BEING ME OVER TIME: THE SELF-CONTINUITY FUNCTION OF AUTOBIOGRAPHICAL MEMORY IN ADULTHOOD

By

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Having a continuous sense of self over time is fundamental to the human experience. This experience of being me is implicit and often goes unnoticed by the individual but involves complex processes that are not well delineated. The current study integrates the functional approach to autobiographical memory (e.g., Bluck & Liao, 2013) and lifespan developmental theory (e.g., Baltes, 1997) to examine the interrelations among age (i.e., emerging and older adults), autobiographical reasoning presented in life event narratives, self-concept clarity, and having a global experience of self-continuity.

Participants are 187 emerging adults (N = 99; ages 18-23) and older adults (N = 88; ages 61-92). They completed measures assessing global self-continuity (i.e., point of view-continuity and core-continuity) and self-concept clarity. They then completed the Autobiographical Memory Task, orally sharing events that occurred in the last six years. Each shared two challenging life events and, for comparison, two non-challenging life events. All memory narratives were reliably coded for autobiographical reasoning
(Habermas & Bluck, 2000) in terms of self-stability and self-change themes (Pasupathi et al., 2007).

Findings show that older adults have a stronger sense of global self-continuity (i.e., point of view-continuity and core-continuity) than emerging adults. Older adults also have greater self-concept clarity and this, in part, explains how they maintain greater self-continuity than emerging adults. Levels of autobiographical reasoning were higher in challenging than non-challenging autobiographical memory narratives, regardless of age. As compared to older adults, however, emerging adults show more self-change in challenging but not non-challenging memory narratives. Additionally, narrating self-change in challenging memories is a liability for experiencing a sense of self-continuity in older adulthood. Self-change themes in challenging memories are related to lower core-continuity, only for older adults.

This study contributes to both the adult development and autobiographical memory literature. The findings help to articulate self and memory processes that foster and hinder the experience of self-continuity at different points in adulthood. Findings are discussed in terms of a lifespan developmental perspective on motivation across adulthood.
CHAPTER 1
INTRODUCTION

Self-continuity is a fundamental human experience. It refers to the subjective sense of being the same person over time regardless of changes in one’s personality or life circumstances (Bluck & Alea, 2008). The importance of having a continuous sense of self has been well documented: it helps individuals cope with life difficulties (Sadeh & Karniol, 2012) and acts as a protective factor for mental health (Chandler & Proulx, 2008). This study examines the experience of self-continuity in emerging and older adulthood. The central research question is: how do adults maintain a subjective sense of being the same person at different points in the lifespan and, in particular, when facing challenging events? Note that self-continuity is diachronic, referring to one’s past but also to one’s imagined future (e.g., Klein, 2013). The current research focuses solely on continuity between the present self and the personal past, the life already lived (Erikson, 1980).

Among various mechanisms that help individuals maintain the experience of self-continuity (for a review see Sani, 2008), researchers argue that self-continuity is highly dependent on, and indeed a function of (Bluck & Alea, 2002), autobiographical memory (Prebble, Addis, & Tippett, 2013). Our conceptual model, Role of Autobiographical Memory in Self-Continuity (RAM-SC; Bluck & Liao, 2013), illustrates how a sense of self-continuity is maintained by, on one level, chronological records of life’s events and experiences stored in personal memory and, at a second level, retrospective autobiographical reasoning (Habermas & Bluck, 2000) about those memories.

Since these memory mechanisms are in place, a sense of self-continuity is usually seamlessly experienced and is seldom consciously noticed in everyday life. This
continuity, however, can be disrupted by challenging life events (Habermas & Köber, 2015b) such as accident, illness, or loss of a loved one. Researchers argue that when one’s sense of self-continuity is challenged, autobiographical reasoning is required in order to re-forge the sense of self-continuity (Bluck & Liao, 2013; Habermas & Köber, 2015a). This line of thinking and the RAM-SC model provide a basis for the current research.

While the RAM-SC model (Bluck & Liao, 2013) delineates how autobiographical memory serves a self-continuity function, it does not explicitly take a developmental approach. The current study thus combines the functional approach to autobiographical memory with the lifespan perspective (Baltes, 1987, 1997). Across adulthood, individuals’ motivation concerning self-development shifts from developing a sense of self to maintaining what has been developed (Atchley, 1999; Brandtstädter & Greve, 1994; McAdams & Olson, 2010). Given that developmental context plays a critical role in the functional use of autobiographical memory (Bluck, Alea, & Demiray, 2010; Neisser, 1997), one’s place in the lifespan (i.e., emerging or older adulthood) should provide a distinct context for autobiographical reasoning to serve the function of experiencing self-continuity.

The major contribution of the current study is testing the interrelations between autobiographical reasoning in the face of challenge (i.e., life events that threaten one’s sense of self), self-concept clarity, and the experience of self-continuity in two adult age groups. The relations between these factors have been theorized (Bluck & Liao, 2013; Pasupathi, Mansour, & Brubaker, 2007) but to date, research is sparse and has only tested these relations separately (e.g., Habermas & Köber, 2015a; Ritchie, Sedikides,
Thus, both theoretical and some empirical groundwork has been laid for examining the interrelation of all these constructs using more complex modeling procedures.

**Maintaining Self-continuity: One Function of Autobiographical Memory**

Self-continuity has been theorized as a basic function of autobiographical memory for decades (Baddeley, 1988; Bluck & Alea, 2002; Pillemer, 2009). Only recently, however, have researchers aiming to elucidate self-continuity (e.g., Prebble et al., 2013) based their work explicitly on autobiographical memory theories (e.g., Conway & Pleydell-Pearce, 2000; Conway, Singer, & Tagini, 2004; Tulving, 2005). We have also addressed this in our Role of Autobiographical Memory in Self-continuity model (RAM-SC; Bluck & Liao, 2013). The model states that use of autobiographical memory and particularly *autobiographical reasoning* (Habermas & Bluck, 2000) is critical in maintaining a sense of self-continuity in the face of challenging life events that disrupt the self. Autobiographical reasoning involves interpretative thinking or talking about personal life events. It allows individuals to reframe and make sense of their past events in ways that create coherence with one’s current sense of self (McAdams, 2013).

To provide a rationale for the current study aims, the next section gives an overview of the RAM-SC model (Bluck & Liao, 2013) and summarizes past research relating autobiographical reasoning to self-continuity.

**The RAM-SC Model**

The RAM-SC model (Bluck & Liao, 2013) theorizes that autobiographical memory plays a role in the two levels of experiential self-continuity: chronological and retrospective. That is, the subjective sense of being the same person over time encompasses two interwoven experiences: “I *know* that the person I remember being as
a child is who I am today” (i.e., *chronological self-continuity*), and “I understand that I have been the same person over time despite all the time that has passed and all the events that have occurred in my life (i.e., *retrospective self-continuity*). These two types of self-continuity occur in tandem. The two-level conceptualization of self-continuity is based on memory retrieval process outlined in the Self-Memory System model (SMS; Conway et al., 2004), the most prominent model of the organization of autobiographical memory (Baddeley, 2012). According to the SMS model, the retrieval of autobiographical memory involves interactions between the episodic memory system and the long-term self. Based on this, the RAM-SC model theorizes that differential involvement of the long-term self during memory retrieval produces the two levels of experienced self-continuity. Though both are described below, the focus of the current research is on retrospective self-continuity: how people understand themselves as continuous across events, even ones that challenge the self.

**Chronological self-continuity.** Supported by memory records (i.e., episodic memory), chronological self-continuity provides a basic sense of being the same person over time. That is, one knows that the person they were as a child is also, literally, the person they are today. The long-term self is only marginally involved in this retrieval process, and the force of correspondence with lived reality (i.e., correspondence versus coherence; Conway et al., 2004) is dominant. The existence of one’s own personal past as a child is effortlessly recognized with the support of memory records of having ‘been me.’ At this level, simply recalling past episodes from different times in one’s life creates a sense of chronological self-continuity. This is experienced as an effortless sense of knowing via autobiographical remembering that ‘I have existed chronologically over
time.' Developmentally, basic self-recognition in childhood (Howe & Courage, 1997; Harter, 2012) and normative development of an understanding of temporality in relation to the self (Friedman, Reese, & Dai, 2011; Povinelli & Simon, 1998) may be the minimum requirements for experiencing chronological self-continuity. The maintenance of a chronological sense of self is resilient even in the face of environmental threats and change.

**Retrospective self-continuity.** Supported by both memory records and developed self-knowledge (i.e., the long-term self; Conway et al., 2004), retrospective self-continuity enables a higher-level understanding of being me over time. That is, the long-term self is more fully involved in the memory retrieval process. The principle of coherence (Conway et al., 2004) gains dominance. For example, when one’s episodic memories are relevant to their personal motives (e.g., agency) those memories are structured in accord with the long-term self. A retrospective sense of self-continuity is maintained as individuals constructively organize memories about the past in ways that fit their current self-understanding. In particular, the *life story schema* (Bluck & Habermas, 2000), the highest level of autobiographical knowledge in the long-term self (Conway et al., 2004), plays a larger role in maintaining retrospective self-continuity. The life story schema refers to individuated mental organization about one’s past in which selective life events are stored in a coherent way that models a person’s life experiences (Bluck & Habermas, 2000). The schema guides how individuals remember their life experiences.

Aside from the simple act of autobiographical remembering, the maintenance of retrospective self-continuity also involves higher-level social-cognitive processing, that
is, autobiographical reasoning (Habermas & Bluck, 2000). Autobiographical reasoning refers to interpretative processes about one’s life experiences (McAdams & McLean, 2013). It involves autobiographical recall but also reflective thinking about the personal past. This creates a rich individualized sense of continuity of the self over time. It is a relatively effortful understanding that “me” involves a highly-connected life story that is experienced via both remembering and reasoning that links together events and experiences over time.

Retrospective self-continuity is constructed and reconstructed through reasoning. This allows a flexible, dynamically evolving sense of continuity. This flexibility also means that one’s experience of self-continuity can be subject to environmental threats and situational challenges. Challenging life events (e.g., major illness, loss of job), for example, may disrupt the retrospective sense of self-continuity. It is vital for adults of any age to be able to resolve a sense of personal discontinuity when it arises. As such, the current study focuses on the maintenance of retrospective sense of self-continuity, in the face of challenge in two adult age groups. Specifically, this study examines one’s retrospective sense of global self-continuity, that is, an overall feeling of being the same person over long periods of time (see also, Habermas & Köber, 2015a; Sedikides, Wildschut, Routledge, & Arndt, 2014).

**Using Different Types of Autobiographical Reasoning to Forge Self-Continuity**

Dramatic changes in one’s environment or life circumstances can act as threats that diminish established self-continuity. In the RAM-SC model (Bluck & Liao, 2013), we claim that when the sense of continuity is disrupted, autobiographical reasoning is required to re-forge self-continuity. Through reasoning, individuals make sense of experiences in their lives, creating causal links or associations between the self and
those experiences. Across adulthood, individuals become increasingly skilled in using autobiographical reasoning to connect their life experiences into a coherent life story (McAdams, 2013) that bridges the past and present self.

There are various aspects of autobiographical reasoning (for a review see McAdams & McLean, 2013). Among these, autobiographical reasoning that creates self-event connections is theorized to play a critical role in maintaining self-continuity (Pasupathi et al., 2007). Self-event connections foster continuity as they are ways in which the individual explicitly ties past events to the current self, either by explicitly recognizing how they have remained stable across an event or series of events, or by explaining how the self has changed through life experiences (Pasupathi et al., 2007). By creating these self-event connections in their retrospective thinking about life, individuals integrate even challenging life events into a coherent life story, thereby creating the perception of a continuous trajectory of self over time.

**Autobiographical Reasoning: Self-stability**

This type of self-event connection involves assimilating events into existing representations of the self (Habermas, 2011), that is, describing a past event in terms of how it links to a stable self-conception that has existed for some time (Pasupathi et al., 2007). This may be particularly important when one faces life events that shake or challenge one’s sense of who they are as a person. As Bauer and Bonanno (2001) suggested, reasoning about challenging life events (e.g., death of a husband) that focuses on stable self-conceptions is a transformative process. It allows individuals to carry forward valued aspects of the self across discrete and sometimes disturbing life events. Pasupathi et al. (2007) suggest that individuals can maintain a sense of self-continuity through self-stability reasoning by reasoning how the event acts as an
endorsement of an already developed self-conception (e.g., Yes, I have always been a very strong person) or by dismissing a non-conforming aspect of the self from a past event (e.g., I’m not really like that. I was just tired that day). In their established coding manual for self-defining memories, Singer and Blagov (2000) also suggest a type of autobiographical reasoning focused on stability. In other words, individuals can incorporate a past event into the current self by indicating ongoing significance of the event to the self (e.g., And to this day, I have always been proud of how I dealt with that - how I stood up for myself).

**Autobiographical Reasoning: Self-change**

One can also bridge the past and present by explaining how a past event has led to self-change. Pasupathi et al. (2007) describe how discontinuity can be mended through autobiographical reasoning that explains how one came to see one’s self differently as a result of a past event, or how an unknown part of the self was revealed through reflection of an experience. When one’s sense of self is disrupted by challenging life events, comprehending the influence of those events on the self, developing a story of what has happened, and how one has changed, is critical. Ironically, a sense of self-continuity is forged when one resolves tensions (e.g., I realized that though I’m basically a nice person, I can also become quite vicious if I’m really pushed), or can clearly trace changes (e.g., I was young and naïve then, but I see now that I need a more realistic view to get through life) between the personal past and present self (Habermas, 2011).

**Evidence that Autobiographical Reasoning Relates to Self-continuity**

Though prominent theories converge on the idea that autobiographical memory serves the function of maintaining a sense of self-continuity, direct empirical research is
sparse (Prebble et al., 2013). The two known studies are reviewed here. Adopting qualitative method, Bauer and Bonanno (2001) show the utility of autobiographical reasoning in forging self-continuity in a sample (N = 36) of middle-aged adults who had recently lost their spouse. They found that the reasoning process allowed the bereaved to transform their view of self in the face of loss. A woman, for example, re-forges continuity after the loss of her husband, who was among many things, her long-standing golf partner. The woman gave up golf when her husband died. At first, the participant felt that she had lost her old self and was just not a golfer anymore. However, she then realized that she indeed had continuity through reasoning that focused on self-stability. She stated: “It made me realize that, even though I primarily played with him before, it’s something that I enjoy that I can do on my own that I’m capable of, that I can do things that we did together, and I can do them well and enjoy them and have a good time.” (Bauer & Bonanno, 2001, p. 139). Their findings suggest that a sense of self-continuity can be maintained when one uses self-event connections to recognize the self has stable qualities before and after a loss.

Though this work provides insights, the purely qualitative design limits the generalizability of the findings. Using a lifespan sample (N = 150; 16-69 years), Habermas and Köber (2015a) conducted the first study testing this relationship with a mix-methods design (i.e., content analysis and quantitative analysis). They found a positive association between autobiographical reasoning about one’s most important life events and a global sense of self-continuity. Note that this association only appeared in adults who had experienced extensive life changes in the past four years, though, suggesting that actively maintaining self-continuity only becomes necessary under
significant distress. Both study’s findings are consistent with autobiographical memory literature (e.g., Bluck & Liao, 2013; Habermas & Köber, 2015b), supporting the critical role of autobiographical reasoning in reinterpreting life challenges for regaining a sense of self-continuity.

