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Life story chapters, specific memories, and conceptions of the self

Steiner, K.L. Thomsen, D.K., & Pillemer, D.B

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Abstract

Two studies investigated the effects of recalling either life story chapters or specific memories on measures of self-continuity and self-esteem. Participants were assigned to recall important chapters, important specific memories, or impersonal facts, and they provided ratings of emotional tone. Participants also completed trait and state measures of self-continuity, self-esteem, and mood. Although effects of recall condition on state and trait measures were not statistically significant, within-group analyses identified strong and consistent relationships between the positivity of life story chapters and both trait and state self-continuity and self-esteem. In contrast, the positivity of specific memories was related only to state self-esteem. Qualities of life story chapters appear to be more central to enduring conceptions of the self than qualities of specific life story memories.

Life Story Chapters, Specific Memories, and Conceptions of the Self

Autobiographical memory encompasses both specific and general recollections that involve the self (Conway, Singer, & Tagini, 2004; Fivush & Haden, 2003; Prebble, Addis, & Tippett, 2013). Accordingly, when people tell their life story, they may reflect and elaborate on selected extended autobiographical periods (also termed life story chapters or simply chapters) and specific memories nested within those periods (Conway & Pleydell-Pearce, 2000; Thomsen, 2009). For example, an older adult's account of the early years of her marriage could describe general themes that characterize that chapter of her life (e.g., "We loved each other very much and that got us through the rough patches"), or her story could highlight particularly salient episodes (e.g., "My husband was devastated when he lost his first job, but we spent a wonderful day at the lake and he was energized to try again"). The present studies addressed three central questions concerning relationships between these two distinct types of recollection and aspects of the self. When adults are instructed to recall either chapters or specific memories in their life stories, does type of recall affect their self-continuity (i.e., the sense that one is the same person over time) and self-esteem? For people who are instructed to remember chapters, is the emotional tone of their chapters related to their state and trait self-continuity and self-esteem? Are similar relationships between emotional tone, self-continuity, and self-esteem evident when people recall specific memories rather than chapters?

From an applied perspective, identifying potential connections between qualities of life story chapters and aspects of the self should be of interest to clinicians: "Clinical psychologists work on a daily basis with memories, repetitive scripts, and life stories of their clients...The recent convergence in narrative identity research on basic processes of memory and autobiographical reasoning raises the possibility that clinicians might draw on these recent

advances to assist them in their work” (Singer, Blagov, Berry, & Oost, 2013, p. 578). Existing research has focused on relationships between identity and well-being and the content and affective tone of specific memories, including self-defining memories, turning points, earliest memories, and high or low points (e.g., Adler, Lodi-Smith, Philippe, & Houle, 2016; McAdams, Anyidoho, Brown, Huang, Kaplan, & Machado, 2004; Singer et al., 2013). But studies are also beginning to emerge showing that life story chapters differ between clinical samples and healthy controls (Dalglish, Hill, Golden, Morant, & Dunn, 2011; Holm, Thomsen, & Bliksted, 2016). If qualities of chapters are shown to be as or more predictive of self-esteem and self-continuity than properties of specific memories in the present studies, this would strengthen the case for expanding clinical research and practice to include a targeted focus on chapters.

This paper begins with a definition and conceptual analysis of life story chapters. Next, we highlight the potential importance of remembering chapters for promoting self-continuity and self-esteem, and we describe prior research and theory supporting the idea that the emotional tone of life story chapters should be more strongly associated with aspects of the self than the emotional tone of specific memories. Then, we present experimental findings comparing the impact of recalling life story chapters versus specific memories on self-continuity, self-esteem, and mood. Finally, we examine correlations between the emotional tone of people's reported chapters or specific memories and their self-continuity and self-esteem.

What is a Life Story Chapter?

Humans reflect on the important events of their lives to create stories about themselves. Using a process called autobiographical reasoning, adults forge causal and thematic links between the events and aspects of their selves (Habermas & Bluck, 2000). The ability to tell

coherent and chronological life stories is a complicated and multifaceted process that takes many years for humans to develop, emerging over the course of childhood and adolescence (Bohn & Berntsen, 2008; Chen, McAnally, & Reese, 2013; Habermas & Bluck, 2000; Habermas & de Silveria, 2008). Researchers claim that the process of creating life stories serves as the basis of identity development and is linked to well-being (Lilgendahl & McAdams, 2011; McAdams, 2001; McLean, Pasupathi, & Pals, 2007; McLean and Pratt, 2006; Singer, Rexhaj, & Baddeley, 2007).

