-Being.

CHAPTER 2
METHOD

The following section presents the methods proposed for this study. First, the design of the study and the participants are described. Next, the measures are described with a particular emphasis on the focal measures of the study, those that assess self-defining autobiographical memories. Testing procedures are detailed next, and then coding procedures are explained.

Design and Procedure

The study used a mixed-factor design with age group as a between-subjects factor (young vs. older adults) and attribute type (memory-derived self-attributes vs. general self-attributes) as a within-subjects factor. Participants were tested individually in two separate testing sessions scheduled two weeks apart. A two-week interval between testing sessions was implemented in order to minimize possible recognition effects related to participants' verbal report of their self-defining autobiographical memories. This interval takes into account the findings of a literature review showing that, for older adults, recognition effects are increased as compared to young adults, and can last over several days (Laver & Burke, 1993). Testing took place at the Adult Development and Aging Project (ADAPT) laboratory at the University of Florida and in the community. Specially trained research assistants conducted the testing sessions. The order of test administration is shown in Figure 2-1. All participants were asked to volunteer their time.

Participants

Participants were recruited through the University of Florida Psychology Undergraduate participant pool, an existing older adult participant pool, and from community organizations. Participants were screened via the telephone to ensure that they were in good health, without a history of mental illness, living independently, and without cognitive impairments that would prevent full participation in the study.

One hundred twenty-three participants, including 60 younger adults (18 - 39 years old), and 63 older adults (60 – 87 years old) were tested and included equal numbers of men and women in each age group. Three participants were excluded from the sample. One younger adult and two older adults were excluded due to procedural abnormalities. The young adult age range was chosen so that the sample would not be completely skewed towards college students. Key sociodemographic variables such as age, gender, income, education, marital status, and health status were recorded. The means and standard deviations associated with these sociodemographic variables are presented in Table 2-1.

With regard to years of education and life satisfaction, no significant differences were found between the young adults and older adults (see Table 2-1). However, significant differences were noted with regard to participants' subjective ratings of health, $F (1, 120) = 4.56$, $p < .05$. When comparing themselves to their age peers, using a Likert-type scale (*1 = Very poor*, *6 = Very good*), older adults reported better relative health than younger adults. However, there were no statistically significant differences, $F (1,120) = .48$, $p > .05$, between the number of visits to a doctor (per year) reported by older adults (*M* = 3.8, *SD* = 2.55) and the number of visits to a doctor reported by younger adults *(M*= 3.4, *SD* = 2.20). Significant differences were also noted with regard to participants' reported income, $F (1, 120)$, 16.49, $p < .05$. Younger adults reported higher levels of income compared to older adults. This was likely due to younger adults reporting their parents' annual income.

Sample Size and Power Considerations

Estimations of sample size and statistical power were considered for mixed-factors analyses of covariance (ANCOVAs). In the absence of previous studies that could provide guidance in terms of expected effect size, medium (.25) to large (.50) effects size were assumed to be reasonable estimates. These estimates were supported by pilot data. Based on Cohen

(1988), adequate power ($\beta > .80$) at the .05 significance level to detect an effect size of .50

requires a total of 69 participants ($n = 35$ per age group). To detect a medium effect size with $\alpha <$

.05 and $\beta > .80$, a total sample size of 120 participants ($n = 60$ per age group) was required. Thus,

the proposed sample size of $N = 120$ ($n = 60$ per age group) was expected to have sufficient

power ($\beta > .80$) to detect medium and somewhat smaller effects.

Measures

The following section contains a description of the measures that were used to examine the

relationship between self-representations and autobiographical memory. Because self-defining

autobiographical memories were the focus of this study, measures that assess self-defining

memories will be described first. Next, measures are described that were included to control for

normal age-related differences that may affect narrative quality or participants' ability to recall

their autobiographical memories. Finally, individual difference measures are described. The

individual difference measures included scales designed to examine self-concept clarity, affect,

personality factors, and depressive symptoms. These measures were included to allow for

examination of the relationship of self-defining memories and the resulting self-representations

with psychological constructs in a larger nomological network.

Self-Defining Memory Task

Three self-defining autobiographical memories were solicited from each participant.

Participants gave a verbal account of each memory, which was audiotaped. The protocol

developed by Moffitt and Singer (1994) was used to solicit the self-defining autobiographical

memories. Specifically, participants were instructed to recall autobiographical memories that

were important with regard to their current identity. When participants indicated they had shared

the entire memory, they were presented with four standard probes, one at a time, to assure

completeness of the narrative. The first time, participants were asked, "Is there anything else you

can tell me about that experience/event?" The second time participants indicated they had completed the narration they were asked, "Can you tell me anything else about how you were feeling or what you were thinking at the time?" The third probe was, "Do you think that is everything?" Finally, each participant was asked, "Can you tell me what you learned about yourself from that experience/event?"

Qualities of Self-Defining Memory

After the narration of each memory, participants were asked to rate the self-defining memory. Participants rated the valence of the memory as well as several other dimensions frequently used to describe the qualities of autobiographical memories. Three questions were used to assess the valence of each memory. Participants were asked to rate how positive their feelings connected with the memory were (1= N*ot at all*, 5= *Extremely).* In this study, this item was averaged across the three memories and used as the measure of positive valence. Participants were also asked to rate how negative their feelings were (1= *Not at all*, 5= *Extremely*). Additionally, participants were asked to describe their overall feelings connected with the memory (1= *Very positive*, 6 = *Very Negative*). The questions assessing valence were included with questions addressing other dimensions of memory such as: vividness (1 = *Not at all*, 5 = *Extremely*), importance (1 = *Not at all*, 5 = *Extremely*), intensity (1 = *Not at all*, 5 = *Extremely*), and frequency of recall (1 = *Rarely,* 5 = *Very Often*). Participants were also asked to date the event that gave rise to the recalled memory. Finally, participants were asked what they learned about themselves from the self-defining memories they provided (see Appendix A).

Coding of Memory Narratives

Each participant's audiotaped memory interview was transcribed verbatim. Trained coders examined the content of each narrative. Self-descriptive attributes were then extracted for use in a semantic recognition task administered in Session 2.

Coding of memory-derived self-attributes. In order to extract self-attributes from the autobiographical memories for later use in the semantic recognition task, the content of each memory narrative was examined. The training of coders for this extraction process was extensive (see Appendix B). Coders examined the memory narratives and extracted a list of self-attributes from each memory narrative that met the established criteria for self-defining attributes on two separate occasions (see Appendix B for coder guidelines). For ease of presentation, these attributes will be called memory derived attributes or MDAs. The first time the coders examined the protocols, they focused only on explicitly expressed self-attributes. The second time coders examined the protocols, they focused on extracting implicit self-attributes based on behavioral descriptions embedded in the narratives. For example, the trait "honest" would be included in the list of self-attributes for a narrative containing a phrase such as "because of who I am, I just had to tell the truth".

Two coders read each narrative transcription. Inter-rater reliability for the lists of MDAs identified by the coders was required to reach a minimum Kappa of .70 based on training with protocols from the pilot sample. Inter-rater reliability was calculated frequently and remained between .65 and .85 throughout the study, averaging .79. In instances in which the coders disagreed on MDAs, both coders discussed their findings with an independent expert rater until consensus was reached with regard to the attributes in question. As an additional method check, the percentage of memory-derived attributes in which participants responded "not me" was calculated. The percentage of memory-derived attributes to which participants responded "not me" was less than one-half of one percent. If a memory-derived self-attribute was identical to an item on the general self-attributes list, it was replaced with a synonym derived from a thesaurus

of synonyms specifically created for this purpose. The self-attribute thesaurus was based on the familiarity norms of self-attributes validated by Dumas, Johnson, and Lynch (2002).

Coders were asked to complete The Facts on Aging Quiz (Palmore, 1998) a measure of age-bias. The four coders were asked to indicate their level of agreement ($1 = $ *true*, $2 = $ *false*) with a variety of statements that reflect age-bias. Coder's responses were summed into a total score, with higher scores suggesting higher levels of age-bias. This measure was used to exclude coders that exhibited high levels of age bias that could potentially impact the coding of the narratives. In fact, none of the coders demonstrated age bias.

Semantic Representations of Self-Defining Memories.

The semantic representations culled from participants' narratives of self-defining autobiographical memories were inserted into a list of 40 general self-descriptors (Sheldon et al., 1997). The same 40 general self-descriptors were used for all participants. These general self-descriptors represented a wide spectrum of trait words and mapped onto the Big-Five personality traits, Neuroticism, Extroversion, Openness, Conscientiousness, and Agreeableness (as measured by the NEO-FFI, Costa & McCrae, 1989). Sheldon and colleagues (1997) established the validity of this list of general self-attributes by examining the correlations between the general self-attributes and participants' responses on the NEO-FFI (Costa & McCrae, 1989). The resulting list of 40 general attributes, with MDAs added, was used in the semantic recognition task and the self-attribute rating task. Both tasks were performed during Session 2.

Semantic Recognition Task.

A procedure for measuring response latencies of activated self-representations was established in research on self-schema and motivated reasoning (Markus, 1977; Sanitioso et al., 1990). This procedure was designed to test whether semantic representations resulting from self-defining autobiographical memories would be accessed faster than general self-descriptive

attributes. Using the Visual Basic software, participants were presented with 40 general self-attributes. These attributes have been used in previous studies on adults' self-representations (Diehl et al., 2001; Sheldon et al., 1997) and represent a comprehensive list of self-attributes. In addition, self-attributes taken from the self-defining autobiographical memory narratives were randomly incorporated into the list of general self-attributes. Each self-attribute was presented for up to 3 seconds or until the participant responded, whichever occurred first. Participants were instructed to make a judgment regarding whether the presented attribute was self-descriptive or not by pressing a designated "Me" or "Not Me" button as quickly as possible. Response latencies were recorded online. Participants' self-defining memories yielded varying numbers of self-attributes; therefore, proportionalized scores were used for all analyses. Only the general self-attributes the participant judged as self-descriptive were used in the analyses. The semantic recognition task was administered in Session 2.

Self-Descriptor Rating Task

Participants were also asked to rate all self-attributes, general and memory-derived, with regard to their personal salience. Specifically, each self-attribute was rated on an 8-point Likert-type scale ranging from "*Very uncharacteristic of me*" (1) to "*Very characteristic of me*" (8) (see Diehl et al., 2001; Donahue et al., 1993; Sheldon et al., 1997).

Control Measures

Sociodemographic information was collected. In addition, several measures were used to control for age-related cognitive changes that may have affected the narrative quality of the autobiographical memories or the recall of the autobiographical memories. Specifically, measures of overall verbal ability, perceptual speed, and general memory function were administered. All control measures were administered in Session 1.

Personal data form. A detailed personal data form (Diehl et al., 2001) was used to collect sociodemographic information (e.g., age, gender, ethnicity, education, etc.) along with information regarding the participants' general health status. This measure has been used extensively in research with adults of all ages and can be scored objectively.

Verbal ability. The Advanced Vocabulary Test (V-3) from the Kit of Factor-Referenced Cognitive Tests (Ekstrom, French, Harman, & Dermen, 1976) was used to assess adults' general level of verbal comprehension. This test requires the selection of a synonym for each given stimulus word from five alternatives. This test is widely used in research with adults of all ages and its psychometric properties are well established (Ekstrom et al., 1976).

General memory. The Auditory Verbal Learning Task (AVLT; Rey, 1941) was used to assess participants' overall semantic memory. Participants studied a list of 15 semantically unrelated words for 1 minute and then wrote down as many of the words as they could remember from the list. Reliability and validity of the AVLT are well established.

The Balanced Inventory of Desirable Responding (BIDR). The BIDR (Paulhus, 1991) was used to examine participants' social desirability biases. Individuals were asked to indicate their level of agreement (1 = *Not true*, 7 = *Very true*) with statements that reflected a need for social desirability. Respondents' answers were summed into a total score, with higher scores suggesting higher levels of social desirability bias ($\alpha = .73$). Participants' scores on the BIDR were used for exclusionary purposes.