Unanswered Questions: Considerations for the Current Research

Habermas and Köber’s (2015a) study leaves some questions unanswered. First, the majority of adults who had experienced life changes were young people (i.e., only two older adults in the extreme group), implying that the positive association between autobiographical reasoning and self-continuity may apply to young but not older adults. The study may have suffered from a mismatch in the differential timeframe measurement of autobiographical reasoning in events being recalled (i.e., from across a lifetime) and individuals’ sense of self-continuity (i.e., over last four years). Older adults are, simply due to years lived, able to recall more distal events than the young. Their reasoning about those distal events may thus be less relevant to their recent (i.e., last four years) self-continuity. Emerging adults, in contrast, are likely to recall events that happened over the last four to ten years and their reasoning concerning those events is thereby likely to link more closely to their current self-continuity. The current study addresses these issues by recruiting an age-balanced sample, fixing the timeframe of events to be recalled, and having the ratings of one’s experience of self-continuity at six years in both age groups. All participants recall life events that happened in the past six years and rate their self-continuity over the last six years.

Secondly, though Habermas and Köber’s (2015a) findings (i.e., an association found only in those who experienced significant life changes) suggest that autobiographical reasoning may be more critical to the sense of self-continuity when
recalling challenging life events, they did not test this assumption by comparing recall of significant and everyday (i.e., more mundane) events. The current study collects both challenging life events (i.e., negative events that challenged the self) and non-challenging life events (i.e., everyday life events produced in response to neutral cue words). The inclusion of non-challenging events allows testing the claim that autobiographical reasoning is critical to self-continuity particularly when one faces life challenges. Though a positive association between autobiographical reasoning and a sense of self-continuity is expected, regardless of type of memory, the link should be stronger for challenging memories than for non-challenging autobiographical memories.

Third, past research (e.g., Habermas & Köber, 2015a) did not differentiate self-stability from self-change. Theories argue that both of these aspects of autobiographical reasoning foster a sense of self-continuity (e.g., Habermas, 2011; Pasupathi et al. 2007). This issue has not been empirically explored and the view that using both self-stability and self-change equally fosters a sense of self-continuity does not take into account the possibility of developmental shifts in autobiographical reasoning. Shifts in motivation from growth in younger adulthood to maintenance later in adult years (e.g., Baltes, 1997; Brandtstädter & Greve, 1994) may necessitate differentially use of self-change and self-stability reasoning. As such, the present study examines the two aspects individually (i.e., self-stability, self-change) in relation to emerging adults’ and older adults’ experience of self-continuity. The study is thereby aligned with a lifespan developmental view of maintaining self-continuity.

**Maintaining Self-Continuity: A Lifespan Developmental Perspective**

As Chandler and Proulx (2008) point out, the issue of self-continuity emerges when individuals transit from one stage or circumstance to another. Across adulthood,
individuals continue to make transitions and face life challenges. For example, young people in modern society experience prolonged transitional years in emerging adulthood (Arnett, 2000) before transitioning to adulthood. Individuals in late adulthood experience developmental transitions as they encounter the task of preserving gains and preventing losses (Baltes, 1997). As such, the maintenance of self-continuity is theorized to be an important issue across adulthood in the RAM-SC model (Bluck & Liao, 2013).

The current study further delineates the model by using lifespan theories (i.e., continuity theory; Atchley, 1999; intentional self-development; Brandtstädter, 1999) to make predictions about how self-continuity may be differentially maintained in emerging and older adults. To provide a rationale for study aims, the next section integrates the functional approach to autobiographical memory with lifespan theories to elucidate how one’s age might affect the experience of self-continuity and also the use of autobiographical reasoning to serve the function of maintaining such continuity.

**A Lifespan View of Experiencing Self-continuity**

Movement across the adult lifespan entails motivational changes from striving for growth to focusing on growth but also clearly on maintenance and loss prevention (Baltes, 1987, 1997). In the realm of self-development, maintaining a sense of self-continuity becomes increasingly important across adulthood. Brandtstädter (1999), for example, argues that self-maintenance is an important form of self-development in late adulthood. He contends that “the basic vectors of intentional self-development shift from expansion or self-actualization toward maintenance and defense of established self-definitions” (Brandtstädter, 1999, p. 56). Continuity Theory (Atchley, 1999) also supports this view. It argues that the established self can be viewed as an investment that people
have actively shaped across adulthood. The established self thus becomes a central
investment that individuals are motivated to keep secure in the second half of life. The
need to hold a sense of self-continuity is also important for emerging adults as
maintaining a continuous sense of self is part of one’s newly developed biographical
identity (Habermas & Bluck, 2000). As compared to later in adult life, however, their
need to maintain self-continuity is likely less intense: they are more motivated to engage
in self-growth tasks such as identity exploration (Arnett, 2000; Marcia, 1966) in tandem

These life phase-specific motivations also likely differentially prompt emerging
and older adults to engage in autobiographical reasoning using self-stability and self-
change. The RAM-SC model (Bluck & Liao, 2013) argues for the importance of using
autobiographical reasoning to mend self-continuity when it is challenged. The model,
however, does not indicate whether individuals in different adult life phases are likely to
rely on different types of reasoning to make sense of life’s events. As the functional
approach to autobiographical memory indicates, human memory is not a static recorder
but a dynamic changing system that allows individuals to respond to particular
contextual demands (Neisser, 1997; Bluck et al., 2010). One’s place in the lifespan is a
unique ecological context (Bronfenbrenner, 1994) shaping the use of personal
memories to maintain self-continuity (e.g., Bluck & Alea., 2008). As such, the current
study examines whether there are age differences in using self-stability versus self-
change to forge a sense of self-continuity in emerging and older adulthood.

Age Differences in the Experience of Self-continuity

Lifespan theorists contend that individuals in later life are motivated to maintain
high levels of self-continuity. That is, compared to emerging adults, older adults should
experience a stronger sense of self-continuity. Empirical research is limited but supports this claim. One recent study (Habermas & Köber, 2015a) found that older adults held a stronger sense of continuity: they felt more connected with, and familiar with, their personal past than young people.

Two other studies examining single adult groups suggest that older adults experience a continuous sense of self. One study assessed stability or change in personality in a large middle-aged sample (N = 2242; Herbst, McCrae, Jr. Costa, Feaganes, & Siegler, 2000). The majority of adults perceived that their overall personality had stayed about the same over the past six years, though some changes were identified. Investigating the perceived continuity in adults over 85, Troll and Skaff (N = 144; 1997) reported that 74% indicated they were the same person over time (i.e., no change). This pattern was replicated one year later in the same sample. In short, though older adults recognize changes in personality across time, they feel that at core they are the same person.

In sum, to provide additional empirical evidence, the current study adopts two measures from past research (i.e., Habermas & Köber, 2015a; Sedikides et al., 2014) to examine age differences in a global, retrospective sense of self-continuity in emerging and older adults.

**Age Differences in Autobiographical Reasoning**

One potential contributor accounting for older adults’ greater sense of self-continuity is the extent to which individuals are able to use autobiographical reasoning to structure past life events (Bluck & Liao, 2013; Habermas, 2011; McAdams, 2013; Pasupathi et al., 2007). Past studies generally show that older adults present more autobiographical reasoning in life narratives than emerging adults (e.g., integrative
meaning; Singer et al., 2007). The use of self-stability and self-change have been theorized to be crucial to the experience of self-continuity (Pasupathi et al., 2007), even though empirical studies that specifically focus on autobiographical reasoning using self-stability and self-change are still limited. The current study thus focuses on whether emerging and older adults differentially use self-stability and self-change to reason about their life experiences, and whether these two aspects of autobiographical reasoning account for the age differences in individuals’ sense of self-continuity. Three empirical studies directly examining age differences in overall self-event connections or self-stability and self-change are reviewed.

Pasupathi and Mansour (2006) explicitly analyzed age differences in self-event connections in two lifespan samples but different patterns were found. In their first study (N = 63; 18-86 years), they found a quadratic trend in memory narratives of personal crisis: middle-aged adults produced more self-event connections than younger adults, but a downward trend appeared in older adulthood. No age differences were found in memory narratives of turning points. In a second study (N = 115; 18-89 years), a linear age effect was found: older adults more frequently created self-event connections than younger adults in personal memories of miscellaneous life events. McLean (2008), in contrast, found no age differences in the overall production of self-event connections in self-defining memories between younger (N = 85; 15-35 years) and older adults (N = 49; 65-85 years). Instead, age differences were found when self-stability and self-change were separated from one another. Compared to younger people, older adults more frequently present autobiographical reasoning of self-stability but less reasoning using self-change.
In a study that aimed to disentangle episodic memory characteristics from the search for meaning, a positive association was found between age and autobiographical reasoning using self-event connections (Sample B: N = 168; 8-65 years; Habermas et al., 2013). Self-event connections were assessed by levels of reasoning regarding change or indication of one’s personality or emotions. Their findings show an increasing trend in narrating self-event connections. Pair-wise comparisons showed that, however, the only significant increase appeared across adolescence. Production of this type of self-event connection dropped from midlife (40 years) to older adulthood (65 years). Habermas et al. did not directly test age differences between the older adult group (65 years) and emerging adults (20 years), but the developmental pattern in their study suggests no age differences between the two age groups.

Past research presents mixed findings. It may be that the operationalization of self-event connections in past research has collapsed reasoning about self-stability and self-change (e.g., Habermas et al., 2013; Pasupathi & Mansour, 2006). As shown in McLean (2008), age differences were found when self-stability statements (older adults showed more) were separate from self-change statements (younger individuals showed more). With an aim to explain the differential experience in self-continuity in emerging and older adults, the current study examines autobiographical reasoning that explicitly narrates self-stability (aspects of the self that remain similar) and self-change (i.e., aspects of the self have changed due to life events). It is expected to replicate McLean’s (2008) findings but extend it to challenging and non-challenging memories.
Issues for Consideration in the Current Study

Three separate lines of past research suggest that autobiographical reasoning could be a potential path helping older adults maintain a stronger sense of self-continuity than emerging adults. In one study, autobiographical reasoning was linked to a sense of self-continuity (Habermas & Köber, 2015a). Age differences in the experience of self-continuity and autobiographical reasoning have also been documented (Habermas & Köber, 2015a; McLean, 2008). The current study thus tests whether autobiographical reasoning using self-stability and self-change is a mediating path between age group (i.e., emerging versus older adults) and the experience of self-continuity. Based on past research, however, two issues must be considered.

First, autobiographical reasoning using self-stability or self-change is theorized to foster a sense of self-continuity (Pasupathi et al., 2007). Reasoning about stability as compared to reasoning about change may have different effects on one’s experience of self-continuity. The age difference findings found in McLean (2008) suggest this possibility. That is, given older adults more frequently use self-stability but less frequently show self-change when describing past life events, it is possible that through narrating high stability and low change older adults are able to maintain a stronger sense of self-continuity than emerging adults.

Second, a discussion of the relation of autobiographical reasoning to self-continuity would be incomplete without some consideration of self-concept clarity. Self-concept clarity refers to individuals’ sense of how clearly and coherently their self is defined (Campbell et al., 1996). Theoretically, self-concept clarity can be seen as part of one’s conceptual self in the long-term self (Conway et al., 2004) which should foster a sense of self-continuity. One study found a positive link between self-concept clarity and
one’s experience of self-continuity (e.g., Ritchie et al., 2010). Older adults have been shown to have greater self-concept clarity than emerging adults (Bluck & Alea, 2008). Given researchers argue that (e.g., Habermas & Köber, 2015b) simply having a clear sense of one’s self may not be sufficient for maintaining self-continuity in the face of life difficulties (e.g., Boelen, Keijsers, & van den Hout, 2012), the current study addresses this issue. That is, the study focuses on the relation of autobiographical reasoning (i.e., self-stability and self-change) to maintain self-continuity in the face of challenge, but also assesses self-concept clarity as an additional means that may aid older adults in holding a stronger sense of self-continuity than their younger counterparts.

**Specific Aims and Hypotheses**

Taken together, the current study tests interrelations among age, autobiographical reasoning, and self-concept clarity to explain the differential experience of self-continuity in emerging and older adults. Both autobiographical reasoning and self-concept clarity are expected to be effective mediating paths helping older adults maintain a stronger sense of self-continuity than emerging adults. Specific aims and hypotheses are presented.

**Aim 1: Test Adult Age Differences in Global Self-continuity**

The first aim is to test age differences in the two aspects of global self-continuity, point of view-continuity and core-continuity.

- **Hypothesis 1.** It is expected that older adults will score higher than emerging adults on both aspects of self-continuity.
Aim 2: Test Adult Age Differences in Autobiographical Reasoning

The second aim is to test age differences in autobiographical reasoning (i.e., themes of self-stability and self-change) in challenging as compared to non-challenging autobiographical memories.

- Hypothesis 2.1. For self-stability, a main effect of age group is expected. Older adults are expected to more frequently present self-stability than emerging adults. An interaction of age group by memory type in self-stability is expected. Older adults are expected to show greater self-stability than younger adults in challenging memories, more so than in non-challenging memories.

- Hypothesis 2.2. For self-change, a main effect of age group is expected. Older adults are expected to less frequently present self-change than emerging adults. An interaction effect of age group by memory type is also expected. Older adults are expected to show less self-change than emerging adults in their challenging memories with no difference in non-challenging memories.

Aim 3: Test Autobiographical Reasoning and Self-Concept Clarity as Mediators between Age Group and Global Self-Continuity

Based on expected age difference findings in global self-continuity (Aim 1; older adults score higher) and autobiographical reasoning (Aim 2; older adults show more self-stability and less self-change in challenging memory narratives), the third aim is to examine the mediating role of autobiographical reasoning (i.e., self-stability, self-change) to explain the relation between age group and global self-continuity.

- Hypothesis 3.1. Self-stability in challenging memories will partially mediate the relation between age group and global self-continuity. That is, more frequent production of self-stability in challenging memory narratives is expected to be, in part, responsible for older adults’ stronger sense of self-continuity than emerging adults.

- Hypothesis 3.2. Self-change in challenging memories will partially mediate the relation between age group and self-continuity. That is, less frequent production of self-change is hypothesized to be, in part, responsible for older adults’ greater sense of self-continuity than emerging adults.

- Hypothesis 3.3. The mediation effects of autobiographical reasoning (i.e., self-stability, self-change) are expected to be robust with the inclusion of self-concept clarity as an additional mediator. Self-concept clarity is expected to be a mediator
that also partially explains higher levels of self-continuity in older than emerging adults.

Aim 4: Explore Whether the Interaction between Age Group and Autobiographical Reasoning Predicts Global Self-Continuity

It is also possible that autobiographical reasoning (i.e., self-stability, self-change) in challenging memories is a moderator. That is, autobiographical reasoning may interact with age to predict global self-continuity (i.e., point of view-continuity, core-continuity).

- Hypothesis 4.1. Producing greater self-stability in narrating challenging memories may be related to greater global self-continuity for older adults but not for emerging adults.
- Hypothesis 4.2. Producing less self-change in narrating challenging memories may be related to greater global self-continuity for older adults but not for emerging adults.
CHAPTER 2
METHOD

Participants

The sample consists of 187 adults, including 99 emerging adults (men = 48, women = 51) and 88 older adults (men = 40, women = 48). Twelve participants were excluded. This included three participants who reported three or more inaccurate responses out of five foil items (one young and two older adults), one older adult who did not complete the session, and nine participants (three emerging and six older adults) who did not provide valid challenging life events.