Autobiographical memory research has focused primarily on recollections of specific, one-moment-in-time events, whereas empirical studies rarely feature extended autobiographical periods (Rathbone, Holmes, Murphy, & Ellis, 2015; Thomsen, 2009; Waters, Bauer, & Fivush, 2014). Nevertheless, theoretical models of autobiographical memory assign a prominent role to representations of temporally extended autobiographical periods lasting weeks, months, or years (Brown, Hansen, Lee, Vanderveen, & Conrad, 2012; Conway & Pleydell-Pearce, 2000). A recent review concluded that autobiographical periods are involved in the recall and dating of specific memories and are related to personality and well-being (Thomsen, 2015). Thus, autobiographical periods are an important part of individuals' mental representations of their lives.

In the current study, life story chapters refer to abstract conceptual representations of autobiographical periods that are considered important to life stories and encompass extended lengths of time (Thomsen, Steiner, & Pillemer, 2016). Adults perceive autobiographical periods as containing identifiable beginnings and endings and including information about people, places, typical activities, and the emotional tone associated with the period (Thomsen, 2015).

Although chapters nest specific memories (e.g. Conway, 2005), thinking about and describing chapters may or may not include specific memories. Evidence suggests that chapters are familiar, recognizable, and meaningful components of the life story. People naturally describe chapters when telling their open-ended life stories (Thomsen, 2009). When asked to list individual chapters in their own lives, both children (Chen et al., 2013) and adults can do so (Thomsen & Berntsen, 2008; Thomsen, Pillemer, & Ivcevic, 2011). In addition, both children and older adults can segment transcriptions of their spoken life stories into distinctive chapters with little difficulty (Steiner & Pillemer, 2016; Steiner, Pillemer, Thomsen, & Minigan, 2014). Chapter creation does not appear to be an entirely idiosyncratic process: disparate procedures for eliciting chapters in older adults produced similar numbers and lengths of chapters (Thomsen & Berntsen, 2008; Steiner et al., 2014). When students were asked to divide their oral history of the first year in college into chapters, independent coders segmented the students' narratives in a fashion similar to the students' own segmentations (Pillemer, Krensky, Kleinman, Goldsmith, & White, 1991).

Life Story Chapters, Specific Memories, Self-Continuity and Self-Esteem

One of the principal functions of autobiographical memory is to ground the self and maintain self-continuity over time (Addis & Tippett, 2008; Bluck & Liao, 2013; Bluck, Alea, Habermas, & Rubin, 2005; Conway & Pleydell-Pearce, 2000; Waters et al., 2014; Wilson & Ross, 2003). Although prior work has focused primarily on self-functions served by specific memories, theoretical reasons exist for expecting life story chapters to be as close or even more closely tied to enduring conceptions of the self. Chapters represent relatively stable autobiographical periods governed by overarching themes and goals (Barsalou, 1988; Habermas

& Bluck, 2000; Conway & Pleydell-Pearce, 2000; Thomsen, 2009; 2015; Thomsen et al., 2011). In contrast, specific memories represent singular events that are characterized by their uniqueness or distinctiveness (e.g. Pillemer, Goldsmith, Panter, & White, 1988; Selimbegovic, Regner, Sanitioso, & Huguet, 2011; Thomsen, Jensen, Holm, Olesen, Schnieber, & Tønnesvang, 2015; Tulving, 1983). As such, sampling a person's chapters may provide a more coherent portrait of the self than sampling specific memories, and chapters should be more central to self and identity. This has been confirmed in two recent studies where participants rated life story chapters higher on importance to identity than specific life story memories (Thomsen & Pillemer, 2016).

Brunot & Sanitioso (2004) observed that: "general memories denoting tendencies and repeated behaviors have more impact than do specific memories on how a person perceives himself or herself." (p. 634), supporting the close relationship between general autobiographical memory and self-conceptions. They found that when research participants wanted to convince themselves that they possessed a desired trait like extraversion, they used general rather than specific memories to do so (Brunot & Sanitioso, 2004). In addition, we have recently found that the emotional tone of chapters is more closely associated with personality traits than the emotional tone of specific memories (Thomsen & Pillemer, 2016), providing further evidence for the close relationship between chapters and self-conceptions. Similarly, Rathbone et al. (2015) discovered that the emotional tone of semantic self-images (defined as autobiographical knowledge about the self) was more predictive of well-being than the emotional tone of specific memories. Based on the above studies and reasoning, we expected the process of recalling chapters to have at least as strong an impact on conceptions of the self, here measured as self-continuity and self-esteem, as the process of recalling specific memories. In addition, we

expected that the emotional tone of chapters should be at least as strongly related to self-continuity and self-esteem as the emotional tone of specific memories.