Reaction time tasks. In order to control for normal age-related slowing in reaction time when assessing participants' response latencies with regard to self-attributes, a simple reaction time task and a choice reaction time task were administered. Some research has shown that simple reaction time and choice reaction time show largely the same age-related slowing (Paul

Verhaeghen, personal communication, June 30, 2004). However, we decided to include both tasks because the demand characteristics of a choice reaction task are more similar to the semantic recognition task. Including both reaction time tasks will increase the sensitivity of the control variables (Paul Verhaeghen, personal communication, June 30, 2004).

For the test of simple reaction, used for statistical control of age-related differences, participants were seated in front of a 17- inch computer screen and instructed to respond using a single key when a symbol ("+") appeared on the screen. The interstimulus interval was 0.5 to 1.5 milliseconds and varied randomly. Participants' scores on this task were reaction times measured in milliseconds, averaged across all responses. The symbol always appeared in the center of the screen and reaction times were recorded online. This task did not require any prior computer experience and the older adults were able to perform it without difficulty. Each participant had 5 warm-up trials before the actual task started.

In order to capture differences in reaction times between younger and older adults, associated with higher-order processing, a choice reaction time task was also administered. Participants, seated in front of a 17-inch computer screen, were instructed to respond using one of two keys that corresponded with one of two words ("Me" or "Not Me") that appeared on the screen. When the word "ME" appeared on the screen, participants were instructed to press the key corresponding to the word "ME". Likewise, when the words "NOT ME" appeared on the screen participants were instructed to press the key corresponding to the words "NOT ME". The same keys were used later in the study to represent an actual "ME" or "Not ME" choice in response to the various self-attributes. In this way, the motor response demands of the semantic recognition task were matched as much as possible. The interstimulus interval was 0.5 to 1.5 seconds and varied randomly. Participants' score on this task was the response latency averaged

across all responses. In preparation for the task, a "+" appeared in the center of the screen so that participants knew where to expect the stimulus to appear. Reaction times were recorded online. Each participant had 5 warm-up trials before the actual task began.

Individual Difference Measures

A number of individual difference measures were administered during Session 1. These measures were included because they assess theoretically related concepts, which we planned to examine in the analyses or statistically control for, if necessary.

Psychological well-being. The Short Psychological Well-being Scale (SPWB; Ryff, 1989, 1995) was used to assess participants' psychological well-being. The SPWB measures six dimensions of psychological well-being that have been derived from the literature on lifespan development, mental health, and personal growth (Ryff, 1989, 1995). The six dimensions are Self-Acceptance, Environmental Mastery, Purpose in Life, Positive Relations with Others, Personal Growth, and Autonomy.

Each dimension was measured with a 14-item scale of positively and negatively phrased items, which were alternated in their order across dimensions. Participants responded to each item on a 6-point scale (1 = S*trongly disagree*, 6 = *Strongly agree*). The psychometric properties of the SPWB have been examined in terms of internal consistency and test-retest reliability (Ryff & Keyes, 1995). Ryff and Keyes (1995) have also reported findings from confirmatory factor analyses supporting the six-factor structure of the questionnaire. The alpha coefficients for internal consistency in this study were .84, .83, .74, .83, .82, and .81 for Autonomy, Environmental Mastery, Personal Growth, Positive Relations, Purpose in Life, and Self-Acceptance respectively, and the alpha coefficient was .90 for the total scale score.

Self-Concept Clarity Scale (SCC*)*. The SCC consists of 12 items designed to measure "the extent to which the contents of an individual's self-concept were clearly and confidently

defined, internally consistent, and temporally stable" (Campbell et al., 1996, p. 141). Items were presented as 5-point scales (1 = *Strongly disagree*, 5 = *Strongly agree*). Scores were summed across the 12 items (α = .87) and higher scores indicated a more clearly defined self-concept. Reliability and validity for the SCC are well established (Campbell et al., 1996).

Positive and Negative Affect Scale (PANAS). The PANAS (Watson, Clark & Tellegen, 1988) assessed two primary dimensions of mood. Positive affect (PA) reflects the extent to which a person feels enthusiastic, active, and alert. In contrast, negative affect (NA) is a general dimension of aversive mood states such as anger, contempt, guilt, fear, and nervousness. The PANAS has 20 items with 10 items each for PA (α = .79) and NA (α = .84). Respondents rated each item on a 5-point Likert-type scale (1 = *Very slightly or not at all*, 5 = *Extremely)* indicating to what extent they felt this way in the past few weeks. The PANAS has excellent psychometric properties (Watson et al., 1988).

NEO Five-Factor Inventory (NEO-FFI). The NEO-FFI (Costa & McCrae, 1992) was used to measure the two broad personality factors of neuroticism (i.e., emotional lability) and extraversion (i.e., sociability and outgoingness). The scales assessing these two dimensions consisted of 24 items that are presented in a Likert-type format (1 = *Strongly disagree*, 5 = *Strongly agree*). The coefficients of internal consistency in this study were .84 for Neuroticism and .80 for Extraversion. The NEO-FFI is one of the most widely used personality inventories for healthy adults and its psychometric properties are well established (Costa & McCrae, 1992).

Center for Epidemiological Studies Depression Scale (CES-D). The CES-D (Radloff, 1977) was used to assess the frequency of participants' depressive symptoms for exclusionary purposes. Individuals were asked to indicate how frequently they experienced the listed symptoms within the past week (1 = *Rarely or none of the time*, 4 = *Most or all of the time*).

Respondents' answers were summed into a total score, with higher scores indicating a higher frequency of depressive symptoms. The CES-D has been specifically recommended for use in nonclinical community-based samples and its psychometric properties are well established (Radloff, 1977). No one in the sample was excluded for moderate or severe depression. Internal consistency reliability in this sample was .91.

Table 2-1. Means and Standard Deviations of Sociodemographic and Health Variables by Age Group

Variable	Young Adults (n = 59)		Older Adults (n= 61)	
	M	SD	M	SD
Age (yrs)	22.06	2.49	74.81	6.17
Education (yrs)	14.97	1.46	16.50	3.55
Income (1,000s)	71.00	14.35	41.30	8.03
Health	5.06	.79	5.66	.72
Life Satisfaction	4.68	.80	4.88	.72

Table 2-2. Means and Standard Deviations Individual Difference Variables by Age Group

Variable	Young Adults (n = 59)		Older Adults (n= 61)	
	M	SD	M	SD
SCC	40.60	8.33	44.78	6.51
PA	30.56	6.34	26.62	7.17
NEO-N	30.52	7.14	25.52	7.28
NEO-E	44.42	6.40	41.50	6.80

Note. SCC=Self-Concept Clarity Scale; NEO-N = NEO Neuroticism Scale; NEO-E = NEO Extraversion Scale; PA = Positive Affect Scale.

Session 1

| Sociodemo-graphic Info | → | Self-Defining Memory Task | → | Control Measures | → | Individual Difference Measures |

Session 2

| Reaction Time Tasks | → | Semantic Recognition Task | → | Self-Descriptor Rating Task |
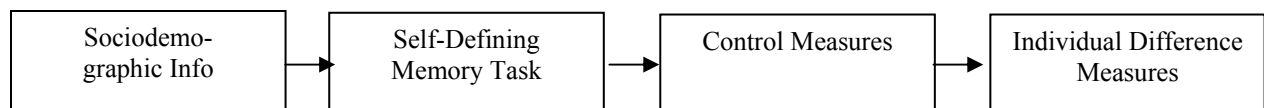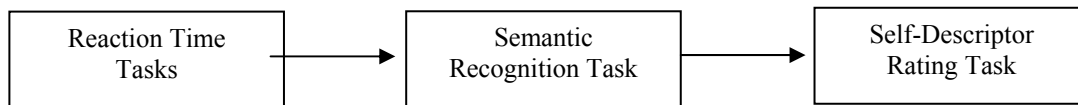
Figure 2-1.   Order of Test Administration

CHAPTER 3
RESULTS

The results of this study are presented in four main sections. The first section describes the steps taken to assure that none of the assumptions related to the statistical analyses were violated. The second section presents the results of the analysis of covariance used to examine the relationship between adults' self-representations and self-defining autobiographical memories (Objective A). In the third section, the results are described from the correlation analyses examining the relationships between the valance of autobiographical memories, individual difference variables, and psychological well-being (Objective B). Finally, in the fourth section a mediation model is tested. This model proposed that the relationship between individual difference variables and psychological well-being is mediated by the positive valence of self-defining memories (Objective C).

Preliminary Analyses

Preliminary analyses were conducted to ascertain that there were no obvious errors in the data set, and that none of the assumptions (i.e., normality, homogeneity, multicollinearity) associated with the planned statistical analyses were violated,

To identify data points lying significantly outside the normal range, descriptive analyses were conducted that included an examination of extreme values, along with box plots and stem and leaf plots. There were three data points associated with one of the covariates, the word-choice reaction time task, that were of particular concern initially. Thus, all analyses were subsequently conducted twice; the analyses were conducted first with the data from all participants included, and then repeated, excluding those participants associated with these extreme data points. Comparison of the analyses revealed trivial differences, none of which

affected the significance of the analyses being conducted. Therefore, the reported findings are based on all of the data, including these outliers.

The means and standard deviations of the individual difference variables; self-concept clarity, positive affect, neuroticism, and extraversion were examined to assure the sample was typical (see Table 2-2). Significant age differences were noted with regard to participants' scores on Self-Concept Clarity scale $F (1, 119)$, 10.94, $p < .05$. Older adults reported higher levels of self-concept clarity compared to younger adults, consistent with past research. Typically, older adults' scores on measures of Neuroticism and Extraversion vary significantly from younger adults. In this sample, significant differences were noted on participants scores on scales of Neuroticism, $F (1, 119) = 14.16$, $p < .05$, and Extraversion $F (1, 119) = 5.76$, $p < .05$. Older adults' scores on scales of Neuroticism as well as Extraversion were lower compared to younger adults. However, there were no statistically significant differences, $F (1,119) = .03$, $p > .05$, between younger and older participants' scores on positive affect

The means and standard deviations of the variables of interest were examined for potential gender differences. There were no significant gender differences noted on participants' scores on the individual difference measures; self-concept clarity, $F (1,119) = 2.96$, $p > .05$, positive affect, $F (1,119) = .25$, $p > .05$, Neuroticism, $F (1,119) = .27$, $p > .05$, and Extraversion, $F (1,119) = .19$, $p > .05$. Additionally, there were no significant gender differences noted in mean response latencies for MDA, $F (1,119) = 2.04$, $p > .05$, nor GSA, $F (1,119) = .13$, $p > .05$. Furthermore, no significant gender differences were noted in the mean salience ratings for MDA, $F (1,119) = .85$, $p > .05$, nor GSA, $F (1, 119) = .06$, $p > .05$.

Tabachnick and Fidell (2001) recommend that to avoid issues of multicollinearity, one should not include variables with a bivariate correlation above .70 in the same analysis. A

bivariate correlation analysis was conducted for the covariates (word-choice reaction times, simple reaction time, general memory, and vocabulary) to ensure that multicollinearity was not present. The results are shown in Table 3-1.

The results revealed a correlation ($r = .78$, $p < .001$) between word-choice reaction times and simple reaction times. Therefore, simple reaction times were not included in subsequent data analyses. The decision to continue to use the word-choice reaction times, rather than simple reaction times, was based on the observation that the word-choice reaction task was similar in its task demands to the semantic recognition task used in this study. The bivariate correlation analyses showed that multicollinearity was not a concern for the remainder of the potential covariates.