Emerging adults were college students who ranged from 18 to 23 years old (M = 19.42, SD = 1.25). Students who signed up for the study were contacted via email to schedule an in-person session. They received course credits for participation. With regard to ethnicity, 53.5% were Caucasian, 20.2% were Hispanic, 15.2% were African-American, 7.1% were Asian, and 4% self-identified as other. About one-fifth of emerging adults were part-time employed. As compared to people their age, they rated their health as 'good' (M = 1.87, SD = 0.82; 1 = very good, 6 = very poor) and their positive mood as 'moderate' (M = 3.79, SD = 0.81) with negative mood on average as 'a little' (M = 1.7, SD = 0.86; 1 = not at all, 5 = extremely).

Older adults ranged from 61 to 92 years old (M = 71.73, SD = 6.79). They were recruited from a variety of sources in the Gainesville, Alachua, and Marion County community. They received fifteen dollars as compensation. For educational background, 56.7% had either a Master's or a Ph.D. degree, 33.3% had a Bachelor’s degree, 7.8% had an Associate degree, and 2.2% completed either High School or Grade School. The majority of older adults were retired (78.9%), 17.8% had a full-time or part-time job,
3.3% reported their status as unemployed. The majority of older participants were Caucasians (92.2%). The remaining participants reported their ethnicity to be African-American, Asian, Hispanic, or other. As compared to people their age, they rated their health as ‘good’ ($M = 1.68, SD = 0.79$). They reported their positive mood as, on average, ‘quite a bit’ ($M = 4.07, SD = 0.73$) and their negative mood as between ‘a little’ to ‘not at all’ ($M = 1.53, SD = 0.71$).

**Procedures**

**Recruitment**

Emerging adults were from the participant pool in the psychology department. For older adults, a 5-minute phone interview for dementia screening was performed. Healthy, community-dwelling older adults who passed the screening were invited for an in-person session. Before the appointment, all participants were reminded of the scheduled appointment time, the location of the laboratory and parking. They were also reminded to have vision and hearing aids with them if needed.

**Data Collection**

Before data collection, all procedures and measures were pilot-tested on six emerging adults and one older adult. Feedback on the clarity of instructions, formatting issues and the amount of time needed to complete the material were used to refine the protocol. Pilot testing also served as training for the research assistants.

After signing an informed consent, all participants completed questionnaires assessing Demographic and Cognitive Ability. They also completed the measure of self-concept clarity and the two measures of global self-continuity. The administration order for the measures of self-concept clarity and self-continuity was counterbalanced within each age group. After this, the Autobiographical Memory Task (i.e., to elicit narratives of
two non-challenging and two challenging memories) was conducted. This was followed by manipulation checks and a questionnaire assessing memory vividness. The fixed order of administration of questionnaires and the Autobiographical Memory Task is to prevent the potential influence of memory recall (i.e., challenging memories) on participants’ response to self-report questionnaires.

In the Autobiographical Memory task, the administration of the two word cues (Corner and Bus) for eliciting non-challenging memories was counterbalanced within age group. In sum, two forms for administering measures were created to avoid potential confounds due to order of administration (Form A: self-concept clarity first, self-continuity measure after, word cue corner first, and bus after, Form B: reverse sequence).

Data collection was conducted individually in a quiet, comfortable room by a trained female research assistant. Following a standard script, a research assistant administered online questionnaires using Qualtrics. The study questionnaires were divided into multiple pages with a small number of questions on each page and appeared in large font size. The procedure ensured that participants could easily comprehend the questionnaires. In addition to monitoring by the research assistant, five foil items (i.e., items that simply give an instruction such as answer ‘strongly agree’ for this item) were embedded in the survey to ensure participants were paying attention to all items as they answered them. Research assistants also interviewed participants face-to-face, guiding them to complete the Autobiographical Memory Task which was audio-recorded.
The data collection took approximately one and a half hours to two hours. All participants took a 5 to 10-minute break between the administration of the self-report measures and the Autobiographical Memory Task. Water was provided throughout the session. Juice and snacks were provided during the break. Older adults signed a receipt for receiving compensation. All sessions ended with debriefing. Assistants escorted older participants back to the parking lot.

**Autobiographical Memory Task**

The memory task was designed to collect autobiographical memories. These were then content-coded and rated for autobiographical reasoning, including self-stability and self-change. Participants orally share four events that happened in the past six years. They first shared two non-challenging memories and then two challenging memories. This design was chosen for several reasons. First, the inclusion of non-challenging life events allows the present study to examine the claim that autobiographical reasoning regarding challenging life events (i.e., not just any autobiographical memories) are particularly relevant to the maintenance of self-continuity. Second, the fixed memory-sharing order (i.e., non-challenging memories and then challenging memories) ensured that recall of non-challenging memories would not be contaminated by recall of challenging memories. Third, the fixed time interval (i.e., events in the past six years), instead of using free recall of any challenging event from across one’s entire life, was used to control for potentially wide variation in selected events in the two age groups, simply due to older adults having lived longer. Also, past research indicates that adolescence is likely the developmental period in which individuals first experience challenges to self-continuity (Chandler, Lalonde, Sokol, & Hallett, 2003). The youngest participants in the current study were 18 years old. The
fixed time interval allows that the oldest possible memory in the emerging adult group would be from age twelve, falling within the developmental period of adolescence. The 6-year time interval was also used in the measure of global self-continuity to address Aim 3, testing the relation between autobiographical reasoning and self-continuity.

Throughout the task, the assistant did not converse with the participant except to provide instructions. The research assistant made only limited verbal responses (e.g., uh-huh) but acted as an interested listener (see Appendix A for the standard script). Methods for eliciting non-challenging and challenging memories are described next.

**Non-challenging memories.** The word cue method was used to elicit two memory narratives of non-challenging life events. This method is one of the most widely used methods in autobiographical memory research (Rubin, 2000). The participants were presented with one word cue at a time. They were instructed to generate the first autobiographical memory that came to mind in reference to that cue. Based on past research (Bradley & Lang, 1999), Corner and Bus were chosen as the cues. These two words have been rated to be emotionally neutral and low arousal and thus are appropriate for eliciting non-challenging memories. Participants had up to two minutes to recall an autobiographical memory related to the cue. They then had seven minutes to narrate the event aloud. If the participants did not use up the provided time, one prompt was given at the end of memory-sharing to probe for further details (i.e., *can you remember anything else about where you were, what you were doing, thinking or feeling?*). After recall of two memories, participants filled out manipulation checks and a questionnaire assessing memory vividness. This procedure was designed to be parallel to the recall of life events that challenge the self.
Challenging memories. Challenging memory narratives assess a time of turmoil where one’s sense of self feels disrupted by a life event. The Life Experiences Survey (adapted from Sarason, Johnson, & Siegel, 1978; see Appendix B) was used to facilitate the selection of two challenging memories. The 57-item Life Experiences Survey covers a wide range of life events that often require adjustment (e.g., loss of a close friend, leaving home for the first time). Participants first reported whether they had experienced each specific life event over the past six years. As a backup, they were also asked to list at least two additional important life events that were not in the survey but that they had found challenging. Participants rated the extent to which each specific event disrupted their sense of self on a 7-point Likert scale (1 = not at all; 7 = extremely). Both positive and negative life events were listed and organized into two sections. Once complete, the research assistants highlighted all of the negative events that were rated as highly disruptive (≥ 3 on a 7-point scale) and asked participants to select one of the highlighted events that they felt comfortable to share.

Following the standard procedure used for the recall of non-challenging life events, participants had two minutes to choose an event and seven minutes to verbally share the memory. If participants did not use all seven minutes, one prompt was given for probing further details (i.e., can you remember anything else about where you were, what you were doing, thinking or feeling?). The second challenging memory was collected using the same procedure. After recall of two memories, participants filled out manipulation checks and a questionnaire assessing memory vividness. In closing, the research assistant asked participants to share lessons learned from their shared
challenging life events. This procedure ensured that the session ended with a positive tone. Participants’ narration of life lessons was not included in the current study.

**Content-coding preparation.** The collected memory narratives were content-coded by trained coders for autobiographical reasoning, particularly for indications of self-stability and self-change. Before content-coding, several steps were performed to prepare for coding. First, the collected audio narratives were transcribed verbatim. Second, to facilitate coding and control for length of narratives, transcribed narratives were divided into idea units based on Baker-Brown et al. (1992) and paragraphing tips from the Purdue University Online Writing Lab. All narratives were also assigned a new identification number to avoid potential biases from knowing the age of the participants. Based on past literature (Bluck, Alea, Baron-Lee, & Davis, 2016; Habermas, 2011; Pasupathi et al., 2007; Singer & Blagov, 2000), a comprehensive manual, Coding for Autobiographical Reasoning using Self-stability and Self-change in Challenging and Non-challenging Memory Narratives, was developed. See Appendix C for details.

**Measures**

Dementia screening was administered by telephone for older adults as a screener for study participation. All other measures were administered in the order in which they are presented below (Form A).

**Dementia Screening**

The six-item Orientation-Memory-Concentration Test (Katzman, Brown, Fuld, Peck, Schechter, & Schimmel, 1983) was used. The measure has shown to be reliable for detecting dementia (Davous, Lamour, Debrand, & Rondot, 1987). Errors made on each item are weighted to yield a total possible error score of 28. Based on criteria set
by Carpenter et al. (2011), individuals with a total error score higher than six were not invited (n = 9). For the complete measure, see Appendix D.

**Demographics**

Participants’ age, gender, ethnicity, education, marital status, perceived health, and their current mood were collected. For perceived health, participants rated their current health on a single 6-point scale (1 = *very good*, 6 = *very poor*) compared with their same-aged peers (Maddox, 1962). For current mood, participants rated on 5-point scales (1 = *very slightly or not at all*, 5 = *extremely*) to indicate the extent to which they feel positive and negative right now. Descriptive statistics for these measures appear in the Participants section.

**Cognitive Ability**

As potential covariates of autobiographical reasoning, participants' cognitive ability, particularly of vocabulary, and episodic memory were assessed. A modified Nelson-Denny Vocabulary Test (Brown, Fishco, & Hanna, 1993) was used to assess vocabulary. The original test consists of twenty-five multiple-choice items. After pilot testing, one item was excluded due to the ambiguity concerning the correct response. Participants selected the best alternative for a given word. Composite scores were calculated with higher scores indicating better vocabulary. The Rey Auditory-Verbal Learning Test (RAVLT; Rey, 1941) was used to assess episodic memory. A trained research assistant read aloud a list of 15 words at the rate of about one word every two seconds. Right after, the participant recalled aloud to the assistant as many words as possible in any order in two minutes. The assistant wrote down answers on a piece of blank paper. A higher number of words recalled indicates better episodic memory. Measures of cognitive ability are presented in Appendix E.
Self-concept Clarity

A 5-item Self-concept Clarity Scale (modified from Campbell et al., 1996) was used to assess the extent to which participants perceive their self-concept as clearly defined. These five items were: *in general, I have a clear sense of who I am and what I am; even if I wanted to, I don’t think I could tell someone what I’m really like (R); my beliefs about myself often conflict with one another; I seldom experience conflict between the different aspects of my personality; sometimes I think I know other people better than I know myself (R); my beliefs about myself often conflict with one another (R)*. Participants rated agreement with each statement on a 5-point scale (*1 = strongly disagree, 5 = strongly agree*). Three items are reverse-scored. The reliability of the measure is good (*Cronbach α = .73*). Mean scores were used with higher scores indicating participants’ having a clearer self-concept.

Global Self-continuity

A global sense of self-continuity assesses one’s global sense of being the same person over time. The measure consists of eight items adopted from two studies (Habermas & Köber, 2015a; Sedikides et al., 2014). To match up with their memory recall, participants indicated the extent to which they feel connected with their past six years ago on 5-point scales (*1 = strongly disagree; 5 = strongly agree*). This six-year time frame was used to map the autobiographical memory task in which participants were instructed to recall life events that happened within the past six years.

The Global Self-continuity measure was subjected to Principle Component Analysis and Varimax rotation and two factors emerged. The first factor, Point of View-continuity, contains four items, assessing individuals’ perspective-taking regarding the extent to which their past is connected to the present. Items include: *when I think back*
to how I was six years ago, it feels a little unfamiliar (R); I feel connected with who I was six years ago; I feel that I can put myself “back in the shoes” of who I was six years ago; when I look at pictures of myself six years ago it feels a little unfamiliar (R). Two items were reverse-scored. The second factor, core-continuity, consists of three items indicating the extent to which individuals feel their core self has remained the same. These items were: I feel that, at my core, I am the same person I was six years ago; there is continuity in who I have been as a person over the past six years; important aspects of my personality have remained the same over the past six years. One item loaded on both factors and was therefore excluded.

The two subscales explained 64.7% of the total variance in global self-continuity with factor loadings ranging from .61 to .84. Cronbach’s alphas (αs = .77, .78) indicate that the two subscales are reliable measures. Mean scores were calculated. Higher scores indicate holding a stronger sense of point of view-continuity or core-continuity, respectively. The two subscales are positively correlated, $r = .57$, $p < .001$. As such, in later analysis (Aim 1), these two variables were treated as related dependent variables (i.e., MANOVA was used).

**Manipulation Checks**

Two items were used as manipulation checks immediately after each memory was shared. Participants rated on a 5-point scale (1 = not at all; 5 = extremely) to indicate the extent to which the event challenged them. This item was used to ensure that challenging memories were rated as more challenging than non-challenging memories. Participants also reported when the event happened. This item was used to ensure that all memories fell within the six-year timeframe.
Memory Vividness

As a potential covariate of autobiographical reasoning, memory vividness was assessed (Bluck, Levine, & Laulhere, 1999) using the following four items: *How vivid or clear in your mind is the memory you have for this event?* *As I remember the event, I feel as though I am reliving the original event; As I remember the event, I can see it in my mind; I can recall the setting where the event occurred.* Participants rated each item on a 5-point scale (1 = not at all; 5 = extremely). The measure shows great internal consistency for both non-challenging and challenging memories (Cronbach’s αs = .81, .84).

Autobiographical Reasoning: Self-stability and Self-change

This coding manual classifies how individuals narrate their life events using autobiographical reasoning that indicates (1) self-stability: maintaining a stable sense of self even in the face of selected challenging or non-challenging life events, and (2) self-change: described as due to the event. For narrative examples, see Table 2-1.

For each memory narrative, self-stability was first coded. Coders first assigned a score of 1 or 0 for the presence or absence of self-stability one idea unit by one idea unit. After completing the coding for self-stability for a memory narrative, coders went back from the beginning of the same narrative to assign a score of 1 or 0 for the presence or absence of self-change one unit by one unit. After coding for self-stability and self-change was complete, coders moved to the next narrative and repeated the procedure. This coding procedure ensures self-stability and self-change to be mutually exclusive within one idea unit.

Self-stability refers to autobiographical reasoning that reflects on one's sense of the self during or after the selected life event to characteristics that an individual already
had before the event. Specifically, individuals describe longstanding, self-qualities (e.g.,
traits, preferences) that are important to them (e.g., *I’ve been playing soccer since I was
five years old. That’s just what I do*), or how the selected event has been incorporated
into an existing aspect of the self as an exemplar (e.g., *I always recall this memory
when I want to remind myself why I keep fighting for social justice*).

In contrast, self-change refers to autobiographical reasoning that is used to
connect the self to selected life events by narrating new self-conceptions they
discovered after the event. Individuals describe how some new aspects of the self have
emerged (e.g., *So that night I received him for myself into my heart. I became a
Christian and a Christ follower*), or revealed due to the selected event (e.g., *I realized at
that point when I found out how angry he was that I took his friendship for granted and I
wasn’t a very good friend*).

**Coding procedures.** For each memory narrative, percentage scores of self-
stability and self-change were calculated: total score received in an entire narrative
divided by the number of idea units. This scoring procedure controls for narrative length
and provides straightforward meaning. For example, a self-stability score of 0.13
indicates that autobiographical reasoning regarding stability occurs in 13% of the idea
units in a participant’s memory narrative.

**Coder training and inter-rater reliability.** Two female undergraduate research
assistants who were blind to the hypotheses were trained to be reliable coders in a
period of twelve weeks. Practice coding narratives from pilot testing and past projects
were used for coder training. About 10% of the actual study memory narratives (n = 75)
were used to obtain inter-rater reliabilities using the Intraclass Correlation Coefficient
(ICC). Results indicate that self-stability and self-change were reliably coded (ICCs = .94, .90). Two reliable coders then coded all remaining memory narratives in seven weeks. Disagreements were resolved through weekly discussions. Self-stability shown in non-challenging memories and challenging memories was positively correlated, $r = .18$, $p < .05$. Self-change in non-challenging memories was unrelated to self-change in challenging memories, $r = .02$, $p = .82$. There were no associations between self-stability and self-change in non-challenging ($rs = .05, .03$, $ps = .50, .73$) and challenging memory narratives ($r = -.07; p = .36$). As such, in later analysis (Aim 2), autobiographical reasoning using self-stability and self-change were treated as two separate dependent variables (i.e., ANOVAs were used).

Table 2-1. Coding stability and change: examples from the narratives

<table>
<thead>
<tr>
<th>Coding</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-stability</td>
<td>Challenging memory: Negative change in usual type of recreation</td>
</tr>
</tbody>
</table>

Narrative: (1) So, I've always thought of myself as a healthy person. Even, when I was challenged with breast cancer, in 2002. I never identified with that, as part of me, as a healthy person. It sounds odd, but it's like- it happened to somebody else. Because, that's not who I am. (2) And so, last year as a result of the breaking of my elbow, I was severely limited in the amount of outdoor exercise and recreation I could participate in. And you know, that was very difficult. Because I've always, at the same time, had a healthy body image. Slim, fit, flat belly, you know just the whole, whole thing. Which is, in retrospect, so shallow and vain, from the body image perspective. (3) But all of a sudden, I couldn't get out and hike, and bike, and kayak. Because, I had fallen. I was timid, all of a sudden, about just walking up the road and being afraid I would fall. And, further injure myself. It really shook me because, that's not how I see myself, historically. (4) And even now, I'm starting now- I can feel my spirit, by the fact that I'm starting to heal. And, the elbow is stable. I can get out, or walk, at least. So, yeah. I just. Who I am, in my mind, a healthy strong individual, and that's even my mantra when I go to sleep at night. So strong, and healthy, and energetic, and I'm young at heart. That's my mantra. So, that limitation was very, I don't know, counter to how I view myself.
Table 2-1. Continued

<table>
<thead>
<tr>
<th>Self-change</th>
<th>Challenging memory: Increase in arguments with spouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrative: (1) In the recent past, you can say the last three months, three or four months, my wife has had some issues with dermatology surgeries. And because of her RA, it’s very difficult for it to heal, because the wounds are on her legs and that’s where the least circulation is. (2) She’s been uptight about it. I get uptight about it. Her patience is getting, continues to get shorter and shorter because she’s not able to do the things that she used to do. So I think that, and I’ve become, I’ve had to become quite a caregiver. Which doesn’t, which I don’t mind doing, you know. But it may have decreased my patience over time. So we do seem to snap at one another more than we have in the past. (3) For years and years and years and years we got along famously. We hardly ever argued about anything, had disagreements with anything. But I think because of this event, series of events, I think that it’s caused more change in the two of us than we have seen in the recent past. (4) That it’s just, you know, get around the house kind of things. That she requires more caregiving, which doesn’t bother me at all. I think that because she has to have more, it has caused her some of the same difficulties that she was less able to do the things she wants to do. It’s a reflection on me too, I think.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No reasoning</th>
<th>Non-challenging memory (Cue word = Bus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrative: (1) Well, my first memory is that my friend rides the bus everywhere. And two, three, four years before 2010, I was riding the bus a lot too. So the next memory that occurred to me was on the trip to Peru where we traveled everywhere by bus. And most of the time, it was a bus outfitted for tourists. (2) But one particular trip, there was a strike among the drivers. And so we had to ride a bus that, well, common people would ride. And it was an experience. It was very crowded, it was dirty. The toilet went right out onto the highway, flushed right out, didn’t even flush. And it was really, it was a hole. Very dirty. (3) So I guess that really gave us an insight into how the common people in Peru live. And from the windows of the bus, as we passed over the Alto Plano, I believe it is, high planes. There were plastic bags and plastic trash everywhere. So in Peru, sanitation is not a priority, except in the major cities and tourist areas.</td>
<td></td>
</tr>
</tbody>
</table>

Note: Numbers within each narrative demonstrate how narratives were divided by idea units.
CHAPTER 3
RESULTS

The results are organized into two sections. The first section presents preliminary analyses. The second section presents analyses in relation to the specific aims, testing major hypotheses.

Preliminary Analyses

Three sets of preliminary analysis were conducted. A manipulation check was first conducted to ensure that participants followed the instructions and reported valid data. The second analysis ensured that the order of administration did not have an effect on self-report measures of self-concept clarity or self-continuity and content-coding variables of self-stability and self-change in non-challenging memories (i.e., elicited by Corner and Bus). The final analysis identified potential covariates that should be included in major analyses.

Manipulation Checks

Two criteria, age of event and participants’ responses to the level of challenge of challenging memories after the recall, were examined. Age of event was first examined to exclude memories that happened more than six years ago. Descriptive statistics show that there were nineteen memory narratives (11 non-challenging and 8 challenging narratives) that happened more than six years ago. These memories were excluded from the current study. For the remaining memory narratives, non-challenging and challenging life events happened 2.56 (SD = 1.54) and 2.99 years ago (SD = 2.74), respectively. Independent t-tests show that there were no age difference in the time that event occurred for non-challenging memories, \( t(183) = 1.32, p = .19 \). Older adults’ challenging memories (\( M = 3.23, SD = 1.64 \)) were about nine months older than their
younger counterparts' ($M = 2.23$, $SD = 1.41$), $t(184) = 4.1$, $p < .001$. Age of challenging memories is further examined in the subsection on potential covariates.

Second, to ensure challenging memories posit a greater challenge to the self than non-challenging ones, a paired-sample t-test was conducted. As expected, participants reported that non-challenging memories challenged the self on average only ‘a little’ ($M = 2.1$, $SD = 0.95$), whereas challenging memories were rated to be self-challenging ‘quite a bit’ ($M = 3.9$, $SD = 0.93$), $t(162) = 18.94$, $p < .01$. These results indicate that the two memory types were successfully collected.

**Administration Order**

Two MANOVAs were conducted to examine whether the order of administration had an effect on participants’ responses. As expected, the order of administration did not have an effect on participants’ response to self-concept clarity, point of view-continuity and core-continuity, $F(3, 183) = 0.26$, $p = .85$. The order of administration did not have an effect on participants’ production of autobiographical reasoning (i.e., self-stability and self-change), $F(4, 171) = 0.66$, $p = .62$.

**Potential Covariates**

Pearson’s correlations were conducted to identify potential covariates (i.e., gender, vocabulary, episodic memory, age of challenging memories, vividness of non-challenging and challenging memories). Following Miller and Chapman (2001), these variables would be included as covariates if they met the following criteria: (i) variables solely related to the main variables of interest (i.e., autobiographical reasoning or self-continuity) were included in ANOVA-type analyses as covariates, and (ii) variables associated with age were included in regression-type analyses, because those variables were sources of heterogeneity between age groups and thus were
inappropriate to include in ANOVA-type analyses (Miller & Chapman, 2001). The inclusion of age-related variables in regression-type analyses helps to identify whether those variables are predictors of the main variables of interest.

**Gender.** As shown in Table 3-1, gender was unrelated to autobiographical reasoning and self-continuity variables. It was therefore excluded from later analyses.

**Cognitive ability.** As expected, vocabulary and episodic memory were related to age. Older adults ($M = 19.41$, $SD = 2.92$) had higher vocabularies than the younger group ($M = 11.64$, $SD = 3.27$), $F(1, 185) = 291.91$, $p < .001$. Emerging adults ($M = 8.03$, $SD = 1.75$) had better episodic memory than older adults ($M = 6.67$, $SD = 1.85$), $F(1, 184) = 26.75$, $p < .001$.

As shown in Table 3-1, vocabulary was negatively related to autobiographical reasoning using self-change in challenging memories and positively linked to point of view-continuity and core-continuity. Episodic memory was positively related to autobiographical reasoning using self-change in challenging memories and negatively associated with the two aspects of self-continuity. Based on the criteria presented earlier, vocabulary and episodic memory were thereby included as covariates in regression-type analyses.

**Age of challenging memories and memory vividness.** How long ago a challenging memory had occurred was associated with individuals’ age. As shown in Table 3-1, it was also negatively associated with autobiographical reasoning using self-stability in non-challenging memories and positively related to the two aspects of self-continuity. Memory vividness of non-challenging memories was negatively related to age and core-continuity. As such, these two memory characteristics (i.e., age of
challenging memories and vividness of non-challenging memories) were included as covariates in regression-type analyses.

**Major Analyses**

Results related to each specific aim are presented. They were tested using a variety of analytical techniques including multiple regression, analyses of variance, and mediation and moderation analyses with appropriate follow-ups. The results of the first two aims tested served as foundations for forming the model that tested the mediation role of autobiographical reasoning between age and self-continuity. Results of the first three aims were used for forming a model testing the potential interaction effect of autobiographical reasoning by age group on self-continuity.

**Aim 1: Age Differences in Global Self-continuity**

Older adults were expected to hold a stronger sense of self-continuity than emerging adults. As the two aspects of self-continuity were correlated, a Multivariate Analysis of Variance (MANOVA) was conducted with point of view-continuity and core-continuity as dependent variables, and age group (0 = emerging adults, 1 = older adults) as the independent variable. Box’s test for the assumption of homogeneity of variance-covariance matrices between the two age groups was met, $F(6, 11114635.8) = 2.05$, $p = .11$. Wilks’s statistic was used for reporting the result of point of view-continuity; smaller values of lambda ($\Lambda$) indicate a larger effect. A main effect of age on self-continuity was found, $\Lambda = .66$, $F(2, 184) = 47.93$, $p < .001$, $\eta^2 = .34$.

Follow-up univariate ANOVAs were conducted. As Levene’s test for the assumption of homogeneity of variance was not met for core-continuity, $F(1, 185) = 9.82$, $p < .01$, a robust Brown-Forsythe $F$-test was used for reporting age differences. As expected, older adults ($M = 4.29$, $SD = 0.80$) scored higher than emerging adults on
point of view-continuity ($M = 3.21$; $SD = 0.88$), $F(1, 185) = 76.03$, $p < .001$, $\eta^2 = .29$.

Older adults ($M = 4.46$, $SD = 0.79$) also scored higher on core-continuity than the younger group ($M = 3.43$, $SD = .101$), Brown-Forsythe $F(1, 182.393) = 60.88$, $p < .001$, $\eta^2 = .24$.

To determine whether the effect of age remained robust after taking into account the identified covariates (i.e., vocabulary, episodic memory, age of challenging memories, vividness of non-challenging memories), two follow-up multiple regressions were conducted. Age was entered as a predictor along with the four covariates. Point of view-continuity and core-continuity were dependent variables in the regression model, respectively. Results show that the positive effect of age on point of view-continuity remained significant ($\beta = .61$, $p < .001$). The four covariates showed no effect with $\beta$s ranging from -.11 to .11 ($ps = .08 - .57$). Age also positively predicted core-continuity ($\beta = .32$, $p < .01$) when the four covariates were considered. The covariates showed no effect with $\beta$s ranging from -.09 to .19 ($ps = .08 - .70$). In conclusion, the hypothesis that older adults hold a stronger sense of global self-continuity than emerging adults was confirmed.

**Aim 2: Age Differences in Autobiographical Reasoning**

Older adults were hypothesized to more frequently present self-stability than emerging adults, whereas emerging adults were expected to more frequently present self-change in their memory narratives. For memory type, it was hypothesized that both self-stability and self-change would be more frequently shown in challenging than non-challenging memory narratives. These main effects were expected to be modified by the interaction between age group and memory type. Older adults were expected to more frequently narrate self-stability than emerging adults, particularly in challenging
memories. Emerging adults were expected to more frequently narrate self-change than older adults, particularly in their challenging memories. Two 2 (Age) X 2 (Memory Type) mixed ANOVAs were conducted to test age differences in the two facets of autobiographical reasoning. Age group (i.e., 0 = emerging, 1= older adults) was the between-subject independent variable. Memory type (i.e., non-challenging, challenging memories) was the within-subject independent variable. Autobiographical reasoning using self-stability and self-change were dependent variables, respectively.

**Self-stability.** The expected main effect of age group on self-stability was not found, $F(1, 186) = .17, p = .68$. Older adults did not more frequently present self-stability in their narratives (4.3%; $M = 0.043, SD = 0.09$) than emerging adults (3.7%; $M = 0.037, SD = 0.06$). As expected, the main effect for memory type was found, $F(1, 186) = 7.46, p < .05, \eta_p^2 = .04$. Regardless of age, self-stability was more frequently shown in challenging (4%; $M = 0.04, SD = 0.08$) than in non-challenging memories (2%; $M = 0.02, SD = 0.06$). There was no interaction effect between age and memory type, $F(1, 186) = .06, p = .82$.

**Self-change.** As expected, the main effect of age group was found, $F(1, 186) = 15.32, p < .001, \eta_p^2 = .08$. Emerging adults overall presented more self-change in their memory narratives overall (5.2%; $M = 0.052, SD = 0.06$) than did older adults (2.1%; $M = 0.021, SD = 0.04$). The expected main effect of memory type was also found, $F(1, 186) = 54.53, p < .001, \eta_p^2 = .23$. Autobiographical reasoning using self-change was more frequently shown in challenging (6.7%; $M = 0.067, SD = 0.11$) than non-challenging memories (0.7%; $M = 0.007, SD = 0.03$).
These main effects were modified by the interaction between age and memory type, $F(1, 186) = 16.47, p < .001, \eta^2 = .08$. To decompose this interaction effect, two follow-up ANOVAs were conducted with age as an independent variable and self-change in challenging and non-challenging memory narratives as dependent variables. Levene’s test indicates that the homogeneity assumption was met for the dependent variable of self-change in non-challenging memories, $F(1, 186) = 0.04, p = .84$. The assumption was violated for the dependent variable of self-change in challenging memories, $F(1, 186) = 24.66, p < .001$. A robust Brown–Forsythe $F$-test was used for testing age differences in self-change shown in challenging memory narratives. Results indicate that older adults presented less reasoning about self-change in their challenging memory narratives (4%; $M = 0.04, SD = 0.08$) than emerging adults in the same memory type (9.7%; $M = 0.097, SD = 0.12$), Brown–Forsythe $F(1, 164.96) = 18.68, p < .001$. There was no age difference in the presence of self-change in non-challenging memories (0.6% and 0.7%; $Ms = 0.006, 0.007, SDs = 0.04, 0.03$), $F(1, 186) = 0.02, p = .89$. There were almost no descriptions about self-change in non-challenging memories. Taken together, the main effect of age (i.e., emerging adults showed more) was driven by the more frequent presence of self-change in challenging but not in non-challenging memories.