Covariates

A number of age-related differences were expected that would conceivably influence the variables of interest. Specifically, age-related differences in cognitive function and reaction times were expected. In that, age-related differences in cognitive functioning and response times could lead to an erroneous interpretation of the data, the planned analyses called for using these variables as covariates if age-related differences were significant for these measures. In order to explore the influence of these age-related variations, an analysis of variance was conducted.

Auditory Verbal Learning Task

Participants' general memory was assessed using the Auditory Verbal Learning Task (AVLT; Rey, 1941). Typically, younger adults score better on measures of general immediate memory than older adults. As was expected, significant differences in performance were noted, $F (1,119) = 7.34$, $p < .01$. Younger adults correctly remembered more words ($M = 9.55$, $SD = 2.19$) than older adults ($M = 8.41$, $SD = 2.43$). However, there were no significant differences between the two groups in the number of word repetitions, $F (1,119) = .96$, $p > .05$, nor in the number of

errors of commission, $F(1,119) = .27$, $p > .05$. In order to control for these age-related differences in the general memory of younger and older adults, scores from the Auditory Verbal Learning Task (AVLT; Rey, 1941) were included as a covariate in all analyses.

Reaction Times

Typically, age-related slowing in reaction times occurs. In order to control for differences in age-related slowing, reaction times were assessed using a word-choice reaction time task. Significant differences in reaction times of younger and older adults were found, $F(1,119) = 34.73$, $p < .001$. Young adults' reaction times were faster ($M = .67$ seconds, $SD = .31$) than older adults reaction times ($M = 1.08$ seconds, $SD = .44$). Therefore, word-choice reaction times were used as a covariate in many analyses, as noted in the analyses.

Vocabulary

Participants' general level of verbal comprehension was assessed using the Advanced Vocabulary Test (V-3) from the Kit of Factor-Referenced Cognitive Tests (Ekstrom et al., 1976). Older adults typically score better on measures of vocabulary than younger adults. Differences in verbal ability may affect the complexity and coherence of participants' narratives. Higher complexity and coherence of a narrative could feasibly lead to lengthier narratives, with a greater number of implicit self-attributes embedded in the narrative. Additionally, more advanced verbal ability could lead to significant differences in the number of explicit MDAs identified by the participants in their narratives. Therefore, verbal ability was examined as a potential covariate. No significant vocabulary differences were found between older ($M= 13.23$, $SD = 1.86$) and younger adults ($M= 12.78$, $SD= 1.53$), $F(1, 119) = 2.07$, $p > .05$. Therefore, participants' scores from the Advanced Vocabulary Test were not included as a covariate factor in the analyses.

In summary, a number of preliminary analyses were conducted. A simple frequency check was conducted to assure that the values associated with each of the measures were within the

expected range and all anomalies were addressed. Additionally, descriptive analyses were

conducted that included an examination of extreme values, along with box plots and stem and

leaf plots in order to identify data points lying significantly outside the normal range. After the

outliers were identified, all analyses were conducted with the outliers removed as well as with

them included in the data set. Comparison of the outcome of the analyses revealed only minor

differences. Therefore, findings were reported that represent all of the data including these

outliers. Analyses of variance ascertained that participants' scores on individual difference

measures exhibited the typical age-related patterns. Bivariate correlation analyses revealed

multicollinearity between simple reaction time and word choice reaction. Therefore, simple

reaction time responses were removed from subsequent analyses. The remainder of the

covariates proved to be suitable variables for inclusion; however, the only covariates that were

necessary, based on age differences, were the AVLT and word choice reaction time.

Additionally, no significant sociodemographic differences related to ethnicity or age that might

confound the interpretation of the data were noted. Finally, no significant gender differences

were noted that might obscure the interpretation of the data. Thus, analyses designed to test the

hypotheses of interest were conducted.

Hypothesis 1: Relationship between Adults' Self-Representations and Self-Defining Autobiographical Memories

A 2 (age group: young adults vs. older adults) by 2 (attribute type: memory-derived vs.

general-self) analysis of covariance (ANCOVA) was performed to examine age and attribute

type differences with regard to participants' response latencies to personal attributes in the

semantic recognition task. In order to control for normal age-related slowing in reaction time

when assessing participants' response latencies with regard to self-attributes, participants' word-

choice reaction times were included as a covariate. In order to control for normal age-related

differences in general memory, participants' scores on the Auditory Verbal Learning Task (Rey, 1941) were also included as a covariate.

The results showed a significant main effect for attribute type (Hypothesis 1a). Specifically, the mean response latencies for MDAs (M =1.14, SD = .27) were significantly smaller than response latencies for general self-attributes (M =1.42, SD = .29), F (1, 119) = 8.28, p < .001. As hypothesized, the main effect of attribute type was qualified by a significant Age Group x Attribute Type interaction, F (1, 119) = 18.19, p < .001. No age differences in mean response latencies occurred for MDAs. However, age differences in mean response latencies were significant for general self-attributes (see Table 3-2).

As predicted, no significant mean differences in the response latencies of young adults and older adults for the MDAs were noted after controlling for reaction time (Hypothesis 1b). However, with regard to general self-attributes, a significant difference in response latencies of younger adults and older adults was noted. Specifically, the mean response latencies for general-self attributes of older adults were significantly smaller than the latencies of younger adults, F (1,119) = 8.28, p < .001 (Hypothesis 1b).

To examine differences in salience ratings of MDAs and ratings of general self-attributes a 2 (age group: young adults vs. older adults) by 2 (attribute type: memory-derived vs. general) ANCOVA was performed. The results showed a significant main effect for attribute type (Hypothesis 1c). Specifically, the mean salience ratings for MDAs (M = 6.90, SD = .05) were significantly higher than the salience ratings for general self-attributes (M = 4.41, SD = .77), t (1,119) = 105.16, p < .001. The main effect of attribute type was also qualified by a significant Age Group x Attribute Type interaction, F (1,119) = 6.60, p < .05 (Hypothesis 1d). Older adults rated their MDAs (M = 7.10, SD = .46) as significantly more salient than young adults (M = 6.80,

$SD = .64$), $F (1,119) = 8.82$, $p < .01$. Mean salience ratings for general-self attributes were not significantly different across age groups.

In summary, results showed that the mean response latencies for MDAs were significantly smaller than response latencies for general self-descriptive self-attributes. With regard to age differences in response latencies, a significant attribute by age interaction was found. Specifically, no age differences were noted for the response latencies associated with MDAs. However, age differences were noted with regard to response latencies associated with general self-attributes.

Additionally, with regard to salience ratings, a significant main effect for attribute type was noted. The mean salience ratings for MDAs were significantly higher than the salience ratings for general self-attributes. In addition, a significant Age Group x Attribute Type interaction qualified the main effect of attribute type. Older adults rated their MDAs as significantly more salient than young adults did. However, salience ratings for general-self attributes were not significantly different for younger and older adults

Hypothesis 2: Relationship between Valence of Self-Defining Autobiographical Memories, Individual Difference Variables, and Psychological Well-being

Correlation analyses were performed to examine the associations of the valence of self-defining memories with psychological well-being and individual difference variables, such as self-concept clarity, positive affect and personality factors. In order to perform the correlation analyses, total scale scores were calculated for each of the individual difference variables as well as for the measure of psychological well-being. To create an overall positive valence rating, the question addressing the degree of positive feelings connected with each autobiographical memory was used. These scores were then averaged for a total positive score for each

participant. Pearson-product moment correlations were then calculated. The resulting correlations are summarized in Table 3-3.

A significant positive correlation was noted between positive valence of self-defining autobiographical memories and self-concept clarity. A significant negative correlation was found between positive valence of self-defining memories and neuroticism (Hypothesis 2a). Although not statistically significant, the relationships between positive valence of AM and other individual differences variables, and the correlation between positive affect and extraversion were in the anticipated direction (Hypothesis 2a). The correlation analyses also revealed a significant positive correlation between positive valence of autobiographical memories and psychological well-being (Hypothesis 2b).

Although not directly related to the predicted hypotheses, a number of other significant correlations worthy of mention were also noted. Specifically, significant positive correlations between self-concept clarity and psychological well-being were found, as well as between self-concept clarity and positive affect were found. Correlation analyses also revealed a significant negative correlation between self-concept clarity and neuroticism. Additionally, a significant negative correlation was noted between psychological well-being and neuroticism. These correlations support previous literature on self-concept clarity.

In summary, several significant correlations between the valence of self-defining autobiographical memory, individual difference variables, and psychological well-being were found. Specifically, a positive relationship between positive valence of self-defining autobiographical memories and self-concept clarity was noted. Conversely, a negative relationship between positive valence of self-defining memories and neuroticism was also found. Additionally, a positive association between positive valence of autobiographical memories and

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psychological well-being was noted. Finally, a significant positive relationship between psychological well-being and self-concept clarity was found.

Hypothesis 3: The Mediational Effect of Positive Valence of Self-Defining Memories and Individual Difference Variables on Psychological Well-being.

A series of hierarchical multiple regression analyses was conducted to examine the role of valence of self-defining autobiographical memories as a mediating variable between individual difference variables and psychological well-being. Mediation occurs as a sequence in which one variable affects a second variable that, in turn, affects a third variable. Specifically, the mediating variable was expected to have an impact on the relationship between a predictor variable and the dependent variable. Baron and Kenny (1986) outlined certain conditions that must be met in order for a variable to operate as a mediating variable. Specifically, three conditions must be met. First, variations in the levels of the independent variable need to account for significant variations in the mediating variable. Second, variations in the mediating variable need to account for significant variation in the dependent variable, and third, when variations in the levels of the mediating variable are included, the relationship between the independent and dependent variable will no longer be significant.

According to Baron and Kenny (1986), this approach allows for an examination of total mediation as well as partial mediation. Total mediation occurs when the primary predictor variable no longer significantly adds to the prediction of the dependent variable when the mediating variable is included (Baron & Kenny, 1986). Likewise, Baron and Kenny (1986) explain that partial mediation takes place if the mediator plays a significant role, but the primary predictor variable continues to predict significant amounts of variance related to the dependent variable after the mediator is included. In order to examine the mediating relationship between the valence of self-defining autobiographical memories, and individual difference variables on

psychological well-being, a series of regression analyses was conducted following the model set forth by Baron and Kenny (1986).

To assure that none of the independent variables predicts one another at a level that would be unacceptable, multicollinearity diagnostics were conducted. Results of the multicollinearity diagnostics revealed the suitability of the independent variables (individual difference variables and valence) for use in the regression analyses. Specifically, all tolerance values were above .88. Additionally, the values associated with the Variance Inflation Factor (VIF) were all well below 10. Therefore, all of the independent variables were used in subsequent regression analyses. In reporting the regressions, both the *Beta* values and the unstandardized *b* values were examined (see Table 3-4).

Additionally, in order to ascertain the amount of variance accounted for by the different models, the change in R^2 for each model was also examined. Two separate regressions were conducted to examine the impact of the mediating variable. As outlined by Baron and Kenney (1986), the first regression analysis calls for the individual difference variables to be added first, followed by a second step in which the mediating variable is added to the model. The second regression calls for the regression to be conducted with the mediating variable alone, as a first step, followed by the addition of the individual difference variables to the model (Baron & Kenny, 1986).

Individual Difference Variables Entered First.

The next regression analysis in the series was conducted using both the individual difference variables and positive valence to predict psychological well-being in which the individual difference variables were entered simultaneously as a block followed by a second step in which positive valence was entered.

The individual difference variables, self-concept clarity, PANAS-positive affect, neuroticism, and extraversion, alone accounted for a significant percentage of the variance, F (4,116) = 15.93, $p < .001$, $R^2 = .36$. However, adding positive valence to the model did not result in a significant increase in the variance accounted for, R^2 change $= .004$, $p > .25$. This indicates that adding positive valence to the model did not increase the predictive power of the model (See Table 3-4).

Individual Difference Variables Entered Last

Finally, the last regression analysis in the series was conducted. In this regression model to predict psychological well-being, positive valence was entered alone followed by a second step in which the individual difference variables were all entered simultaneously. Positive valence accounted for a significant percentage of the variance in psychological well-being, F (1,119) = 7.07, $p < .01$, $R^2 = .06$. Adding the individual difference variables to the model resulted in a significant increase in the variance in psychological well-being accounted for, R^2 change $= .30$, F (4,116) = 13.06, $p < .001$. This indicates that adding the individual difference variables to the model significantly increased the predictive power of the model (See Table 3-4).

After testing the individual difference variables as a block, the relationship between positive valence and each of the individual predictor variables was also examined. Separate regression analyses were conducted to examine the role of positive valence as a mediator of psychological well-being, with each of the individual difference variables: self-concept clarity, PANAS-positive affect, neuroticism, and extraversion. Positive valence was not a mediator of well-being in any of these analyses. The results indicated that the effect of positive valence did not account for a significant portion of the variance in psychological well-being beyond what was already accounted for independently by each of the critical individual difference variables: self-concept clarity, PANAS-positive affect, neuroticism, and extraversion. To confirm these

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results, a Sobel (1988) test was utilized to test significance of the partial mediating effect of positive valence. In no case was there any significant mediation by positive valence.

In sum, regression analyses showed that the positive valence of self-defining autobiographical memories predicted a small portion of the variance in scores on psychological well-being when entered as a sole individual variable. Additionally, adding the individual difference variables, self-concept clarity, PANAS-positive affect, neuroticism, and extraversion, accounted for a significant increase in the predictive power of the model. Positive valence did not contribute more variance after the individual differences variables were entered; positive valence did not mediate the relationship between the individual difference variables and psychological well-being.

Table 3-1 Bivariate Correlations between the Covariates (N=120)

Variables	1	2	3	4
1. Word-Choice Rt	---	.78**	-.12	-.07
2. Simple Rt		---	-.13	-.05
3. AVLT			---	.07
4. Verbal				---

Note. AVLT = The Auditory Verbal Learning Task; Verbal = The Advanced Vocabulary Test (V-3) from the Kit of Factor-Referenced Cognitive Tests. ** $p < .01$.

Table 3-2. Mean Response Latencies by Age Group and Attribute Type

	Young Adults ($n = 59$)		Older Adults ($n = 61$)	
Attribute Type	*M*	*SD*	*M*	*SD*
MDAs	1.09	.03	1.18	.03
General	1.49	.03	1.35	.04

Table 3-3. Relationship Among Positive Valence of Self-Defining Memories, Individual
Difference Variables, and Psychological Well-Being (N=120)

Variables	1	2	3	4	5	6
1. Valence	---	.25**	.28**	-.28**	-.06	.10
2. SPWB	---	---	.55**	-.37	.11	.26**
3. SCC	---	---	---	-.50**	.11	.06
4. NEO_N	---	---	---	---	.09	-.11
5. NEO-E	---	---	---	---	---	.10
6. PA	---	---	---	---	---	---

Note. Valence = positive valence of self-defining memories; SPWB = Short Psychological Well-Being Scale; SCC = Self-Concept Clarity Scale; NEO-N = NEO Neuroticism Scale; NEO_E = NEO Extraversion Scale; PA = Positive Affect Scale. $* p < .05.$ $** p < .01.$

Table 3-4. Summary of Regression Analyses Predicting Psychological Well-being by Individual Difference Variables and Positive Valence of Autobiographical Memories

		B	SE B	Beta
Step 1				
SCC		.04	.01	.47**
PA		.18	.06	.21**
NEO-N		-.10	.08	-.11
NEO-E		.04	.08	.04
$R2$	.36**			
Step 2				
SCC		.04	.01	.46**
PA		.17	.06	.21**
NEO-N		-.09	.09	-.09
NEO-E		.05	.08	.04
Valence		.04	.05	.07
R^2	.36			
R^2 change	.00			

		B	SE B	Beta
Step 1				
Valence		.14	.05	.24**
R^2	.06**			
Step 2				
Valence		.04	.05	.07
SCC		.03	.01	.46**
PA		.17	.06	.20**
NEO-N		-.09	.08	-.10
NEO-E		.05	.08	.04
R^2	.36			
R^2 change	.30**			

Note. Valence = positive valence of self-defining memories; SCC=Self-Concept Clarity Scale; NEO-N = NEO Neuroticism Scale; NEO-E = NEO Extraversion Scale; PA = Positive Affect Scale. * $p < .05$. ** $p < .01$.

CHAPTER 4
DISCUSSION

Understanding the relationships between adults' self-concept and autobiographical memory provides valuable insight into the role that self-concept and autobiographical memory may play as psychological resources in the aging process (Brandtstädter & Greve, 1994). Theorizing about self-concept as a resource converges with recent theorizing on the functions of autobiographical memory. There seems to be consensus that individuals' autobiographical memory and personal identity are intimately intertwined (Conway & Pleydell-Pearce, 2000; McAdams, 1996), and this research was designed to tease out several aspects of this relationship. How can we expect self-representations and autobiographical memory to be linked with each other? Following the arguments of Brandtstädter and Greve (1994) regarding the importance of specific self-representations, only certain autobiographical memories would be expected to be relevant for a person's self-concept. This subset of autobiographical memories has been referred to as self-defining memories (Pillemer, 1998; Singer & Salovey, 1996). Self-defining memories contain essential information about the self and it is reasonable to assume that, over time, this information becomes semantically represented as part of a person's self-concept. Self-defining memories act as a resource because they provide a person with a sense of self-continuity across time that directly contributes to successful aging (Costa, Metter, & McCrae, 2005). These key memories that a person chooses to review frequently may also play a role in self-regulation, affect management, and well-being. In terms of mood regulation and psychological well-being, people may choose to focus on memories of the past that elicit either positive emotions or negative emotions which could have an impact on the person's current affective state as well as his or her view of the future (Cohen, 1998). The focus of this study is on those self-defining autobiographical memories that act to preserve adults' identity.

Empirical research on the identity function of autobiographical memory has been rather scarce and there are no studies that have empirically investigated the connection between self-defining autobiographical memories and semantic representations in adults' self-concept. There have been a few studies that have explored the relationship between valence of autobiographical memories and individual differences in personality traits such as neuroticism and extraversion. Likewise, a few studies have explored the relationship of valence of autobiographical memories and psychological well-being. However, to date there have been no studies that have examined the interconnected relationship of positive valence of autobiographical memories, individual differences, and psychological well-being simultaneously. This study expands upon those few earlier studies, first, by using an experimental design to examine the relationship between the identity function of self-defining autobiographical memories and their semantic representations across adulthood, and secondly, by exploring the positive valence of self-defining memories in relation to individual differences and psychological well-being.

The first section of the discussion reviews the results associated with the first objective of this investigation, exploring self-representations and autobiographical memory across adulthood. In the second section, the relationships among key variables are discussed. These key variables are positive valence of self-defining autobiographical memories, individual differences, and psychological well-being. The third section reviews the findings associated with the third objective – the role of positive valence as a mediator between individual difference variables and psychological well-being. Next, I discuss limitations of the study and offer suggestions for future research. Finally, the conclusions focus on the extent to which this study offers a new perspective on important issues related to self-concept and autobiographical memory.

Objective 1- Self-Representations and Self-Defining Memories

One of the recognized functions of autobiographical memories is their role in the creation and maintenance of the self-concept (Cohen, 1998). Because self-defining memories, by definition, contain essential information about the self, it is reasonable to assume that this information becomes semantically represented in the self-concept over time. Consequently, one of the primary objectives of the study was to examine the relationship between aging, self-defining autobiographical memories, and semantic representations in adults' self-concept.

To document the link between semantic representations in adults' self-concept and self-defining autobiographical memories we derived self-attributes from participants' self-defining autobiographical memories (i.e., memory-derived attributes, MDAs). These MDAs were expected to represent central features of an individual's self-concept. Comparisons of MDAs and general self-attributes were conducted, comparing response latencies and salience ratings as a function of attribute type. When asked to make decisions about the self-descriptive traits, people were expected to respond much more quickly, in terms of response latencies, to highly self-descriptive traits than to traits that may or may not be self-descriptive (Siem, 1992; Fekken & Holden, 1992; Markus, 1977; Sanitioso et al., 1990). Specifically, response latencies to attributes derived from autobiographical memory and general self-attributes were expected to vary as a function of attribute type and age. Numerous studies have demonstrated age-related slowing in processing semantic information (Hertzog, Raskind, & Cannon, 1986: Mueller & Johnson, 1990). Nonetheless, due to their centrality to self-concept, younger and older adults were expected to respond equally fast to MDAs. However, age difference in response times to general self-attributes were expected to mirror the general literature on age differences in semantic recognition studies (Hertzog et al., 1986; Mueller & Johnson, 1990). Specifically, larger

response latencies to general self-attributes were anticipated for older adults due to age-related slowing in retrieval of general semantic information.

In addition, examination of salience ratings served two purposes. First, the salience rating of MDAs provided a manipulation check to assure that the attributes coders extracted from participants' self-defining autobiographical memories were appropriate for both age groups. Secondly, the salience ratings provided an additional measure of the attributes' prominence with regard to the participant's self-concept, with higher salience expected for MDAs than general self-attributes, especially for older adults. Thus, we predicted an Age Group x Attribute Type interaction.

Response Latencies of Attributes Associated with Self-Defining Autobiographical Memories

As expected, participants responded faster to MDAs than to general self-attributes during the semantic recognition task. This indicates that MDAs were more readily accessed, and therefore more clearly defined in adults' self-concept. These findings are consistent with earlier work documenting the link between adults' self-concept and autobiographical memory. Specifically, this finding converges with earlier work documenting the identity function of autobiographical memory (Bluck, Habermas, & Rubin, 2001). Sanitioso, Fong, and Kunda (1990) also found that individuals accessed autobiographical memories reflecting self-descriptive attributes more quickly than memories that were not self-descriptive. Sanitioso and his colleagues (1990) utilized a method in which response latencies were measured as indicators of variations in the centrality of self-attributes. Adding to this growing evidence, the current study validates the heuristic value of using response latencies to assess the centrality of self-descriptive information.

Age Differences and Response Latencies

Response latencies were also used to examine potential age differences in access to key aspects of the self-concept. The results showed no significant differences in the response latencies of young and older adults for the MDAs, supporting the second hypothesis that attributes derived from self-defining memories would be accessed quickly and equally fast by younger and older adults. This suggests that semantic representations derived from self-defining autobiographical memories may hold a special (i.e., more central) place in the semantic space that makes up individuals' self-concept. We expected no age difference here because young people in late adolescence become capable of integrating multiple and more complex conceptions of self (Harter & Monsour, 1992). We have documented that young as well as older adults respond more quickly to attributes derived from self-defining memories for weeks after those attributes were originally derived from their memories. This supports the notion that like older adults, young adults have also developed a consistent core sense of self.

Contrary to our expectations, older adults responded more quickly than younger adults to general self-attributes. Older adults made quicker decisions about the relevance of an attribute regardless of whether it was a general self-attribute or MDA. Although this was not the original hypothesis, upon reflection, the most likely explanation for this result is that the self-concepts of older adults are more clearly defined than those of younger adults, and this difference may have affected both general attributes and MDAs.

Recall, preliminary analyses revealed that older adults' scores on the measure of self-concept clarity were significantly higher than younger adults' scores indicating that self-concept clarity was greater for older adults. With greater self-concept clarity, older adults should show greater clarity about who they are, but also greater clarity about who they are not. In keeping with this, older adults were quick to respond to attributes that were central to their conceptions of

self; in turn, they also responded quickly to attributes that were not part of their core sense of self or that were only peripherally related to their conceptions of self. For example, if a person has a clear sense of being extroverted, then that person would respond quickly to make a "ME" decision to that attribute, but also would decide quickly, in evaluating the general self-attributes, that the attribute "introvert" did not apply to his or her self-concept. Based on this result we should expect, in the future, that an individual with a clearly defined sense of self would respond quickly both to self-defining attributes and to general descriptors.