A multiple regression was conducted to test whether the main effect of age on self-change remained when vocabulary and episodic memory were taken into account. Results show that age was a significant predictor of autobiographical reasoning using self-change in challenging memories ($\beta = -.25, p < .05$). Vocabulary and episodic memory were not predictors of this type of reasoning ($\beta s = -.02, .07, ps = .82, .34$).
In conclusion, Aim 2 hypotheses were partially supported. The expected main effect of memory type was confirmed: regardless of age, individuals more frequently present autobiographical reasoning using both self-stability and self-change in challenging memories more than in non-challenging ones. The hypothesized main effect of age for autobiographical reasoning was confirmed for self-change but not self-stability. Emerging adults presented more self-change than older adults, and as theorized, this age effect is due to emerging adults’ more frequent narration of self-change in challenging memories. The hypothesized main effect of age and the interaction effect between age and memory type on self-stability were not found.

**Aim 3: The Mediating Role of Autobiographical Reasoning and Self-concept Clarity**

According to the findings of Aim 2, there were no age differences in the presence of autobiographical reasoning of self-stability in any types of memories. Pearson’s correlations (see Table 3-2) also show that self-stability was unrelated to self-continuity. These findings ruled out the possibility that narration of self-stability in challenging memories is a mediator between age and self-continuity. This aspect of reasoning was therefore not included in Aim 3 analysis.

Based on findings of Aim 2 and correlations shown in Table 3-2, the autobiographical reasoning of self-change in challenging memories was associated with age and the two subscales of self-continuity in negative directions. These initial patterns suggest a potential mediating role of self-change in challenging memories between age and self-continuity. In addition to autobiographical reasoning using self-change, a second mediating path, self-concept clarity was also examined. In line with past
research, self-concept clarity positively links to age and global self-continuity (see Table 3-2), suggesting a potential mediating role.

As such, two multiple-mediation models were run, using Hayes’ (2013) SPSS process macro with a non-parametric bootstrapping technique (N = 5000). The 95% of bootstrap confidence intervals were used to interpret mediation effects. The bootstrapping technique solves the potential issue of violation of the normality assumption (Preacher, Rucker, & Hayes, 2007), a common problem in studies with small sample sizes. In the two models, point of view-continuity and core-continuity were the outcome variable, respectively. In both models, age group was included as a predictor, and both self-change in challenging memories and self-concept clarity were mediators.

Unstandardized coefficients and standard errors were summarized in Table 3-3. For Model 1, the total effect of the overall model was significant, coefficient = 1.0777, SE = 0.1236, t = 8.72, p < .001. This total effect was driven by both the direct effect of age group, t = 6.85, p < .001, and the indirect effect of self-concept clarity (a₁ x b₂), coefficient = 0.1464, SE = 0.0535, 95%CI = [0.059, 0.2747]. The expected indirect effect of self-change (a₁ x b₁) was not found however, coefficient = 0.0354, SE = 0.0373, 95%CI = [-0.0345, 0.1165]. Consistent with previous findings (Aim 2), age group negatively predicted the level of self-change in challenging memories, t = -4.18, p < .001; self-change in challenging memories did not relate to point of view-continuity, t = -0.96, p = .34. Self-concept clarity, on the other hand, mediated the relation between age group and point of view-continuity. Age positively predicted greater self-concept clarity t = 4.67, p < .001; self-concept clarity predicted greater point of view-continuity, t
= 3.55, \( p < .001 \). Taken together, older adults maintained a stronger sense of point of view-continuity, in part, through the self-process of self-concept clarity.

For Model 2, the total effect of the overall model was significant, coefficient = 1.0278, SE = 0.1336, \( t = 7.70, p < .001 \). This total effect was driven by both the direct effect of age group, coefficient = 0.8368, SE = 0.1421, \( t = 5.89, p < .001 \), and the indirect effect of self-concept clarity \((a_2 \times b_2)\), coefficient = 0.1399, SE = 0.0532, 95%CI = [0.0508, 0.2652]. Consistent with Model 1, age positively predicted greater self-concept clarity. Self-concept clarity positively related to core-continuity, \( t = 3.12, p < .01 \).

Together, results indicate that the positive relation between age group and core-continuity was partially explained by self-concept clarity. Narration of self-change in challenging memories was unrelated to core-continuity, \( t = -1.27, p = .20 \). The expected indirect effect of self-change \((a_1 \times b_1)\) was not found, coefficient = 0.0510, SE = 0.0459, 95%CI = [-0.0334, 0.1493].

Taken together, as shown in Figure 3-1, the hypothesized mediation effect of autobiographical reasoning of self-change in challenging memories was not supported. Instead, the findings suggest that self-concept clarity is an underlying process explaining the age differences in both point of view-continuity and core-continuity.

**Aim 4: The Interaction of Age Group and Autobiographical Reasoning**

Given that expected mediation effect for self-change was not found, Aim 4 explored the possibility that age group interacts with autobiographical reasoning using self-change in challenging memories to predict self-continuity. Based on the findings of age differences in self-change in challenging memories and the mediation paths found in Aim 3, two moderated-mediation models were tested (see Figure 3-2 for a conceptual model). Following Aim 3 findings, self-concept clarity was included as a mediator.
between age and self-continuity. The new parameter here was the specification of an interaction term between age and autobiographical reasoning using self-change in challenging memories as a predictor of self-continuity. These models were tested using Hayes’ (2013) SPSS process macro with a non-parametric bootstrapping technique (N = 5000). The 95% of bootstrap confidence intervals were specified for testing the mediator and moderator effects. In each model, point of view-continuity and core-continuity were outcome variables, respectively.

Unstandardized coefficients and standard errors were presented in Table 3-4. Consistent with previous findings, self-concept clarity partially mediated the relation between age and point of view-continuity, coefficient = 0.1462, SE = 0.0545, 95% CI = [0.0598, 0.2784], and core-continuity, coefficient = 0.1383, SE = 0.0535, 95% CI = [0.0528, 0.2675]. For moderation effects, the autobiographical reasoning of self-change in challenging memories did not moderate the relation between age group and point of view-continuity, 95% CI = [-2.8545, 2.3930]. The reasoning of self-change in challenging memories, however, moderated the relation between age group and core-continuity, 95% CI = [-6.3270, -0.7200]. To decompose this interaction effect (see also Figure 3-3), Pearson’s correlations were conducted within each age group to decompose the interaction effect. A negative association was found between self-change in challenging memories and core-continuity in older adults, $r = -.35$, $p < .01$. That is, older adults who included more self-change in challenging memories tended to show lower core-continuity. No association was found in emerging adults, $r = -.01$, $p = .93$. Taken together, the hypothesized interaction effects between age group and self-change in challenging memories were found in core-continuity but not point of view-continuity.
Table 3-1. Correlations among age, autobiographical reasoning, global self-continuity, and potential covariates

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Gender</th>
<th>Vocab.</th>
<th>Episodic</th>
<th>Age of CM</th>
<th>Vivid. of NM</th>
<th>Vivid. of CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>43.88</td>
<td>26.59</td>
<td>.03</td>
<td>.78**</td>
<td>-.37**</td>
<td>.30**</td>
<td>-.18*</td>
<td>-.03</td>
</tr>
<tr>
<td>Reasoning Stability</td>
<td>NM</td>
<td>0.02</td>
<td>0.06</td>
<td>.03</td>
<td>-.04</td>
<td>-.11</td>
<td>-.16*</td>
<td>-.00</td>
</tr>
<tr>
<td></td>
<td>CM</td>
<td>0.03</td>
<td>0.08</td>
<td>.14</td>
<td>.04</td>
<td>-.04</td>
<td>-.10</td>
<td>.01</td>
</tr>
<tr>
<td>Change</td>
<td>NM</td>
<td>0.01</td>
<td>0.03</td>
<td>-.09</td>
<td>.05</td>
<td>-.08</td>
<td>-.03</td>
<td>-.06</td>
</tr>
<tr>
<td></td>
<td>CM</td>
<td>0.07</td>
<td>0.11</td>
<td>.01</td>
<td>-.24**</td>
<td>.18*</td>
<td>.03</td>
<td>.00</td>
</tr>
<tr>
<td>Global s-cont.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Point of view</td>
<td>3.72</td>
<td>1.00</td>
<td>-.11</td>
<td>.37**</td>
<td>-.23**</td>
<td>.19**</td>
<td>.01</td>
<td>.05</td>
</tr>
<tr>
<td>Core</td>
<td>3.92</td>
<td>1.04</td>
<td>-.09</td>
<td>.46**</td>
<td>-.24**</td>
<td>.18*</td>
<td>-.16*</td>
<td>-.06</td>
</tr>
</tbody>
</table>


Table 3-2. Correlations among age, self-stability, and self-change in challenging memories, and two aspects of global self-continuity

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Self-stability</td>
<td>.01</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Self-change</td>
<td>-.30***</td>
<td>-.07</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Self-concept clarity</td>
<td>.32***</td>
<td>.13</td>
<td>-.18*</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Point of view-continuity</td>
<td>.54***</td>
<td>.09</td>
<td>-.23**</td>
<td>.38***</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>6. Core-continuity</td>
<td>.52***</td>
<td>.12</td>
<td>-.24**</td>
<td>.35***</td>
<td>.57***</td>
<td>--</td>
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</table>

Note: *p < .05. **p < .01. ***p < .001.
Table 3-3. Unstandardized coefficients and standard errors of variables of interest

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Age (X)</th>
<th>Self-change in CM (M1)</th>
<th>Self-concept clarity (M2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consequent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-change (M1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coefficient</td>
<td>$-0.0636^{***}$ (a$_1$)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>SE</td>
<td>0.0152</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Self-concept clarity (M2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coefficient</td>
<td>$0.5573^{***}$ (a$_2$)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>SE</td>
<td>0.1194</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Point of view (Y)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coefficient</td>
<td>$0.8959^{***}$ (c')</td>
<td>$-0.5567$ (b$_1$)</td>
<td>$0.2626^{***}$ (b$_2$)</td>
</tr>
<tr>
<td>SE</td>
<td>0.1308</td>
<td>0.5798</td>
<td>0.074</td>
</tr>
</tbody>
</table>

Model 2

| Self-change (M1) |   |                        |                           |
| Coefficient | $-0.0636^{***}$ (a$_1$) | -- | -- |
| SE         | 0.0152 | -- | -- |
| Self-concept clarity (M2) |   |                        |                           |
| Coefficient | $0.5573^{***}$ (a$_2$) | -- | -- |
| SE         | 0.1194 | -- | -- |
| Core (Y)   |   |                        |                           |
| Coefficient | $0.8386^{***}$ (c') | $-0.8021$ (b$_1$) | $0.251^{***}$ (b$_2$) |
| SE         | 0.1421 | 0.6299 | 0.0804 |

$R^2 = .34$ $p < .001$

$R^2 = .29$ $p < .001$

Note: Y = outcome variable, X = predictor, M = mediator, CM = challenging memories.

$^{***}p < .001.$

![Diagram](Figure 3-1. Summary of multiple-mediation analyses tested.)
Figure 3-2. Illustration of the moderated-mediation models tested.

Table 3-4. Summary of moderated-mediation analyses

<table>
<thead>
<tr>
<th>Consequent</th>
<th>Age (X)</th>
<th>Antecedent</th>
<th>Self-concept clarity (M)</th>
<th>Self-change in CM (W)</th>
<th>X by W</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
<td><strong>Model 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self-concept clarity (M)</strong></td>
<td><strong>Coefficient</strong></td>
<td>0.5573***</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>SE</strong></td>
<td>0.1194</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>Point of view-continuity (Y)</strong></td>
<td></td>
<td>0.9075***</td>
<td>0.2624***</td>
<td>-0.4982</td>
<td>-0.2307</td>
</tr>
<tr>
<td></td>
<td><strong>SE</strong></td>
<td>0.1472</td>
<td>0.0742</td>
<td>0.6721</td>
<td>1.3298</td>
</tr>
<tr>
<td><strong>Core-continuity (Y)</strong></td>
<td></td>
<td>1.0139***</td>
<td>0.2482***</td>
<td>0.0916</td>
<td>-3.5235*</td>
</tr>
<tr>
<td></td>
<td><strong>SE</strong></td>
<td>0.1573</td>
<td>0.0793</td>
<td>0.7182</td>
<td>1.4209</td>
</tr>
</tbody>
</table>

Note: Y = outcome variable, X = predictor, M = mediator, W = moderator, X by W = interaction, CM = challenging memories. *p < .05. ***p < .001.
Figure 3-3. Moderation effects of age on the relation between self-change in challenging memories and core-continuity.
Having a sense of self-continuity is fundamental to human functioning: it allows us to orient in space and time and thereby coherently perform daily activities. This experience is important for all individuals but may be particularly crucial in older adulthood (Atchley, 1999). Intuitively, it should be more difficult for older people to maintain a sense of self-continuity simply because they have more years of life over which they need to maintain continuity. Despite this, however, older adults often experience a stronger sense of self-continuity than younger people (Habermas & Köber, 2015a).

The current study addressed this seeming paradox. Grounded in the functional approach (Baddley, 1988; Bluck et al., 2010; Pillemer, 2009) that suggests maintaining self-continuity is a basic function of autobiographical memory, the study examined the theoretical proposition (Bluck & Liao, 2013) that autobiographical reasoning about challenging life events is an effective means for maintaining self-continuity. It first examined whether there are age differences between emerging and older adults in their experience of self-continuity (i.e., point of view-continuity and core-continuity). Having demonstrated such differences, to what extent does autobiographical reasoning when sharing challenging memories (i.e., using self-stability and self-change themes), and self-concept clarity account for those age differences?

Findings show that older adults experience greater global self-continuity, both point of view-continuity and core-continuity, than emerging adults. The important role of autobiographical reasoning in the face of challenging life events is reflected by the result that, regardless of age, individuals use more autobiographical reasoning (i.e., both self-
stability and self-change) when sharing challenging than non-challenging memory narratives. There is little to no autobiographical reasoning involved in autobiographical memory narratives about everyday events (i.e., non-challenging events). Older and emerging adults also differed on the extent of autobiographical reasoning in their narratives that concern self-change (i.e., no effect for self-stability). Older adults present less self-change than emerging adults in their autobiographical memory narratives overall, and this is particularly pronounced when talking about challenging events.

The extent of autobiographical reasoning in challenging memories, however, does not explain the age difference in the experience of self-continuity (i.e. it is not a mediator). Instead, older adults’ higher point of view-continuity and core-continuity are partially explained by their higher levels of self-concept clarity. That is, through having clearer current self-conceptions, older adults are able to experience a stronger sense of continuity in self-over-time (i.e., both core and point of view-continuity) than emerging adults. The role of memory in relation to the experience of self-continuity appears to be conditional. That is, a moderation effect was found: greater reasoning concerning self-change in challenging memories is associated with lower core-continuity in older adults but not in emerging adults.

The discussion has four sections: (1) experiencing self-continuity in emerging and older adulthood, (2) paths accounting for older adults’ greater experience of self-continuity, (3) the life phase specific role of autobiographical reasoning, and (4) revisiting the RAM-SC model. Study limitations are discussed, and conclusions are provided in the final section.
Experiencing Self-continuity in Emerging and Older Adulthood

The current research identifies two inter-related aspects of global self-continuity: point of view-continuity and core-continuity. Theoretically, these are types of retrospective self-continuity (Bluck & Liao, 2013) that a person experiences through reflecting on their personal past. Point of view-continuity refers to perspective-taking on how one’s past is connected to the present. Individuals experience a sense of point of view-continuity through feeling familiar when specifically viewing the past through the eyes of the present self. Core-continuity forms a distinct factor that focuses on how individuals feel they have an essential or core self that has remained continuous over time. They feel that at the core ‘I am who I have always been.’

Older adults were found to have a higher sense of both point of view-continuity and core-continuity. This finding extends past research (Habermas & Köber, 2015a). It reflects that individuals in late life have a more enduring sense of I-ness (Troll & Skaff, 1997). This experience of essential personhood comes from having a coherent way of thinking and a persistent identity across time. Note that older adults’ greater sense of self-continuity in the current study is not due to the lack of challenging life experiences in the given time period (i.e., last six years). Assuming that young adults show less continuity because they are facing more serious changes than older adults would be in line with a societal stereotype, but not actually correct. Individuals at any stage face both gains and losses (Baltes, 1997).

In this study, both older adults and emerging adults experienced at least one serious negative life event that disrupted their sense of self within the past six years. For example, older adults shared experiences such as loss of a significant other (e.g., spouse, adult children, close friends), serious personal illness (e.g., cancer),
relationship conflicts (e.g., breaking up with a romantic partner), and negative changes in the amount of time they are able to participate in valued leisure pursuits such as recreation or church activities. Emerging adults also faced challenging life events. These included such things as relationship conflicts, personal injury, serious illness of a significant other, death of a grandparent, and failing an important exam.

In sum, both age groups shared memories of events that brought about a feeling of self-disruption while older adults are more able to maintain a sense of self-continuity regardless of these challenges. This finding is consistent with past research on the aging self (e.g., Baltes, Lindenberger, & Staudinger, 2006; Nygren, Aléx, Jonsén, Gustafso, Norberg, & Lundman, 2005), suggesting that individuals in later adulthood often have a more resilient self-system. Older adults are better at managing a self-disruptive situation to maintain a continuous sense of self than emerging adults. A focus of this research, as shown next, was to understand how older adults, compared to their younger counterparts, maintain this continuity.

**Accounting for Age Differences in Global Self-continuity**

Given the age difference findings in the experience of self-continuity, how do older adults maintain a stronger sense of self-continuity regardless of the life challenges they face? The study identifies self-concept clarity as a mediating path between age group and point of view-continuity, and age group and core-continuity. Autobiographical reasoning in challenging life events was not, as had been predicted, a mediator between age and global self-continuity. The findings are discussed in terms of a lifespan perspective (e.g., Atchley, 1999; Baltes, 1997) and the framework of the Self-Memory System model (SMS; Conway et al., 2004).
Self-concept Clarity: A Mediating Path

There have been debates regarding what the most effective means are for maintaining a sense of self-continuity in the face of inevitable life challenges that shake one’s sense of self (Chandler et al., 2003; Habermas & Köber, 2015b; Sani, 2008). The current findings show that self-concept clarity is a bridge: older adults have higher self-concept clarity, and this is responsible for their higher level of both point of view-continuity and core-continuity.

One might be concerned that self-concept clarity and self-continuity are the same things, and the mediation effect only comes from the similarity in these constructs. Note, however, that self-continuity and self-concept clarity are moderately related but distinct constructs. The experience of self-continuity involves a global feeling about the self as being continuous over time. The psychological process involves explicit temporal comparisons and temporal connections between the present self and the personal past (e.g., there is continuity in who I have been as a person over the past six years).

Alternately, self-concept clarity is present-focused, concerning the unity of one’s current self-conception. Self-concept clarity reflects individuals’ perceptions of the self as clearly and confidently defined (e.g., I seldom experience conflict between the different aspects of my personality). Having high self-concept clarity is important to the experience of self-continuity: it acts as a strong reference point, allowing individuals to make past-present comparisons. A salient sense of who I am now (i.e., self-concept clarity) likely aids individuals to see a clearer thread of who I have always been (i.e., self-continuity). Without a clear present-focused sense of self, temporal comparisons lose the anchor for constructing a past-present trajectory of the self.
Previous research has shown that self-concept clarity links to positive self-outcomes (e.g. higher self-esteem, lower neuroticism; Campbell, Assanand, & Di Paula, 2003) and can act as a resource in managing life difficulties (e.g., Ritchie et al., 2010). The current finding is consistent with such literature, further suggesting that perceiving one’s current self as clearly defined helps promote an extended self (Neisser, 1988): a retrospective sense of being me across long periods of time. The role of self-concept clarity here also fits well with delineations of the conceptual self in the SMS model (Conway et al., 2004). Though the SMS model (Conway et al., 2004) does not explicitly state how a sense of self-continuity is forged, the importance of having a clear, well-organized self-representation for maintaining a biographical identity (i.e., through autobiographical memory) is central to the model.

From a lifespan perspective, self-concept clarity has been forged and refined over time and is highly resilient by the time an individual reaches late adulthood (cf. Lodi-Smith & Roberts, 2010). Research has shown that emerging adults are in the life phase of self-exploration, whereas older adults have established clearer self-conceptions. As compared to young individuals, older adults have created a more stable self-structure (i.e., lower self-concept incoherence; Diehl & Hay, 2010; higher self-concept clarity; Bluck & Alea, 2008). Older adults are also more assured about who they are and consistent across different self-domains (i.e., high self-concept clarity, average self-differentiation; Diehl & Hay, 2011). Older adults utilize their developed schematized patterns of personal beliefs to manage life challenges (Atchley, 1999).

In sum, interpreted through past research, the current finding suggests that older adults may have a more resilient self-structure to rely on in maintaining high self-
continuity in the face of challenge than emerging adults. That is, as compared to their younger counterparts, older adults are more able to utilize their clearly defined current self-concepts to establish a reference point for temporal comparisons, enabling the experience of greater self-continuity regardless of life challenges.

**Autobiographical Reasoning in Challenging Life Events: An Uncharted Path**

Level of self-concept clarity does not fully account for the age differences in global self-continuity (i.e., point of view-continuity and core-continuity). Other factors, uncharted in this study, are likely at play in the creation of self-continuity. Autobiographical reasoning to forge continuity in the narration of life challenging events was postulated as one such factor (Bluck & Liao, 2013). Findings in the current study do not support that prediction. Instead, autobiographical reasoning interacted with age (i.e., was a moderator). That relationship is described in the next section.

What might account for the non-significant findings of autobiographical reasoning as a mediator? How might future research capture the role of autobiographical memory in maintaining self-continuity? The type of memory selected for study may be the issue. In the SMS model (Conway et al., 2004), autobiographical memory is coherently linked to the long-term self. As such, memories that are stored as part of the long-term self, particularly in the *life story schema* (Bluck & Habermas, 2000; McAdams, 2001) may be critical for forging self-continuity. The current study did not examine those memories but focused on memories for recent challenging life events (see also Rice & Pasupathi, 2010). Autobiographical reasoning within recent challenging memories may not be an avenue to self-continuity and thereby in the current study, did not explain age differences in self-continuity.
Instead, it may be that when facing self-disruptions individuals rely on anchoring the self through recall and narration of other, well-rehearsed, and highly important memories to forge self-continuity. In other words, it may be that central memories in the life story (McAdams, 2001) are drawn on as personal landmarks when individuals face uncertainty about the self due to challenging life circumstances. *Self-defining memories* (Singer & Salovey, 1993), for example, could be the type of memory that invidious rely on. They are memories stored in the life story schema that a person uses to define the self (Conway et al., 2004). A recent review (Prebble et al., 2013) is in line with this view, suggesting that highly schematized autobiographical memories may be more critical to the maintenance of self-continuity. Empirical research also suggests this possibility. Habermas and Köber (2015a) found that a higher level of autobiographical reasoning in personally significant life events linked to a greater sense of self-continuity after life challenges. Another recent study (Liao, Bluck, & Westerhof, under review) also suggests autobiographical reasoning in self-defining memories is important to another aspect of the self: individuals’ autobiographical reasoning in self-defining memories predicted their sense of self-esteem one year later. As such, future research aiming to account for differences in older and emerging adults’ experience of self-continuity in terms of autobiographical reasoning may need to focus on personally significant, self-defining memories that act as landmarks in the life story.

**The Life-Phase Specific Role of Autobiographical Reasoning**

Though autobiographical reasoning did not explain age differences in emerging and older adults’ experience of self-continuity, it did have a role to play. Both older and younger people more frequently use autobiographical reasoning (i.e., self-stability and self-change) when narrating challenging memories than when narrating everyday, non-
challenging ones. There were, in addition, life-phase specific findings: (1) emerging adults use more themes of self-change than older adults overall, but this effect is particularly strong in challenging memories, and (2) reasoning using self-change in challenging memories can be a liability for older adults’ core-continuity. The role of autobiographical reasoning as an important resource for adults in narrating challenging life events is first discussed. Next, a lifespan developmental perspective is adopted to discuss the two age difference findings.

**Reasoning: Stability and Change Themes in Memories of Challenging Events**

Autobiographical reasoning has long been theorized as an important social-cognitive tool by which individuals make sense of personal life events, particularly challenging ones (Bluck & Liao, 2013; McAdams & Bowman, 2001). The current study supports this. That is, autobiographical memories of challenging events contain more autobiographical reasoning both in terms of reflecting on who I have always been (i.e., self-stability) and on how I have changed (i.e., self-change) than non-challenging memories (i.e., elicited by neutral cue words). Given the rich narratives in this dataset, a few examples are given to illustrate participants’ use of autobiographical reasoning in narrating events that presented challenges to their sense of self.

One participant recalled a negative living situation with her roommate and remembered the event in a way that shows self-stability: “It started probably about four months ago with my roommate. World War III, basically. And I’ve always been the kind of person who just lets things roll off me and I’m just like, yeah, whatever. I usually am really optimistic about the situation, and I tend to be confrontational with the issue at hand and I’ll just face it head on. With my roommate, I didn’t because she kind of had a similar personality, so we butt heads a lot and it doesn’t really work for me. I found
myself calling my mom crying...and that’s not me. Usually, I’m very tough about it and very independent, and I deal with it on my own.... Now I realize I think it is because she’s very much like me.” In recalling this time of difficulty, the participant draws on who she has always been: a tough, independent person who knows how to manage her life well. She notes who she is not: a person who calls her mom in tears. Through her self-analysis, she reaffirms who she has always been regardless of challenge.

An example of self-change when narrating memories of challenging events is also provided. That is, one participant recalled a time when she had to manage her distress when her son had a major injury. She indicated how she changed because of the event. She stated that: “Okay this was probably the most extreme thing that’s ever happened in my life...He had like 22 bones broken in his body. I didn’t know if he’d ever walk again. I didn’t know if he had brain injuries or anything. And then following that, I found out it was his fault... And it really changed how I looked at the world. And from that time, I became a person that was a different person... And that lasted for quite a long time... It gave me a whole different outlook on life... Suddenly life took on a whole different meaning. But the good thing is, today he’s fine... This affected every single aspect of my life.” The participant remembered the event in terms of how it changed her. She notes that she became a different person, with a different worldview.

As shown in these two examples, autobiographical reasoning is used to create self-event connections that bind a discordant event with one’s sense of self. Such autobiographical reasoning is likely part of the early organization of an autobiographical memory, such that it can eventually be made meaning of (McLean, Pasupathi, & Pals, 2007; Pasupathi et al., 2007). Meaning-making eventually leads to better coping with
the event (e.g., Pals, 2006). Depending on how coherently memories are organized for storage in the long-term self (Conway et al., 2004) and also on the context of remembering (e.g., life phases; Bluck et al., 2010), challenging memories that contain reasoning are more likely to be further rehearsed and recalled and become part of one’s life story (Habermas & Bluck, 2000). With very little to no reasoning, everyday memories (e.g., the non-challenging memories in this study) are much less likely to be recalled or rehearsed (Glück & Bluck & 2007; Pillemer, 2001) and are more likely to be eventually forgotten.

**Reasoning: Stability and Change Themes in Emerging and Older Adulthood**

Findings concerning age differences in autobiographical reasoning using self-event connections (i.e., self-stability and self-change) are mixed (e.g., Pasupathi & Mansour, 2006). The current study contributes to the literature by identifying age difference in self-change (see also McLean, 2008) in challenging memories and by providing new evidence on life-phase specific effects of autobiographical reasoning using self-change on core-continuity.

**Age differences in reasoning: self-change themes.** Across the lifespan, individuals become more skilled in using reasoning to connect their life experiences to make a coherent life story (McAdams, 2013). These gains have been documented between adolescence and emerging adulthood (Habermas & de Silveira, 2008) and between young and middle-aged adults (Habermas et al., 2013; Singer et al., 2007; Pasupathi & Mansour, 2006). It is not always clear, however, whether older adults (i.e., older than 60 years) produce more self-event connections than emerging adults (McLean, 2008; Pasupathi & Mansour, 2006). The current findings suggest the importance of differentiating types of autobiographical reasoning when considering self-
stability and self-change themes. Emerging adults showed greater self-change themes overall and particularly when narrating challenging life events, than did older adults. There were no age differences in narrating self-stability however. This differentiation thus provides a deeper understanding of how young and older individuals reason about different types of life events.

From a lifespan perspective, individuals’ motivations shift from pursuing gains to preserving gains and preventing losses (Baltes, 1997). This has also been observed in the development of the self across adulthood where younger individuals strive for self-exploration, and older individuals value self-maintenance (Brandtstädter & Greve, 1994). These life phase contexts may thus affect the extent to which emerging and older adults use self-stability and self-change to narrate their life events. That is, autobiographical reasoning reflects not only the increasing skill that older adults may have for creating a coherent life story but also reflects underlying life-phase specific tasks that adult individuals hold at different points in the lifespan (Erikson, 1980).

In particular, emerging adults are in a life phase of rapid growth and identity exploration (Arnett, 2000; Erikson, 1980) where being on a trajectory of change is adaptive and the norm (Staudinger, Bluck, & Herzberg, 2003). The developmental task in later adulthood focuses on life review (Butler, 1963) in which forming a sense of integrity is the goal (Conway & Holmes, 2004; Erikson, 1980). The production of more self-change in their challenging memory narratives than older adults’ likely reflects their efforts to forge a personal identity as characteristic of emerging adulthood. Consistent with the current findings, McLean (2008) also found more change statements in younger individuals’ (15-35 years) self-defining memory narratives than older adults’. Contrary to
McLean (2008) however, the current study did not find that older adults showed more self-stability themes in their narratives. This may be that individuals in the two age groups were looking for stability in the face of challenge. That is, finding a stable sense of self to hold on to in the midst of rupture may be equally important for individuals in different life phases. The challenging context likely demands emerging adults to act more like older adults, i.e., to look for stability.

**Age differences in relation of self-change to global self-continuity.** As just discussed, emerging adults are more likely than older adults to include self-change themes overall and particularly when narrating an autobiographical memory of a challenging event. Regardless, older adults also do sometimes include self-change statements in their challenging memory narratives. In older adults only, greater inclusion of self-change themes in their challenging event narratives was related to lower global self-continuity, particularly core-continuity.