These findings converge with theoretical assumptions addressing developmental tasks associated with various stages across the life span. Theorists propose that the developmental tasks associated with adolescence and young adulthood focus on defining one's personal identity (Erikson, 1980). McAdams (1996) asserts that people accomplish this task by developing their life story, starting in childhood and coming together in adolescence. The individual's sense of self continues to evolve throughout adulthood as the life story is further developed (McAdams, 1996) which may result in a more clearly defined sense of self in later life (Bauer, McAdams, & Sakaeda, 2005; King, Scollon, Ramsey, & Williams, 2000), although this has rarely been examined. Self-concept development has been well documented throughout childhood and adolescence (Damon & Hart, 1988; Harter, 1998), but not in later life. Numerous theorists have suggested that adults' self-concepts are dynamic and change to meet developmental demands across the life span, and have suggested a person's self-concept may become an important resource in facing the challenges associated with the aging process (Brandtstädter & Greve, 1994; Cross & Markus, 1991). When faced with age-related challenges, the flexible adjustment of self-representations in a manner that also allows for self-continuity and stability of self-concept is one way in which a person's self-concept may act as a psychological resource (Greve

& Wentura, 2003). The finding of this study, adds to this previous literature by explicitly examining those central aspects of the self-concept expected to play a role in self-continuity as a person ages.

Salience of Semantic Representations Derived from Self-Defining Autobiographical Memories

Attributes derived from a person's self-defining autobiographical memories, by definition, are expected to be related to central aspects of a person's self-concept. Central aspects of a person's self-concept should be more salient than attributes that are more peripheral to that person's self-concept. Therefore, the salience ratings for MDAs were expected to be significantly higher than the salience ratings for general self-attributes, and that expectation was confirmed. The attributes rated as most salient were those attributes derived from the autobiographical memory narratives. This finding supports the view that self-defining autobiographical memories become represented semantically in memory as a part of a person's self-concept, and it lends further support to the growing belief that autobiographical memory and identity are undeniably coupled (Conway & Pleydell-Pearce, 2000; McAdams, 1996). To date there have been no studies requiring participants to rate the salience of self-attributes related to their self-defining autobiographical memories. However, the findings in this study converge with similar work that relates participants' response latencies to attributes as an indication of salience (Fekken & Holden, 1992; Markus, 1977; Sanitioso et al., 1990). The high salience ratings given to MDAs also substantiate the value of this methodology of deriving attributes from autobiographical memories. In this respect, this study makes an important methodological contribution to the current literature.

Age Differences and Salience

If self-concept continues to develop across the life span as many theorists have suggested, one would anticipate differences in older and younger adults' conceptions of the self. In that the developmental task associated with adolescence and young adulthood is creating a multidimensional self-concept, one would expect the self-concepts of younger adults to be somewhat less defined than those of older adults who have had considerably more time to think about and refine their self-concepts. This developmental pattern should be reflected in the salience ratings of self-attributes.

As expected, compared to younger adults, older adults rated their MDAs as significantly more salient. These findings converge with previous studies that demonstrate variations in self-representations at different points across the lifespan in the content, structure, and organization of the self-concept (Campbell et al., 1996; Cross & Markus, 1992; Diehl et al., 2001; Donahue et al., 1993; Freund & Smith, 1999; Kling et al., 1997). These findings also suggest that the central position of MDAs seems to make them robust against the age-related decrements that are usually observed with regard to the speed of accessibility of other kinds of semantic content (Kausler, 1994; Perfect & Rabbitt; 1993; Riby, Perfect, Stollery, 2004).

Objective 2: Relationships among Valence of Self-defined Memories, Individual Differences, and Psychological Well-Being

A number of scholars have suggested linkages between autobiographical memory, individual difference variables, and psychological well-being (Grossbaum & Bates, 2002; McAdams et al., 2004; Moffitt & Singer, 1994; Rubin & Siegler, 2004). Here, we have placed an emphasis on the valence of self-defining autobiographical memories. We expected valence to play a central role in the relationships among variables representing aspects of the self. Valence seems to be a promising aspect of autobiographical memory to act as a psychological resource

(Grossbaum & Bates, 2002). First, the valence of an autobiographical memory that a person selects to rehearse or reflect upon may influence his or her current mood. By focusing on personal memories that impart positive affect, individuals may ultimately enhance their overall psychological well-being. In addition, the valence of autobiographical memories shows associations with other key aspects of the self. Scholars have noted that the emotional valence of autobiographical narratives is related to personality (McAdams et al., 2004) and to well-being (Grossbaum & Bates, 2002). In this study, we chose to focus on participants' ratings of the positive valence associated with their self-defining memories. Although this approach is slightly different from earlier studies that examine overall valence, we believe our measure adequately captures the positive valence of autobiographical memory narratives.

In an attempt to further understand these interrelationships, correlations were calculated among variables: positive valence of self-defining autobiographical memories, individual difference variables (self-concept clarity, positive affect, extraversion and neuroticism) and psychological well-being.

The positive emotional valence of self-defining autobiographical memories was expected to correlate positively with self-concept clarity, positive affect, and extraversion. Conversely, a negative association between positive valence of autobiographical memories and neuroticism was expected. Neuroticism tends to be positively associated with anxiety and negatively associated with subjective well-being. Therefore, finding an inverse relationship between positive valence and Neuroticism would be expected. We also examined valence and other individual difference variables in relation to psychological well-being. A positive association between positive valence of autobiographical memories and positive aspects of psychological well-being was expected. Additionally, positive associations were also expected amongst self-

concept clarity, positive affect, extraversion and psychological well-being. Conversely, a negative relationship was expected between neuroticism and psychological well-being.

Valence of Self-Defining Memories and Individual Difference Variables

As was expected, higher positive valence scores (associated with the self-defining autobiographical memories) tended to be associated with higher levels of self-concept clarity. This suggests the valence individuals assign to self-defining experiences is linked to stronger conceptions of self, an issue left unexplored in previous research. Higher levels of self-concept clarity reflect higher levels of coherence and better integration of a person's self-concept. (Campbell et al., 2003). Interestingly, the central events that people used for their self-defining memories were often very negative. Overall, it was not triumph and success at the core of people's self-defining memories; rather tragedy, personal crises and challenge were at the heart of these narratives. To ultimately portray these events in a positive light, that is, to maintain a high positive valence rating, individuals would need to integrate the positive as well as negative aspects of such events, or they would need to hold in mind multiple, and quite possibly disparate, conceptions of the self simultaneously. In this way, positive valence for self-defining autobiographical memories could be related to the unity of one's self-concept; a higher positive valence may reflect the fact that this integration process has occurred. Such a unified or well-integrated self-concept should be associated with higher self-concept clarity.

Correlation analyses also supported the association between positive valence of autobiographical memories and neuroticism. Higher levels of positive valence associated with the self-defining autobiographical memories tended to be associated with lower levels of neuroticism, suggesting that the valence individuals assign to self-defining experiences is linked to aspects of the self. This study supported earlier findings related to positive valence of autobiographical memories and neuroticism (McAdams et al., 2004; Rubin & Siegler, 2004).

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Contrary to the stated hypothesis, a relationship between positive valence of autobiographical memories and overall positive affect was not evident; nor was the relationship between positive valence of autobiographical memory and extraversion significant. Although earlier studies examined overall emotional tone, based on these findings, positive valence of autobiographical memories was expected to correlate with both positive affect and extraversion (Rubin & Siegler, 2004). Specifically, Rubin and Siegler (2004) found participants' scores on measures of Extraversion correlated with phenomenological characteristics of the autobiographical memory narratives related to emotional tone of the narrative. This unexpected finding may be related to differences in the administration order of the respective measures in these two studies. The measure of affective state in this study was given some time after participants completed narrating their autobiographical memories. Therefore, the measure of positive affect may not have adequately captured participants' affective state at the time that the autobiographical memory was shared.

Valence of Self-Defining Autobiographical Memories and Psychological Well-Being

An association between valence of autobiographical memory and psychological well-being has been established in previous research (McAdams, Reynolds, Lewis, Patton, & Bowman, 2001; Josephson et al., 1996). Psychological well-being, in a broader sense, is intimately connected to affect. The valence of autobiographical memories influences a person's affective state. Thus, the valence of self-defining autobiographical memories should influence psychological well- being.

The expected relationship between positive valence and psychological well-being was supported by the data of this study. Participants who reported higher levels of positive emotions associated with their self-defining autobiographical memories also reported higher levels of psychological well-being. This finding could have multiple interpretations and deserves further

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exploration. Perhaps, focusing on the positive aspects of one's AMs may allow people to bolster important self-representations in a manner that facilitates psychological well-being. It may also be the case that a person's ability to integrate positive and negative aspects of life-changing events is associated with structural aspects of self-concept that are linked to psychological well-being.

Individual Difference Variables and Psychological Well-Being

Although not directly related to the predicted hypotheses, several significant associations among the individual difference variables and psychological well-being were noted. A strong relationship between self-concept clarity and psychological well-being was in evidence. Higher levels of self-concept clarity were associated with higher levels of psychological well-being. This suggests a united view of oneself is particularly important to psychological well-being. This finding converges with previous work by Campbell and her colleagues (Campbell et al., 1996; Campbell et al., 2003). Campbell and her colleagues (1996) found evidence of a strong relationship between self-concept clarity and several other psychological variables associated with psychological well-being. Using a different measure of self-concept unity, self-concept differentiation, Diehl and his colleagues (2001) also found a relationship between the unity of adults' self-concept and psychological well-being.

Participants who reported higher levels of self-concept clarity also reported higher levels of positive affect. This finding converges with previous work by Campbell, Assanand, and di Paula (2003). They found moderate correlations between lower levels of self-concept clarity and higher levels of negative affect. Although negative affect and positive affect should not be construed as opposing constructs, the findings from this study further clarify the relationship between self-concept clarity and affect.

An association was noted between self-concept clarity and neuroticism. Participants who reported higher levels of self-concept clarity reported lower levels of neuroticism, supporting earlier work (Campbell et al., 1996). Lower levels of neuroticism are normally associated with higher levels of psychological well-being (Keyes et al., 2002; McCrae, 1983). Thus, the relationship noted in this study between self-concept clarity and neuroticism can be seen as providing additional evidence of the link between self-concept clarity and measures of psychological well-being.

Objective 3- Valence as a Mediator

The third major objective of the study was to explore the role of positive valence of self-defining memories as a mediating variable between individual difference variables and psychological well-being. Several theorists have proposed that adults may use their autobiographical memories to adjust their self-concept in response to age-related challenges and/or losses. The autobiographical memories people focus on or rehearse can influence their current affective states. In this manner, a long-term focus on autobiographical memories with positive valence may lead to higher psychological well-being. If self-defining memories are central to the self-concept, the valence of these memories may be more powerful than individual differences, such as personality traits, in their impact on well-being. Valence may influence the way in which other individual difference variables, such as self-concept clarity, positive affect, extraversion, and neuroticism affect well-being, even though these variables should also show a significant relationship with psychological well-being (Campbell, Assanand, and di Paula, 2003; McAdams et al., 2004; Rubin & Siegler, 2004). Here, we explored the possibility that the positive valence of self-defining autobiographical memories would mediate this relationship, at least partially.

As expected, the individual difference variables (self-concept clarity, positive affect, extraversion, and neuroticism) significantly predicted the positive valence of the self-defining autobiographical memories. This converges with previous research suggesting that certain individual difference variables are related to specific phenomenological characteristics of autobiographical memory, specifically emotional valence of the memory (McAdams et al., 2004). For instance, Rubin and Siegler (2004) also found evidence of a link between individual differences in personality traits, such as extraversion, and ratings of emotionality for autobiographical memory narratives. The present study also expands upon earlier research. Neither positive affect nor self-concept clarity has been included in earlier studies examining individual differences and valence of autobiographical memory.

As expected, the individual difference variables (self-concept clarity, positive affect, extraversion, and neuroticism) reliably predicted psychological well-being. These findings support previous research. Keyes, Shmotkin, and Ryff (2002) showed that psychological well-being increased as extraversion increased and neuroticism decreased. Likewise, Campbell and her colleagues (Campbell et al., 1996; Campbell et al., 2003) also demonstrated the relationship between self-concept clarity and psychological well-being. Here, a set of individual difference variables were entered as a block, so that their interrelationships were considered in predicting well-being – the impact of each variable was evaluated while the others were controlled for. Using this procedure, it was apparent that self-concept clarity was the most important predictor of well-being. I will discuss this issue more in the following section.

The positive valence associated with individuals' autobiographical memories emerged as a significant predictor of psychological well-being, although it accounted for only a small portion of the variance. This finding supports previous research showing that variations in the valence of

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individuals' autobiographical memory narratives may be associated with levels of psychological well-being (Grossbaum & Bates, 2002; Seidlitz & Diener, 1997). Grossbaum and Bates (2002) found levels of positive emotional valence of autobiographical memory narratives to be correlated with several domains of psychological well- being, including Self-Acceptance, Positive Relations with Others, Environmental Mastery and Purpose in Life as measured by Ryff's Short Psychological Well-being Scale (Ryff, 1989). Additionally, Seidlitz and Diener (1997) found that individuals who recalled more positive autobiographical memories also had higher scores on measures of psychological well-being.

Positive valence failed to mediate the impact of the individual difference variables on psychological well-being. Although positive valence did not play the expected mediational role in this sample, future research may yet discover that this approach has validity. There are a number of different ways to assess the valence of an autobiographical memory. The present study used a particular approach, focusing on the positive ratings for self-defined memories. This was the first attempt to test this mediation, and alternative methodologies may yet prove more fruitful than this particular approach (see future directions). Instead, the strongest finding in these regression analyses was the powerful impact of self-concept clarity on psychological well-being, accounting for over 25% of the variance. Given that self-concept clarity reflects an integrated unified conception of self, this finding supports earlier studies that have demonstrated the relationship between psychological well-being and self-concept unity, in the form of self-concept clarity (Campbell et al., 2003) and self-concept differentiation (Diehl et al., 2001; Donahue et al., 1993).

Study Limitations and Future Directions

Limitations

There were 3 primary limitations of this study. There were two limitations associated with the methodology. A third primary limitation was associated with the sample characteristics.

Creating unique lists of self-attributes for each participant had advantages and disadvantages. There were two primary issues that must be taken into consideration when faced with such a task. The first issue is associated with the general self-attributes, the second with the MDAs.

Although the list of general self-attributes used in this study was carefully chosen based on empirical evidence of its psychometric properties and use in previous studies, the list may nevertheless suffer from certain limitations. There were several issues considered when choosing this particular list of traits. The list of self-attributes used in this study (Sheldon et al., 1997) was a subset of attributes from a more comprehensive list of traits originally compiled by Goldberg (1992). Sheldon and his colleagues (1997) scrutinized the subset of self-attributes and demonstrated that the list reflected attributes associated with the five major personality factors captured by the NEO-FFI (Costa & McCrae, 1989). Although any valid list of attributes will contain general traits that will adequately capture individual traits, such a list could also fail to include one specific self-attribute that might be central to a particular individual. By adding those important central self-attributes derived from individuals' self-defining memories, we created lists of self-attributes that were unique for each participant, lists that we knew included individual traits that would be endorsed. In doing so, we no longer had a single general list of traits that all participants used for their ratings. Nonetheless, I believe the advantage of adding self-attributes derived from participants' memories outweighed the inherent disadvantages of using slightly modified trait lists across participants.

The second challenge was to create valid lists of MDAs based on participants' memory narratives. Although carefully controlled, culling self-attributes from the memory narratives proved to be a daunting and complicated task, one in which certain decisions with regard to practicality had to be made. Precautions were taken to assure that the lists of MDAs reflected the meaning the participants intended. First, the coders were trained extensively and were required to maintain a minimum level of agreement with regard to the attributes taken from each narrative. Nonetheless, both coders were young adults of a similar age and background. Although the coders were in agreement with each other with regard to the MDAs, it is possible that the salience of specific words chosen as MDAs could vary for different age groups. For example, an older adult may assign a slightly higher salience rating to the word "feisty" compared to a more contemporary synonym chosen by the coders, such as "spunky". In order to address this potential limitation, salience ratings were used as a manipulation check to assure that the self-attributes derived by coders were accurate. The salience ratings showed that participants rated the MDAs as highly salient, certainly significantly more so than general self-attributes, demonstrating that the coders' words correctly represented important features of the participants' self-concept. An alternative approach might have been to ask participants to supply their own explicit self-attributes. This approach may have more accurately reflected participants' actual semantic representation of their self-concept. However, this could possibly have resulted in a list of MDAs that overwhelming represented positive traits, rather than both positive and negative traits. Complicated as it was, coder derivation of MDAs seemed like the best solution, and the obtained salience ratings verify the value of this approach.

Another issue related to generating an accurate list of MDAs is that the coders were not blind to the age and gender of the participants' narratives. Initial attempts to mask age and

gender resulted in meaningless incoherent narratives, therefore the narratives were left intact. This could have introduced an age or gender bias with regard to the MDAs selected by coders. If such biases existed, the selected attributes may not have been the most accurate reflection of the semantic representations embedded in participants self-defining autobiographical memories. Given a behavioral description embedded in the narrative that called for extraction of an implicit self-attribute, coders could have assigned different MDAs based on the age and gender of the participant. This could potentially result in lists of MDAs that reflected these biases of the coders. In order to address this potential bias, coders completed a scale measuring age bias (Palmore, 1998) and none of the coders displayed any age bias.

Another methodological limitation of this study involves differences in the age of the memories supplied by younger and older adults. By virtue of differences in their age, the amount of time that had passed since an event occurred could be markedly different for younger and older adults. For example, two participants narrating memories from the same developmental age, let's say adolescence, may represent a time passage of only a few years if both participants are young adults, yet for the older adult it may be 60 or more years since the event occurred. It could be that memories of important life events become more firmly entrenched in memory with time. This may result in the memory becoming more easily accessible, not because it is integral to a person's self-concept, but because it has been rehearsed more frequently. This potential issue is inherent in all autobiographical memory research.

The sample may have been the source of two additional limitations to the study. First, the diversity reflected in the sample was rather limited in three primary ways. Although the age range of the young adults was more than adequate, the majority of the young adults in the sample were college students rather than young adults working in the community. Bluck and Glück

(2004) noted differences in the degree to which adolescents, younger and older adults reported learning lessons from autobiographical memories that might impact their self-concepts. In the study conducted by Bluck and Glück (2004), the adolescent group consisted of people between the 15 years and 20 years of age and the young adult group consisted of people 30-40 years of age. Given that the young adult sample in this study consisted of individuals primarily between 18 and 22 years of age, the findings may not generalize to a young adult population consisting of a greater age range.

Additionally, in this sample the education level of both the older and younger adults was higher than one would expect to find in the general population. The relationship between levels of education and autobiographical memory is ambiguous. To date studies have not focused on the relationship between levels of education and self-defining autobiographical memories. However, a few studies have documented differences associated with levels of education and autobiographical memory (Borrini, Dall'Ora, della Sala & Marinelli, 1989; Cohen & Java, 1995). For example, Cohen and Java (1995) noted differences in higher degrees of accuracy and greater clarity of autobiographical recall was associated with higher levels of education. Conversely, in a study explicitly examining the relationship between levels of education and autobiographical memory, Janssen, Chessa, and Muerre (2005) did not find a significant impact of education on various aspects of autobiographical memory. The relationship between levels of education and autobiographical memory remains unclear. Likewise, the potential impact of education on autobiographical memory is not understood. Therefore, given that this sample is comprised of a relatively highly educated group of people, caution should be exercised when extending these findings beyond this study.

Finally, with regard to the sample, the ethnic diversity was limited. The young adults in the sample adequately reflect the ethnic diversity of the Alachua county census. However, even though a great deal of effort was made to recruit minorities for this study, the majority of older adults in the sample were Caucasian. The difficulty of obtaining an ethnically diverse sample of older adults is due in part to the fact that older adults make up less than 10% of the population of Gainesville. Recruiting an ethnically diverse sample in Gainesville requires much more time than that available for a dissertation project. Cultural variations in the development of autobiographical memory in children have been widely noted (Bauer et al., 2005; Nelson, & Fivush, 2004). However, recently a few studies have also noted ethnic variations in autobiographical memory narratives of adults (Janssen, Chessa, & Muerre, 2005; Wang & Conway, 2004). Given that these ethnic differences in adults' autobiographical memory have been documented and yet have received little attention to date, caution should be exercised when extending the findings from this study to ethnically diverse groups.

A second limitation related to the sample is that only two age groups, younger and older adults, were sampled. Clear differences were noted between response latencies and salience ratings associated with MDAs of younger and older adults. However, without including middle-aged adults in the study, conclusions about the changes in adults' self-defining autobiographical memories and self-concept across the life span cannot be substantiated. Including middle-aged adults in the study would provide a continuous age distribution and allow for more definitive statements to be made with regard to the relationship between self-defining autobiographical memories and self-concept across the life span

Similarly, the use of a cross-sectional approach limits conclusions about age-related patterns to a discussion of age differences. The presence of age differences in a cross-sectional

design could be due to cohort factors, and not just age-related change. A longitudinal or cross-sequential study would be necessary to properly address changes that may occur in self-concept and autobiographical memory over the course of the adult life span.

Therefore, beyond the confines of this sample and a cross-sectional design, one should exercise caution when drawing conclusions. Likewise, further exploration of the accuracy of the self-attributes drawn from self-defining autobiographical narratives should be conducted before definitive conclusions can be drawn. These limitations provide some direction for future study.

Future Directions

The study of the functions of autobiographical memory is still in its early stages. For the most part, what we know of the identity function of autobiographical memory is based in theory and as of yet, remains largely empirically untested. This study represents a first-step in exploring several aspects of autobiographical memory and self-concept. Specifically, this study empirically investigated the connection between self-defining AMs and semantic representations in adults' self-concept and demonstrated the effectiveness of using a semantic recognition paradigm to examine this connection. There are a number of directions for future study.

First, the semantic recognition paradigm allowed us to substantiate the link between adults' self-defining memories and self-representation. Now that the heuristic value of this paradigm has been established, it can be utilized in new studies exploring the relationship between adults' semantic representations and autobiographical memory. Specifically, age differences could be explored in the following manner. In this study, participants' response latencies were measured as they responded "ME" or "Not Me" to a variety of self-attributes. It may be informative to examine participants' response latencies to "Not Me" decisions in future studies. In earlier studies, examinations of response latencies to self-attributes that were either schematic or aschematic have been valuable (Markus, 1977; Sanitioso et al., 1990). In a similar manner,

examining response latencies of the "Not Me" decisions of younger and older adults would likely shed more light on the extent to which the self-concept is well defined in younger and older adults. That is to say, if younger adults have a less well-defined self-concept compared to older adults, younger adults would likely take longer to respond to "Not Me" attributes that are not associated with self-defining memories. It might also be interesting to include attributes that represent opposites of MDAs in a semantic recognition task. For example, if a person responds "Me" very quickly to the MDA "extroverted", one would also expect that person to respond quickly "Not Me" to the opposing attribute introverted. Significant differences in response latencies would be expected for older and younger adults when responding to attributes opposite to MDAs. Such an investigation may be able to provide additional support to the assumption that central aspects of a person's self-concept are semantically represented in autobiographical memory.