This distinct pattern by age group likely reflects the influence of individuals’ developmental goals. In late life, having a sense of integrity about the self and the life lived is an important psychosocial task (Conway & Holmes, 2004). A sense of integrity refers to an acceptance of one’s own life cycle as meaningful and complete (Erikson, 1980). Core-continuity, a sense that there is a continuous thread of who I have always been, may implicitly reflect the construct of integrity. When older adults provide reasoning about how they have changed in the last six years as a result of challenges, this may work against their implicit goal of achieving integrity. Lower core-continuity is therefore observed. For example, a 70-year-old participant reflects on how her religious beliefs changed in relation to experiencing a life challenge. The participant reflects on
how she transitioned from a person who was deeply affiliated with a religious group and held a set of beliefs for more than 30 years to a person who decided not to endorse her long-standing beliefs. She stated: “And now, you know, I have no affiliation to any one religion. I have come to realize that even though religions profess some wonderful things, the way they’re practiced is generally a kind of attitude which is known as triumphalism, which is: we’re right and everybody else is wrong. So you know, my orientation right now is, my allegiance is, not to any one religion, but it’s more global. And things that attempt to make people feel it’s us against them are things that turned me off, and I don’t want to be connected to.” The participant’s narration of this major change in her religious beliefs may relate to her diminished sense of core-continuity and, theoretically, make it more difficult for her to find a sense of wholeness in the life lived.

While older adults’ narration of self-change is related to lower self-continuity, narrating self-change is not problematic in this way for emerging adults. This finding can be interpreted in terms of emerging adults’ life phase. Emerging adults are in a life phase where embracing change and developing new insights are positively related to development (McLean & Pratt, 2006). Their reflection on self-change in challenging memories likely reflects normative growth and development of the emerging adult identity. Self-change is thereby not troublesome for their experience of a sense of self as continuous. For example, this 20-year-old participant reflected on how she changed but does so through narrating personal growth. She stated, “I think it made me realize that if I really put myself to it, I could do something else. If I put myself out there. I think it pushed me more out of my comfort zone too because it was individual, but then more
like a team. I think it made me feel more confident in myself to do it.” She came to more fully realize her potential and became a more confident person. This reflection is clearly linked to her emergent personal identity.

In sum, narration of change in challenging memory narratives may have different meanings in different life phases. Emerging adults are in a life phase where they are normatively looking forward (Staudinger et al., 2003) and striving for growth and change (Baltes, 1997). When they reflect on past events, they do so to better develop their own identity (Webster & McCall, 1999; Bluck & Alea, 2008). In older adulthood, individuals reflect on life so as to provide integration of the life lived (Staudinger, 2001). As such, narrating self-change is life-phase consistent for emerging adults but for older adults, narrating self-change puts them at risk for maintaining self-continuity.

**Revisiting the RAM-SC Model**

The present study is based on our recent conceptual work, the Role of Autobiographical Memory in Self-Continuity model (RAM-SC; Bluck & Liao, 2013). Findings are thus discussed in relation to major tenets of that model. The RAM-SC model lays out: (1) the experience of self-continuity, (2) the level of self-continuity that may be subject to environmental and situational threats (i.e., retrospective self-continuity), (3) how retrospective self-continuity is maintained in everyday life, and (4) how it is re-forged after disruptions. The present findings provide some insights regarding the model’s utility in guiding research and potential modifications to the model.

With regard to the assumption that individuals do experience a sense of self-continuity, the current study shows that individuals are aware of their experience of self-continuity and can report on it. Those reports show that the retrospective sense of self-
continuity is variable: it is stronger in older than emerging adults. The assumption that retrospective self-continuity is subject to environmental threats was also supported. It appears that one’s retrospective sense of self-continuity is subject to life event challenges in both emerging and older adulthood. Given the variety of events in the collected challenging memory narratives, the content of this disruption is highly individualized as theorized. When the seamless feeling of being me is disrupted, both emerging and older adults are aware of it and aim to repair it. This is shown in part by their more frequent autobiographical reasoning in challenging than non-challenging event narratives.

The present findings also suggest modifications to the RAM-SC model in relation to assumptions concerning how a sense of self-continuity is maintained and how it is re-forged. That is, the model currently states that the often-unnoticed experience of self-continuity is maintained via having a coherent life story (i.e., life story schema as part of the long-term self; Conway et al., 2004). It is argued that the self plays a larger role than memory in maintaining retrospective self-continuity. When self-continuity is challenged, autobiographical reasoning is required to forge continuity.

The current findings suggest that the relative importance of the role of the self, relative to autobiographical memories, should be more seriously considered when conceptualizing how individuals respond in the face of challenge. That is, as discussed earlier, specific types of autobiographical reasoning that one uses in different life phases, and different types of memory may play distinct roles. Using various types of autobiographical reasoning (e.g., self-stability and self-change in this study) likely reflects different goals of the self (Conway et al., 2004; Conway & Jobson, 2012) that
may normatively differ across adulthood, affecting the preferred types of reasoning selected to reframe and narrate a life experience. Different types of autobiographical memory (e.g., mundane, self-defining, high point, turning point) likely also reflect differential involvement of the self.

For maintenance of self-continuity, memories that one uses to represent the self should be relevant to maintain one’s essential sense of self across every day and challenging contexts. It is the established, invariant part of the self that may best act as a resource in the face of challenge (e.g., I’ve always been a fighter. I’m not giving up now). This idea that drawing on memories stored in one’s life story schema act as the best resource in the face of challenge is also compatible with the strong relation between self-concept clarity and self-continuity. Both are aspects of the long-term self (Conway et al., 2004). In sum, the present study highlights the importance of more fully integrating lifespan theoretical constructs to refine the RAM-SC model in order to understand the role of autobiographical memory in the essential human experience of self-continuity.

**Limitations**

The study has several limitations. These relate to the lack of direct assessment of age-differential motivations, the method of assessing autobiographical reasoning, and the cross-sectional design.

**Assessing Age-differential Motivations**

Based on lifespan developmental theories (Baltes, 1997; Baltes et al., 2006; Brandtstädter, 1999), the age differences in autobiographical reasoning (i.e., self-change higher in emerging adults than older adults) were interpreted in terms of age-differential motivations (i.e., goals that emphasize growth in emerging adulthood vs.
maintenance in later life). Similar to past research (e.g., McLean, 2008), however, individuals’ actual motivations were not assessed. As such, though the conceptual argument is in line with lifespan theoretical principles, this study does not provide empirical evidence that emerging and older adults’ differential motivations account for age differences in the relation of self-change themes in narratives to global self-continuity. Future research should assess individuals’ growth versus maintenance goal orientations (e.g., Ebner, Freud, & Baltes, 2006; Wrosch, Schulz, & Carver, 2003) to clarify this issue.

**Assessing Autobiographical Reasoning**

It has long been theorized that autobiographical reasoning is a critical means for maintaining self-continuity, particularly in the face of challenge (e.g., Bluck & Liao, 2013; Habermas & Köber, 2015b; Pasupathi et al., 2007). The current study, however, found limited support for this claim. Two factors may be responsible.

**Selection of memory type.** Participants in the current study reported two memory types: challenging and non-challenging memories. A strength of the current research, as compared to past studies, is that it included a comparison event (i.e., non-challenging memories). Autobiographical reasoning across these two memory types, however, shows a weak to no association with global self-continuity. As discussed earlier, it is possible that autobiographical reasoning in memories is important to maintaining self-continuity, but not in the selected memory types. Autobiographical reasoning in personally meaningful memories, such as self-defining memories (Singer & Blagov, 2004), which have been stored in the autobiographical knowledge based in one’s long-term self (Conway et al., 2004) may provide an avenue for future research. Individuals report using autobiographical memories to maintain self-continuity (Bluck &
Alea, 2011; Habermas & Köber, 2015a), but future research needs to clearly examine the type, content, and valence of the memories that people draw on to serve this function.

**Valence of autobiographical reasoning.** The findings suggest that older adults’ do not benefit and, in fact, their self-continuity is diminished when they narrate recent challenging events in terms of self-change. Though autobiographical reasoning was assessed in an in-depth fashion through reliable content-coding, the focus of the coding was on identifying instance of self-stability versus self-change in the memory narratives. This was done without regard to valence of the self-change that was narrated. As such, the reason that self-change is linked to lower self-continuity only for older adults may be that older adults provided more negative instances of self-change than emerging adults. To clarify this issue, future research might take into account whether self-change and self-stability in memory narratives are represented as positive or negative.

**Cross-sectional Design**

The current study employed a cross-sectional design. Convenience samples of college students and older adults were used. Findings from the mediation and moderated-mediation analyses should be interpreted with caution. That is, it is possible that older adults’ greater experience of self-continuity leads to their higher self-concept clarity, instead of the reverse direction that was interpreted in the discussion section. Similarly, older adults showed a relation between self-change in their narratives and lower core-continuity. This relation is also not clearly directional and is likely reciprocal (McLean et al., 2007; Wilson & Ross, 2003). A longitudinal design (e.g., Troll & Skaff, 1997) with multiple data collection points would more clearly identify potential directionality between autobiographical reasoning, self-concept clarity, and one’s
experience of self-continuity. Such a design, if using multiple age cohorts, could also rule out cohort effects.

**Conclusion**

A 66-year-old participant’s reflection in her challenging memory narrative perfectly captures the focus of this study, i.e., capturing the notion of self-continuity. Reflecting on a recent geographical move, she says: “I’m old enough to know that fundamentally, I am who I am. So, if I am me in Florida, I can be me in Montreal.”

Remembering and sharing significant moments from our lives helps us maintain biographical identity (Erikson, 1980), to know who we are across space and over time. The experience of ‘being me over time’ is automatic but the conscious experience of being oneself involves complex self and memory processes. There have been debates (Habermas & Köber, 2015b) regarding how individuals can maintain a sense of self-continuity not only in the face of long periods of time but also when life presents challenging events. A recent review (Prebble et al., 2013) thus calls for empirical studies that assess the experience of self-continuity independently from the use of autobiographical memory. Past research assumed the presence of autobiographical reasoning, using self-stability and self-change, was itself an indicator of self-continuity (e.g., McLean, 2008; Pasupathi et al., 2007) and did not provide such independent assessments. Autobiographical reasoning, however, is a narrative process linked to thinking and telling about specific events. It is not a valid measure of feelings of self-continuity.

The current study synthesizes a lifespan perspective on self-development (e.g., Brandtstädter, 1999) and the functional approach to autobiographical memory (e.g., Baddeley, 1988; Bluck et al., 2010) to address this issue. It contributes to the field by
delineating the interrelations among the contextual factor of one’s place in the lifespan (i.e., emerging vs. older adulthood), self and memory processes (i.e., self-concept clarity, autobiographical reasoning), and the independently assessed experience of self-continuity.

The study findings fit well with classic lifespan theories that state the importance of self-maintenance in late life (Atchley, 1999; Brandtstädter & Greve, 1994; Troll & Skaff, 1997). That is, older adults hold a stronger sense of self-continuity than emerging adults. In addition, the process of maintaining a sense of self-continuity are delineated: through having greater self-concept clarity, older adults are able to hold a stronger sense of self-continuity than emerging adults. Consistent with past research on the aging self (e.g., Diehl & Hay, 2010, 2011; Nygren et al., 2005), older adults appear to have formed a clearer sense of who they are. They have a well-developed long-term conceptual self (Conway et al., 2004) that aids them in maintaining self-continuity (cf. Habermas & Köber, 2015b). Emerging adults are in a life phase where they have not yet fully accomplished the task of creating a clear sense of self and fully understanding the self over time.

The study also articulates the use of autobiographical reasoning in relation to one’s experience of self-continuity, though partly by revealing unexpected effects regarding the role of memory. Autobiographical reasoning using self-change was shown to be a liability for older adults’ sense of core-continuity. As compared to emerging adults, older adults less frequently engage in using self-change to describe their challenging memories but when they do, their self-continuity is lower. This result could be interpreted in a stereotypical way, implying that older adults should no longer pursue
change or even growth. Further findings suggest otherwise. A sense that there is
continuity in who I have been as a person, in part, reflects a sense of integrity, a
psychosocial goal that individuals in late life pursue (Erikson, 1980). The finding echoes
a lifespan developmental view that, "we cannot live the afternoon of life according to the
program of life’s morning, for what was great in the morning will be little at evening and
what was true in the morning will at evening have become a lie (p. 17, Jung, 1933)."

Every morning when we wake up, we know immediately who we are. I am me
and have always been. You are you and will always be. An essential experience of
being human is our sense of self that persists across time as life unfolds. Despite its
limitations, the present study contributes to understanding more about this fundamental
aspect of human psychology, how individuals make sense of challenging life events to
know who they are, and how they maintain a sense of self even in the face of inevitable
life changes and challenges.
APPENDIX A
AUTOBIOGRAPHICAL MEMORY TASK INSTRUCTIONS

Memory Narratives of Non-challenging Life Events

Now I am going to ask you to share some of your personal experiences. In total, I’m going to ask you to share 4 memories with me. Most people think of some events when they hear or see something such as a picture or a word. So, for the first two memories, I will show you a word and use that word to stimulate a memory about something that happened in the past 6 years. Then once you come up with a memory, I will give you about 7 minutes to share that memory with me.

Okay, let’s get started. Here is the first word (Bus or Corner). We are interested in hearing about a SPECIFIC episode in your life that stands out when you see the word. This can be any type of event. Please choose an event that happened to you in the past six years. When you describe the event, please tell EVERYTHING that you can remember about this event.

Now, take up one or two minutes to think of one event that is relevant to this word. Let me know when you think of one. Ready? Did this event happen in the past 6 years? (If no: please think of another one). Please use up to 7 minutes to share the memory with me. RA says to the recorder: “This is (say RESEARCH ASST NAME) recording from participant number (say PARTICIPANT NUMBER) for Memory 1 (or Memory 2).” You may begin.

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

Ending: Thank you for sharing your story.

Memory Narratives of Self-challenging Life Events

Now I am going to ask you to fill out a survey, and the survey will be used to stimulate the next two memories. This survey asks your overall life experiences. [RA: show the survey to the participants, but do not give it to them until you finish your instructions.] This survey lists a number of events that happen in many people’s lives and that sometimes bring about change for them – events that require some adjustment.

Please report those events which you have experienced in the past by circling YES. For each event, first indicate whether the event happened in 2008 or before, circle YES or NO. Then move to the second column to indicate whether the event happened since 2009 by circling YES or NO.
After you say WHEN the event occurred, we’re interested in how that event affected you. [RA: pause] So for each event that happened since 2010, that is, you circled YES in the second column, please indicate how much the event challenged your sense of who you are, even for a short time. People have such events happen often in their lives that somehow affect how they feel about who they are. For example, in everyday life you hear people say things like:

- Somehow when that happened I wasn’t myself for a bit.
- After that happened, I just felt like a different person.
- During that time, I just wasn’t able to be myself.
- At that time, I felt that maybe I wasn’t really the person I had always thought I was.

So think about that as you make your ratings. For each event, if your sense of self was not at all challenged, you would circle “1”. If your sense of self was extremely challenged, you would circle “7.” Feel free to use all the points on the scale. At the end of the survey, there are blank boxes for you to fill in. Please write down at least two additional events that are not listed but challenged your sense of who you are. [RA: turn to the final page, show the P those blank boxes. We want to encourage the P to fill it out]

Okay, do you have any questions about filling that in? I’ll give you some time for that now. Once you’re finished, please hand it back to me.

After getting the survey from the participant, says: “Okay, I am going to highlight some of your events now, and after that, I will give instructions for you to share a third memory with me.” [RA: use highlighters to mark events that score over 2 (i.e., scores 3-7) in SECTION B.]

Okay, now I would like you to share a third memory with me. I will give you a couple minutes to think of a specific event, and you will have about 7 minutes to share the memory with me. Okay?

Alright. For the third memory, we are interested in hearing about a SPECIFIC episode in your life that stands out: A time when you experienced that your sense of who you are was challenged. [RA pause] That is, the event made you feel that you were “not yourself,” made you felt like a different person, [RA pause] or made you felt that maybe you weren’t really the person you had always thought you were, even for a short time.
So please use Section B of the Life Experiences Survey that you just filled out to choose a highlighted event like this from your own life. The event should have happened in the past six years.

Now please review your answers and pick one specific highlighted event from the checklist. Let me know when you have chosen an event. Okay, please let me know which event you are referring to from the survey. Did this event happen in the past six years?

Okay. When you describe the event, please tell EVERYTHING that you can remember about this event. Before you start, please identify which event you are referring to from the survey.

RA says to the recorder: “This is (say RESEARCH ASST NAME) recording from participant number (say PARTICIPANT NUMBER) for Memory 3 (or Memory 4).” You may begin.

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

Ending: Sometimes it can be difficult to share memories like this. Thank you for sharing your story with me.
APPENDIX B
LIFE EXPERIENCES SURVEY

Section A
1. Marriage
2. Engagement
3. Outstanding personal achievement
4. New job
5. Gaining a new family member (through birth, adoption, etc.)
6. Marital reconciliation with mate
7. Reconciliation with boyfriend or girlfriend
8. Son or daughter leaving home (due to marriage, college, etc.)
9. Ending of formal schooling
10. Beginning a new school experience at a higher academic level (college, graduate school, professional school, etc.)
11. Changing a major
12. Joining a fraternity or sorority

Section B
13. Detention in jail or comparable institution
14. Death of spouse
15. Death of close family member including:
   a. mother
   b. father
   c. brother
   d. sister
   e. grandmother
   f. grandfather
   g. other: _____
16. Death of a close friend
17. Serious illness or injury of close family member including:
   a. mother
   b. father
   c. brother
   d. sister
   e. grandmother
   f. grandfather
   g. spouse
   h. other: _______
18. Male: wife/girlfriend’s unwanted pregnancy
19. Female: unwanted pregnancy
20. Being fired from job
21. Changed work situation in a negative way
22. Trouble with employer (in danger of losing job, being suspended, demoted, etc.)
23. Trouble with in-laws
24. Major negative change in closeness of family members (decreased closeness)
25. Sexual difficulties
26. Divorce
27. Marital separation from mate (due to conflict)
28. Unwanted separation from mate (due to work, travel, etc.)
29. Major increase in number of arguments with spouse
30. Married persons: negative change in spouse’s work outside the home
31. Breaking up with boyfriend or girlfriend
32. Major negative change in church activities
33. Major negative change in usual type and/or amount of recreation
34. Major negative change in financial status
35. Borrowing more than $10,000 (buying home, business, etc.)
36. Borrowing less than $10,000 (buying TV, car, getting school loan)
37. Financial problems concerning school (in danger of not having sufficient money to continue)
38. Forced retirement from work
39. Female: abortion
40. Major personal illness or injury
41. Major negative change in eating habits
42. Major negative change in sleeping habits
43. Major negative change in social activities
44. Major negative change in living conditions of family
45. Serious injury or illness of close friend
46. Homesickness (e.g., leaving home for the first time; moving away from home)
47. Negative change of residence
48. Changing to a new school at same academic level (undergraduate, graduate, etc.)
49. Academic probation
50. Being dismissed from dormitory or other residence
51. Failing an important exam
52. Failing a course
53. Other life challenges which have had negative impact on you. List below:
APPENDIX C
CODING MANUAL FOR AUTOBIOGRAPHICAL REASONING USING SELF-STABILITY AND SELF-CHANGE IN CHALLENGING AND NON-CHALLENGING MEMORY NARRATIVES

Overview

This coding scheme assesses how individuals explicitly narrate the self in relation to the targeted life event that they personally experienced. This coding construct consists of two types. The person expresses or indicates that: (1) the self remains stable despite the challenging life events (self-stability), or (2) the self has changed due to the challenging life events (self-change).

That is, coders should concern questions regarding:
- “Does the person indicate aspects of the self in their autobiographical narratives?
- If so, after the targeted event (see Determine a Target Event) does the person’s “view about the self,” remain stable or has it changed (see Determine Stability or Change)?”

Defining the self. Broadly, the self is defined as the total of all that I can call mine. Longstanding investment and the identification of importance are critical criteria to determine whether the possession accounts for a part of one’s self and identity. Explicit descriptions involving the following should be counted:

- Personality, attitudes/values, personal preferences, or goals. Dispositional statements about the self should be counted.
- People may feel a range of positive and negative emotions; these emotions can be counted only when they directly link to self and identity.
- Emotional states due to an event (i.e., situational) should not be counted (i.e., I was sad when I got hurt).
- The indication of self-conscious emotions (e.g., pride, guilt) may more often reflect people’s values (e.g., we feel pride in our own attributes or actions) and is likely telling something about themselves. But coders should still review the text carefully. They should not be automatically counted.

Determine a target event. A target event is a specific event with clear boundaries. It contains specific information about when, where, or what (e.g., I went to a Christian summer camp in Atlanta when I was in 7th grade). If the participants did not describe a specific event, then a general event (experience) will be counted as the target event (e.g., I take buses wherever I go).
Use time points to determine stability or change. To assess either change or stability, more than one ‘time point’ in the narrative must be explicitly stated. Most of the time, two time points would be T1- during the event and T2- after the event.

- Knowing only one-time point (e.g., during the event only) does not allow us to know if the narrator was that way before, or continued to be that way after the event (i.e., stability, change).
- Another way that people can talk about ‘before’ or ‘after’ the event is to refer to times outside the critical event. For example, I am shy.
- People can also do this by referring to ‘how things have always been’ or mentioning long standing (that is, over time) characteristics. Either of these are okay. But anyhow, two time points (at least) must be mentioned or do not code either stability or change.

Self-stability: Illustrate and Incorporate

Individuals expressed a stable sense of self when narrating challenging life events. That is, the narration shows/demonstrates/explains who I am, who I have always been, or who I will always be. This includes two subtypes: the event (1) illustrates some traits, longstanding qualities that I possess, and/or (2) is incorporated to be part of me under the umbrella of the existing self.

Coders should always specify which subcategory (SS-Illustrate or SS-Incorporate) is assigned. This facilitates our later discussion.

SS-Illustrate. Events show/demonstrate longstanding traits, qualities, values, habits, preferences, passions, and autobiographical background that the person, “I”, possesses. You should give a code of SS-Illustrate when you see an idea unit contains any of the following three types of expressions:

- Illustrate: express who I am.
  1) Explicit, firm statements about the self being the same. When the person doesn’t tell which aspects of the self remain the same but explicitly expresses s/he is the same person, assign an SS-Illustrate code. For example, “this event challenged me, but I stay pretty much consistent throughout.”
  2) Narratives of the target event show or illustrate some trait or quality that “I” possesses (Pasupathi & Mansour, 2006). The event happened the way it did because I (am this type of person, have this type of goal or skill). Or, this experience shows that I am this kind of person, possess this type of goal, personality, attitudes, beliefs, personal background, etc.
  3) Important factual or subjective details about me (Bluck et al., 2016). Ethnicity and cultural background should be counted as they are often central to the person’s identity (e.g., you know, I am a Cuban-American; in
our Hindu culture…). Subjective details about me that indicate general attitudes about “my” life, my life motto, values, or themes in the person’s life (e.g., I have talent in music; I like to enjoy the moment; my life has been a struggle).

- Discount: explain who I am not.

A code of SS-illustrate should also be given when a person discounts certain self-descriptions in order to illustrate who “I” is; to avoid the audience seeing me as a bad person when describing the target event (Pasupathi & Mansour, 2006). For example, “I am not a failure; I am not a screw-up” and then describe a time the person failed to submit a paper on time or was caught when committing petty crimes.

SS-incorporate. SS-incorporate is another way of expressing stability of the self. In narratives, events are included as an exemplar that reflect the person’s existing self-qualities. For example, the person indicates the meaning or ongoing significance/function of a relationship, goals, or places in the person’s life (Singer & Blagov, 2000). Since the event happened, some aspects of the event are transformed to be part of the existing self-system. But, the existing self-system remains stable.

Self-change: Induce and Reveal

The persons express the self as changed because of the target event. That is, the experience made me a certain type of person, provided me with a certain skill, induced a certain goal, or revealed who I am. The event causes the self-description. This includes two subtypes: the self (1) is induced by the event and/or (2) the self is revealed by the event.

Coders should always specify which subcategory (SC-Induce or SC-Reveal) is assigned. This facilitates our later discussion.

SC-Induce. The following two expressions should be counted.

- Explicit, firm statements of self-change due to the event. When the person does not tell which aspects of the self have been changed but explicitly state that s/he changed, assign a SC-induce code. For example, “this event really challenged me. Since then, I changed.”

- Reflect a self-conception that was induced by the event. The event causes the self-description. For example, one narrative recounts the experience of becoming a believer in God as a little boy, during a transformational conversation with the boy’s father. The person’s religious belief was induced or caused by this conversation (Pasupathi & Mansour, 2006).
SC-Reveal. The following expressions should be counted.

- Narrators reflect a self-conception that is a revelation from experience. That is, the experience didn’t make me an envious person, but it showed me that I’m more envious than I had previously realized (Pasupathi & Mansour, 2006). For example, “This was the first time where, I realized how, I guess, shy and embarrassed I could be or how hard it was for me to actually get up the guts to do, like something I guess I had in my head, which was to talk to her.”

Tips: The word “realize” does not always indicate a revelation of the self.
Now I would like to ask you some questions to check your memory and concentration. Some of them may be easy and some of them may be hard.

1. What year is it now? Score: Correct = 0, Incorrect = 4

2. What month is this? Score: Correct = 0, Incorrect = 3

Please repeat this name and address after me:
Jane Smith, 37 Elm Street, Chicago
Good. Now remember that name and address for a few minutes

3. Without looking at your watch or clock, tell me what time it is. (If response is vague, prompt for specific response within 1-hour)

Score: Correct = 0, Incorrect = 3

4. Count aloud backwards from 20 to 1 (mark correctly sequenced numerals – if subject starts counting forward or forgets the task, repeat instructions and score one error)

Score = # of errors x 2; Max errors = 2; Correct = 0, Incorrect = 2-4

5. Say the months of the year in reverse order. Dec Nov Oct Sept Aug Jul Jun May Apr Mar Feb Jan If the tester needs to prompt with the last name of the month of the year to begin with, one error should be scored – mark correctly sequenced months.

Score = # of errors x 2, Max errors = 2; Correct = 0, Incorrect = 2-4

6. Repeat the name and address you were asked to remember (Jane Smith, 37 Elm Street, Chicago)

Score = # of errors x 2, Max errors = 5; Correct = 0, Incorrect = 2-10

Total Error Score: ___/ 28
Cut-off for participation = 6
APPENDIX E
COGNITIVE ABILITY

Vocabulary

Instructions: We are interested in your knowledge of the meanings of words. Please complete each of the following items with the alternative that best fits the sentence. For instance, consider the example below:

A linguist is trained in:
   a. art b. law c. language d. writing e. history
For this question, you would have chosen c above. That is, a linguist is trained in language.

There are 24 more items for you to work on. Please begin whenever you are ready.

Click the best answer for each item.
1. Uniform objects are:
   a. similar b. decorated c. manufactured d. complete e. new
2. To gain eminence means to gain:
   a. wealth b. health c. distinction d. happiness e. knowledge
3. An acrid taste is:
   a. cloying b. milky c. soothing d. bitter e. neutral
4. A casualty is an:
   a. expedition b. accident c. effect d. insurance e. accusation
5. Feverish activity is:
   a. rapid b. dangerous c. medical d. childish e. useless
6. Idolatry involves:
   a. worship b. masonry c. laziness d. thieving e. preaching
7. To show clemency is to show:
   a. wisdom b. fear c. leniency d. revenge e. tolerance
8. To feign is to:
   a. fret b. faint c. molest d. pretend e. portend
9. A variegated article is:
   a. green b. obscure c. parti-colored d. ill-fitting e. dirty
10. A heinous act is:
    a. timely b. altruistic c. impulsive d. sincere e. outrageous
11. A garrulous person is:
    a. talkative b. homely c. sedate d. poor e. huge
12. A parable is a:
    a. dialogue b. fable c. playlet d. doctrine e. miracle
13. Rampant means:
    a. uncouth b. unearthly c. intense d. unrestrained e. riotous
14. A deplorable act is:
    a. unfortunate b. revealing c. fatal d. destructive e. insane
15. Omnipotent means:
    a. all-wise b. forgiving c. tolerant d. avenging e. all-powerful
16. Ethereal means:
   a. rugged b. idling c. inhospitable d. airy e. alternate
17. To extol is to:
   a. exalt b. compare c. re-tell d. complain e. ponder
18. A prosaic person is:
   a. witty b. intelligent c. dull d. abusive e. poetic
19. A presumptuous person is:
   a. humble b. designing c. audacious d. witty e. subtle
20. Homeopathy is a branch of:
   a. domestic science b. physics c. geology d. religion e. medicine
21. A lewd person is:
   a. shallow b. stingy c. sanctimonious d. depraved e. shrewd
22. An incumbent burden is:
   a. obligatory b. hateful c. annoying d. bulky e. bearable
23. A troglodyte is a:
   a. singer b. deposit c. surveyor's instrument d. cave dweller e. bird
24. An officious person is:
   a. thoughtful b. meddlesome c. queer d. faithful e. democratic

Episodic Memory

Instructions: You will hear a series of words at the rate of approximately one word every 2 seconds. When you hear the beep at the end of the word list orally recall as many of the words as you can remember. You can tell them to the assistant in any order.

Words to remember: desk, ranger, bird, shoe, stove, mountain, glasses, towel, cloud, silver, lamb, gun, pencil, church, fish
LIST OF REFERENCES


BIOGRAPHICAL SKETCH

Hsiao-Wen Liao was born in Taipei, Taiwan. She grew up in Kaohsiung, Taiwan and moved to Taipei to pursue her bachelor’s degree majoring in Educational Psychology and Counseling at National Taiwan Normal University (NTNU). She was one of the first students to be accepted by the dual-degree masters’ program, an innovative collaboration between NTNU and the University of Missouri-Columbia. During her graduate training, she became interested in research. She worked as Dr. Ching-Ling Cheng’s part-time research assistant. When she took a seminar course taught by Dr. Cheng, a paper written by Conway and Pleydell-Pearce in 2000 inspired her. She decided to understand more about the interplay between the self and autobiographical memory. She completed a master’s thesis examining self-defining memories of a turning point in relation to emerging adults’ identity development. Working as a full-time research assistant for Dr. Cheng for two years after receiving her master’s degree, Hsiao-Wen was prepared to pursue her doctoral degree in the USA. She met her advisor and mentor, Dr. Susan Bluck at the University of Florida. Hsiao-Wen feels she has been very fortunate to be able to have great mentors throughout her graduate training and work on topics she is very passionate about. In the future, she hopes to establish her program of research that fully incorporates a lifespan developmental perspective to delineate the bi-directional relation between the self and autobiographical memory across adulthood and in late life.