This study also offers the first exploration of the relationships among the valence of self-defining autobiographical memories, several individual difference variables and psychological well-being. Another logical step would be to include middle-aged adults in a comparable study. Earlier studies (Diehl et al., 2001) have demonstrated a non-linear relationship between certain individual differences related to unity of the self-concept and psychological well-being. Specifically, Diehl and his colleagues (2001) found a U-shaped relationship when examining the relationship between self-concept differentiation and psychological well-being across the adult life span, suggesting that the association between self-concept differentiation and psychological well-being varies in a systematic age-related way. Likewise, Ryff and Keyes (1999) noted differences in the salience for various dimensions of psychological well-being across age groups.

Although, including middle-aged adults in the study may prove enlightening, longitudinal studies would be necessary to truly understand variations in the self-concept across the life span.

It might also be informative to explore the various dimensions of psychological well-being individually for all age groups as opposed to examining a composite score of psychological well-being as done in this study. Ryff's (1989) measure of psychological well-being consists of six separate dimensions; autonomy, environmental mastery, purpose in life, personal growth, positive relations with others, and self-acceptance. These dimensions are interconnected in some ways, and many researchers use a composite score of the six individual dimensions as an indicator of psychological well-being. However, a number of studies have shown variations between these individual dimensions of psychological well-being and other psychological constructs (Campbell et al., 1996; Diehl et al., 2001). In addition, a few studies have found a relationship between various themes in autobiographical memory narratives, including those that incorporate emotional tone, and other measures of psychological well-being (McAdams et al., 1996; Seidlitz & Diener 1997; Woike et al., 1999). To date, only one other study has examined valence of autobiographical memory and individual dimensions of psychological well-being. Although not the primary focus of this study, Grossbaum and Bates (2002) found that the levels of positive emotional valence of the memory narratives were positively correlated with the following individual dimensions of psychological well-being: Self-Acceptance, Positive Relations with Others, Environmental Mastery and Purpose in Life. Ryff and Keyes (1995) assert that the salience of these dimensions of psychological well-being vary across age groups. Therefore, including adults of all ages in an examination of emotional valence of autobiographical memories and individual dimensions of psychological well-being may provide additional insight

In this research, we focused on the positive valence of autobiographical memory as a mediator. Another direction future studies might take would be to explore negative affect, in particular to examine the relationship of valence of self-defining memories as a protective resource for maintaining psychological well-being in the face of negative affect. If individuals can maintain an overall positive view of what they have learned from life, that is, a more positive valence for their self-defining autobiographical memories, they may be able to retain higher well-being even if they are currently experiencing negative affect. In this case, valence would serve as a mediator of well-being, mediating the influence of negative emotions (neuroticism, negative affect, depression). To examine this issue, we would look at valence balance (wherein negative valence scores are subtracted from positive valence scales), and predict that negative affect, by itself, would be associated with lower well-being, but that valence balance would mediate this relationship. Those individuals with a positive valence balance for their self-defining memories would be expected to maintain moderate to high well-being, whereas those with a negative valence balance for their autobiographical memories would be expected to have lower well-being.

We already established that individual difference variables such as self-concept clarity and affect have been shown to have an impact on psychological well-being (Biggler, Neimeyer, & Brown, 2003; Campbell et al., 1996; Diehl et al., 2001). Constantino, Wilson, and Horowitz (2006) did not find a significant association between self-concept clarity and depressive symptoms. However, evidence of an association between self-concept clarity and participants' perception of stress was noted. Specifically, higher levels of self-concept clarity were associated with decreased perception of stress levels (Constantino et al., 2006). Upon examining daily measures of affect and self-concept clarity, Nezlek and Plesko (2001) found co-variations in self-

concept clarity and affect. Perhaps negative valence of autobiographical memories influences self-concept clarity and other individual difference variables that in turn negatively influence psychological well-being.

Conclusions

The purpose of this research was to explore the relationship between autobiographical memory and self-concept. Specifically, the semantic recognition task employed in this study provided insight into the relationship between the identity function of autobiographical memory and individuals' self-concept. Response latencies and salience ratings to MDAs and general self-attributes were used to investigate the relationship between adults' semantic representations of self and self-defining autobiographical memory. Both young and older participants responded more quickly to MDAs than to general self-descriptive self-attributes. Additionally, younger and older adults responded equally fast to MDAs. No previous studies have compared response latencies to MDAs with response latencies to general self-attributes. Through the use of a semantic recognition task, this study documented the link between adults' self-defining autobiographical memory and self-concept.

In addition, salience ratings of MDAs were also examined. Older adults rated their MDAs as significantly more salient than young adults. However, salience ratings for general-self attributes were not significantly different for younger and older adults, as expected. Salience ratings of MDAs have also not been examined heretofore. Therefore, these findings make a unique contribution to the existing literature by illustrating the relationship between adults' self-defining autobiographical memories and semantic representations that constitute a person's self-concept.

By continuing to examine age-related differences in response latencies to MDAs and general self-attributes, as well as salience ratings, we can achieve greater understanding of

changes related to adults' conceptions of self that occur across the life span. Semantic representations of individuals' self-concept are clearly present in individuals' self-defining autobiographical memories and a semantic recognition paradigm can be used effectively to examine the link between aging and the nature of these self-representations. The computerized semantic recognition task allowed for more sophisticated measurement of semantic representations of adults' self-concept compared to standard paper-and-pencil measures or card-sort tasks used in past research (Linville, 1987, 1992; Showers, 1992.) The methodological paradigm selected for this research – examining salience ratings and response latencies to attributes – proved to be a valuable tool for understanding the identity function of autobiographical memories in adults.

The relationship between positive valence of autobiographical memories, individual difference variables and psychological well-being was also examined. Positive valence of self-defining autobiographical memory predicted a small portion of the variance in scores on psychological well-being. However, the individual differences variables, Self-Concept Clarity, PANAS-Positive Affect, Neuroticism, and Extraversion, accounted for a much greater portion of the variance in well-being. Unexpectedly, positive valence did not mediate the relationship between the individual difference variables and psychological well-being in this study. The strongest factor predicting well-being was self-concept clarity, demonstrating that a person's ability to conceptualize and maintain a unified self-concept plays an important role in psychological well-being.

This study extends earlier findings related to valence of autobiographical memory and psychological well-being in two ways. First, with one exception (Grossbaum & Bates, 2004), researchers investigating these relationships in the past have conceptualized psychological well-

being as a lack of negative symptoms. For example, low levels of depressive symptoms are used to indicate psychological well-being (Costa, Metter, & McCrae, 1994; Keyes et al., 2002; McCrae, 1983). Researchers investigating the relationship between psychological well-being and autobiographical memory have also conceptualized subjective well-being as an indicator of psychological well-being, using measures of life satisfaction and self-esteem (Seidlitz & Diener, 1997). Ryff and her colleagues (2002) assert that although subjective well-being and psychological well-being may be conceptually similar, they are empirically distinct. Recall in this study, psychological well-being was conceptualized using Ryff's (1989) scale that measures eudemonic aspects of psychological well-being. These findings expand upon the existing literature by examining optimal overall psychological well-being, as opposed to a lack of negative symptoms

Another way in which this study expands upon earlier research is through the examination of a specific subset of autobiographical memories, those that are self-defining. In this way, we may draw some more specific conclusions about the role of the identity function of autobiographical memory as it relates to psychological well-being. I believe this is an important distinction; it may be that not all types autobiographical memories play a role in psychological well-being. For example, autobiographical memories that serve the general-knowledge function may have no impact on psychological well-being. Alternatively, other types of autobiographical memories may augment psychological well-being. For example, of the plethora of autobiographical memories a person may choose to rehearse, share, or review, if he or she selects those self-defining memories associated with positive affect or affirming views of self, this should lead to enhanced psychological well-being.

Overall, these findings show promise for future investigation of the connection between the identity function of autobiographical memories and their effects on individuals' self-concept across the life span. The study of the self-concept in relation to individuals' autobiographical narratives provides a unique window of insight into the continued development of the self-concept across the adult life span. In particular, a semantic recognition paradigm is well suited to examining the link between self-defining autobiographical memories and the semantic representation of individuals' self-concept. Additionally, examining the relationship among the valence of self-defining autobiographical memories, individual difference variables, and psychological well-being is a fruitful avenue for exploring the role of individuals' self-concept as a resource in negotiating the challenges associated with the aging process.

1. How old were you when this event occurred? _____

2. How important was this event in your life?

   Not at all   A little   Somewhat   Quite a Bit   Extremely

3. How well can you <u>see</u> the events connected with this memory in your mind?

   Not at all   A little   Somewhat   Quite a Bit   Extremely

 3. How often do you think about this memory?

   Rarely   Once in a while   Sometimes   Fairly Often   Very Often

4. How clear is your memory about this event?

   Not at all   A little   Somewhat   Quite a Bit   Extremely

5. How often do you tell this memory to someone else?

   Never   Once in a while   Sometimes   Fairly Often   Very Often

6. How vivid is this memory?

   Not at all   A little   Somewhat   Quite a Bit   Extremely

7. How well can you <u>hear</u> the events linked with this memory in your mind?

   Not at all   A little   Somewhat   Quite a Bit   Extremely

8. How strong are the feelings that are connected with this memory?

   Not at all   A little   Somewhat   Quite a Bit   Extremely

9. How would you describe the feelings connected with this memory?

| Very Positive Negative | Mostly Positive | Somewhat Positive | Somewhat Negative | Mostly Negative | Very |

10. How much impact did this event/experience have in terms of who you are today?

Not at all   A little   Somewhat   Quite a Bit   Extremely

What is the main thing you learned about yourself from this event/experience?

_____

_____

APPENDIX B
CODING SCHEME SELF-DEFINING MEMORIES

The purpose of this section of the manual is to specify the rules and procedures associated with extracting the self-defining attributes from participants' memory narratives and creating the memory-derived self-attribute list. First, key terms associated with memory coding will be defined. Next, you will find, instructions for coding the memory narratives in order to extract self-attributes. Finally, the procedures for preparing the self-attribute list for the semantic recognition task will be explained.

Key Terms Associated with Coding

Self-Defining Memories. Self-defining memories are those memories that contain essential information about the self. Self-defining memories are distinct from other memories in that they are very vivid, emotionally charged, frequently recalled, and often revisited to aid self-understanding. Self-defining memories often occur as the result of an event in a person's life that caused a noticeable change or resulted in an extraordinary insight. Memories of this type become semantically represented as part of a person's self-concept; that is, self-defining memories become the "building blocks" of a person's identity and self-definition and are the integral parts of that person's self-concept. It is the semantic representations associated with self-defining memories that are the focal point of this study.

Self-Attributes. Self-attributes are adjectives or characteristics (honest, cranky, joyful, careless) that describe who a person is. Self-attributes are generated when we ask an individual the question "Who are you?". In this project, we are looking for self-attributes embedded within self-defining memory narratives. For the purpose of this coding task, we distinguish between two major categories of self-attributes: explicit self-attributes vs. implicit self-attributes.

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Explicit Self-Attributes. Explicit self-attributes are usually expressed in the narrative as self-descriptive adjectives (self-attributes). For example, "I was really <u>rebellious</u> in high school". In this case, the participant is providing a clear and obvious self-descriptive attribute. You will find additional examples in the section on explicit coding on page 4.

<u>Implicit Self-Attributes</u>. In contrast to explicit self-attributes, implicit self-attributes are usually not expressed in a direct and obvious way. Rather, they are somewhere "between the lines" and require that you understand the meaning of the narrative. To say it differently, implicit self-attributes are embedded in the behavioral description and it is the job of the coder to uncover them.

<u>Example</u>: " Okay, I was making this map of Florida for school. And, you know, I really wasn't that into it I guess. I put it together, and I thought it looked okay. I didn't really think that much about it. There was this big blob of glue on it and some fuzz or something got stuck to it. I wasn't really paying attention and it didn't seem like that big of a deal to me….."

In this example, the participant provides a behavioral description that equates with being careless or perhaps messy. Therefore, there would be two implicit self-attributes that should be extracted from this narrative.

You will find additional examples in the implicit coding section on page 6.

Coding the Memory Narratives

The content of each memory narrative will be examined and coded in order to create a list of self-attributes for later use in the semantic recognition task. Transcripts will often contain a clearly stated, single-word self-descriptive attribute (explicit self-attribute). In addition, many narratives will also contain behavioral exemplars of self-attributes (implicit self-attributes). Most memory narratives will contain several self-attributes, explicit as well as implicit. Therefore, thorough coding will require the coders to carefully examine the narratives several times,

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concentrating first on explicit self-attributes and then on implicit self-attributes. The following section specifies the procedures for coding the memories along with examples of both explicit and implicit self-attributes. Please concentrate on coding only <u>one </u>memory and <u>one</u> type of self-attribute at a time.

<u>Explicit Self-Attribute Coding.</u>

The first time you examine a protocol, focus <u>only</u> on coding <u>explicit self-attributes</u>. Please follow these steps in the order they are presented.

<u>Step 1</u>: Write the participant's ID number in the appropriate blank on the coding sheet.

<u>Step 2</u>: Read the entire memory and <u>pay attention </u>to possible explicit self-attributes.

<u>Step 3</u>: Read the memory again, but now <u>underline</u> any explicit self-attributes the participant mentions in his/her narrative.

<u>Step 4</u>: Print each explicit self-attribute on your coding sheet.

<u>Step 5</u>: Write the total number of explicit self-attributes in the appropriate line on your coding sheet.

Examples of Explicit Self-Attributes

Example 1- Explicit. In the following passage, the participant derived multiple messages about himself or herself from a single episode. Also note, that participants often narrate an entire episode ending with what they learned about themselves, or in what way the event was meaningful with regard to their sense of self. Therefore, it is important that you need to read the entire memory narrative.

"……I needed help moving the tricycle back up the onto the concrete slab and the same time that happened my mother came out the front door and saw me and chided me for not doing

it myself. I guess what comes to mind is, I <u>wasn't competent</u>. I felt, well I felt like I'm <u>not very</u>

<u>smart</u>."

Implicit Self-Attribute Coding

After the transcripts have been coded for explicit self-attributes, coders should focus on

extracting implicit self-attributes, those based on behavioral descriptions embedded in the

narratives. Often times a participant will provide a phrase or paragraph detailing his/her behavior

as an example of a time that he or she displayed a certain self-attribute. Likewise, there are times

when a given sentence or phrase does not contain information about a particular self-attribute,

however, when the entire section is read, a particular self-attribute becomes apparent. Therefore,

when reading the transcript it is important to ask yourself what personal characteristics or self-

attributes the text conveys.

Many times participants will actually offer multiple self-descriptive attributes in a single

passage. When this happens, it is important for you, the coder, to capture all of the traits

conveyed. There may be behavioral exemplars or implicit self-attributes in the same narrative

passage that contains an explicit self-attribute. Therefore, it is important not to disregard sections

of the narrative in which an explicit self-attribute has already been identified. Each section

should be read carefully focusing specifically on implicit self-attributes during the second phase

of coding.

In order to create the list of implicit self-attributes, it is necessary to come up with <u>one</u>

<u>word</u> that captures the essence of each self-attribute the participant is trying to convey. Although

coding requires you to ascertain the meaning behind the narratives, at the same time is important

to avoid over interpreting.

<u>Step 1</u>: Re-read the entire memory.

Step 2: Scan each section carefully and highlight with a <u>yellow</u> highlighter pen any phrases containing behavioral descriptions of implicit self-attributes.

Step 3: Write down the self-attribute reflected in the passage on your coding sheet.

Step 4: In the event that you encounter a behavioral description that cannot be reduced to a single self-descriptive adjective that adequately captures the participant's intention, you should try to summarize the meaning of the passage in a few words or a short sentence. Then highlight the passage with a <u>green highlighter</u> pen and circle the passage.

In the "Notes" section of your coding sheet, write "Needs Additional Attention" along with the page number(s). When you've completed coding the narrative, DO NOT FILE IT. Instead, place the narratives including the one that needed additional attention, with the coding sheet in the basket marked "Additional Coding Needed".

Step 5: When you have completed the coding, write the total number of implicit self-attributes in the appropriate line on your coding sheet. DO NOT write in a total number if you have behavioral descriptions without self-attributes (as in Step 4).

Step 6: Clip the narratives (not the coding sheet) together and place in the "narratives" file.

<u>Examples of Narratives Containing Implicit Self-Attributes</u>.

<u>Example 1- Implicit Self-Attribute.</u> In this example, the participant does not explicitly mention a single attribute. However, he or she describes the attribute implicitly.

"…. The summer before my senior year in high school, I got into this scholars program. There were people from all over Florida. The program was supposed to give you the experience of college. It was an introduction for college life. We had courses. But we also had all these activities. Things that I would never have done before. So, there were all these opportunities.

Like rock climbing, swing dancing, horse riding. Things I'd never done, stuff I just wouldn't really have tried before. I made up my mind that I was going to try things. In that program, I just felt like I should try things, do things. And I did. I tried all these new things. And it was great. I really learned that there are so many things out there to do, to try. It was just the best… So, it got easier and easier to try different activities. So now I'll try things, you know, I'll just try them and see if I like it or not ….."

In this example, the participant describes learning to be more adventurous and more self-confident. Thus, "adventurous" and "self-confident" would be the two implicit self-attributes that should be extracted from this narrative.

Example 2_ Implicit Self-Attribute. In the following example, again the participant does not specifically mention an attribute. Notice how the participant sets the stage and provides background information in the beginning of the narrative. He or she then culminates with the part of the event that had an impact with regard to his/her identity. This narrative nicely illustrates the importance of reading the entire memory in order to understand the meaning the participant derived from the event.

"I was a junior in college, and I was supposed to start applying for Law school. I really didn't want to go to Law school. I REALLY didn't want to. I'd just always knew I was going to be an attorney, like my dad. It was just assumed. Anyway, things were coming to a head. I knew one day, in the back of mind, I knew, I was going to have to tell my parents I wasn't going. So, finally I told my Mom and she told my Dad and we got into this big fight. He was saying he knew all along I'd never finish college. He said he wasn't going to pay for my apartment or my car insurance. He was done. At first, I was devastated, well and angry. Then, I thought I don't care what he says, I'm going to finish just to show him. He's wrong. I WILL finish. After that,

they did cut me off for the summer. But after that, I knew I could put my mind to something and do it. If it's something I want, I'll keep trying."

In this example, the participant shares a memory that lead him or her to think of himself/herself as "persistent", "determined" and "capable". Other self-attributes may also come to mind, like "independent". However, when the entire narrative is read (instead of the fragment I given here), you would realize that other self-attributes, like "independent" would not be included on the self-attribute list.

Creating The Complete Self-Attribute List For The Semantic Recognition Task

After you have extracted and made a list of the self-attributes expressed in the narratives, you will create the final complete list of self-attributes to be used in the semantic recognition task. Each participant's memory-derived self-attributes will be added to a list of 40 general self-attributes. Therefore, each participant will have his/her own unique list of self-attributes. The following section contains definitions of key terms and details the procedure for creating the self-attribute list for the semantic recognition task.

Key Terms Associated with the Semantic Recognition Task

General Self-Attributes. The general self-attributes are 40 self-descriptive adjectives chosen to represent a comprehensive list of general self-attributes. That is, these are characteristics that every person may, more or less, identify with. All participants will be presented with this list of 40 self-attributes.

Memory-Derived Self-Attributes. Memory derived self-attributes are the self-attributes extracted from the self-defining autobiographical memories. Each participant's unique memory-derived self-attributes will be incorporated into the list of general self-attributes.

Semantic Recognition Task. The semantic recognition task is designed to examine participants' reaction time to general self-attributes and memory-derived self-attributes. Using

Visual Basic software, participants will be presented with their own unique list of self-attributes containing the list of 40 general self-attributes along with their own memory-derived self-attributes. Participants will be asked to make a judgment regarding whether the presented attribute is self-descriptive or not by pressing a designated "Me" or "Not Me" button as quickly as possible.

Using the Self-Attributes Synonym Dictionary

Because we cannot use any of the self-attributes twice, each memory-derived self-attribute must be checked against the master list of 40 general self-attributes. Any memory-derived self-attribute that is identical to any of the general self-attributes should be replaced with a synonym taken from the <u>Self-Attributes Synonym Dictionary</u>. Likewise, if a participant mentions the same self-attribute more than once in his/her memory narrative, you should replace the self-attribute with a synonym from the Self-Attribute Synonym Dictionary.

<u>Example 1</u>. A memory narrative containing the self-attribute "*adventurous***".**

Adventurous is on the master list of general self-attributes. Therefore, "adventurous" cannot be used in the final self-attribute list.

Upon examining the Self-Attribute Synonym dictionary, you note next to the word "*adventurous*" is the synonym "*daring*". You add the word "*daring*" to the final self-attribute list in place of the word "adventurous".

<u>Example 2</u>. A memory narrative containing the self-attribute "*considerate***".**

"*Considerate*" is on the master list of general self-attributes. Therefore, "*considerate*" cannot be used in the final self-attribute list.

Upon examining the Self-Attributes Synonym dictionary, you note next to the word "*considerate*" is the synonym "*thoughtful*". You add the word "*thoughtful*" to the final self-attribute list in place of the word "*considerate*".

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Preparing the List for Use in Visual Basic

After you have completed the memory-derived self-attribute list, the list must be

formatted according to the criteria set forth by the Visual Basic program. Only the memory-

derived attributes are included on this list. Visual Basic will not read the attributes from the list

unless the list is in a specific format. Therefore, please perform this task with care. The following

section provides specific instructions with regard to formatting.

Step 1: On the computer, open the program called "Notepad". To access Notepad, click on the

"Start" button, and then go to "Accessories". You find "Notepad" under "Accessories".

Step 2: Type the participant's id number in the top left hand corner (Id 1507).

Step 3: Move the cursor down two lines before beginning the list of attributes.

Step 4: Type one attribute per line in all capital letters (e.g., HONEST). The font must be in

"Times-Roman" 12-point.

Step 5: After you have typed in all the memory-derived self-attributes, save the file under the file

called Notepad Rt. This file can be found in the "AMSR Study" under "My Documents". The

file name should be the same as the participant's ID number.

Step 6: Place the coding sheet in the file marked "Narratives-Coding Completed" and place in

the file cabinet. Please file in numerical order.

   Example_ Visual Basic Formatting.

Id 1507

FORGETFUL

BASHFUL

RESERVED

SENSIBLE

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BIOGRAPHICAL SKETCH

Angelenia Semegon's academic and research interest in aging began as an undergraduate at the University of North Florida. She graduated with honors, earning a B.A. in psychology, with a minor in behavioral science. She remained at the University of North Florida for Master's level graduate studies. After completion of her M.A. in psychology, she began her doctoral career at the University of Florida in 1998 where she joined the developmental area in the Department of Psychology. She was also a trainee in the NIA-funded Aging Training Program at the University of Florida and earned a Graduate Certificate in Gerontology. Angelenia completed the requirements her Ph.D in December, 2006.

Angelenia Semegon has been funded through a variety of mechanisms during her graduate studies, including a Pre-doctoral Fellow-National Institute on Health Research Service Award. A Ruth L. Kirschstein National Research Service Award from the National Institute on Aging funded Angelenia's dissertation project.