Several prior studies have targeted relationships between important specific memories and conceptions of the self. For example, research has identified associations between the thematic content of life story memories, including redemption and contamination themes (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001) or agency and communion themes (Adler, Harmeling, & Walder-Biesanz, 2013; McAdams, Hoffman, Day & Mansfield, 2006), and measures of psychological functioning. Cili and Stopa (2014) found that when people are explicitly instructed to recall either positive or negative memories, recall of positive past events led to higher state self-esteem and state self-concept clarity compared to recall of negative past events. However, none of these studies have compared effects of recalling chapters to effects of recalling specific memories.

In the present studies, we focus on two aspects of the self—self-continuity and self-esteem. Researchers have theorized that one important autobiographical memory function is maintaining self-continuity. Self-continuity reflects “a deep conviction that, despite change, one continues to be the same person now as in the past, and will continue to be the same person in the future” (Prebble, Addis, & Tippett, 2013, p. 828). People use autobiographical memory to enhance self-continuity over time, creating narratives about the self that are central to maintaining a coherent identity (Addis & Tippett, 2008; Bluck & Liao, 2013). Self-continuity is positively correlated with self-esteem (Bigler, Neimeyer & Brown, 2001; Campbell, Assanand, & di Paula, 2003; Campbell, Trapnell, Heine, Katz, Lavalley, & Lehman, 1996). Having a consistent self-concept over time is linked to positive psychological outcomes, and people with

low self-esteem are less certain of who they are. Because life story chapters span extended time periods organized around overarching themes, thinking about one's life in terms of chapters rather than specific memories could have a greater impact on self-continuity and self-esteem than specific memories.

In the current studies, participants were assigned to one of three memory conditions: they completed questionnaires in which they recalled five important life story chapters, five important specific life story memories, or five sets of impersonal facts. The request for five chapters was an achievable target for young adult participants: Chen et al. (2013) found that even 8 to 12-year-old children provided an average of approximately six life story chapters in response to direct prompts. Steiner and Pillemer (2016) also found that children between the ages of 10 and 14 narrated open-ended life stories that contained six chapters on average. After describing each chapter, memory, or fact, participants provided ratings of positive emotions, negative emotions, centrality to identity, and typicality (i.e., the likelihood that a chapter or memory would occur in the life of a "typical" person). All participants also completed measures of self-continuity and self-esteem.

We predicted that participants who were prompted to remember either life story chapters or specific memories would report having higher self-continuity and higher self-esteem scores than participants in the impersonal facts condition (control). Because chapters represent extended life periods and specific memories represent distinctive events, we further hypothesized that these effects would be stronger for participants who recalled chapters. We also examined how recalling chapters or specific memories with particular qualities (e.g., positive emotions, negative emotions) related to self-continuity and self-esteem.

Study 1

This study tested the central hypothesis that recalling life story chapters or specific memories rather than impersonal facts would promote self-continuity and self-esteem. We also expected the effects of condition to be stronger for chapters than for memories. In addition, prior research has shown that general memories are more closely tied to positive beliefs about the self and are more typical than specific memories (Brunot & Sanitioso, 2004; Selimbegovic et al., 2011), and that chapters are rated as more positive and more central to identity (Thomsen & Pillemer, 2016). Accordingly, we expected chapters to be rated as more positive, typical, and central to identity than specific memories. Exploratory analyses also examined correlations between qualities of chapters, qualities of specific memories, and trait self-continuity and self-esteem. In particular, it seemed likely that chapters and specific memories rated as more positive and less negative would be associated with higher self-continuity and self-esteem.

Method

Participants

Participants were 179 undergraduate students at the University of New Hampshire who completed questionnaires for course credit. Participants had one hour to complete the written questionnaire and did so in a quiet room. One student was excluded from the analyses for failing to provide a memory and three students were excluded for not following instructions, for a final total of 175 participants (27 males). The mean age was 18.93 years ($SD = 1.60$, $range = 17-31$ years). With respect to ethnicity, 90.3% of students self-identified as Caucasian, 2.9% as Hispanic, 2.9% as Asian and 4% as bi-racial or other.

Materials and Procedure

Test conditions. Participants were assigned in sequential order to one of three test conditions (i.e., 1, 2, 3, 1, 2, 3). In the first condition ($N = 58$), participants were instructed to describe and rate five important chapters from their life:

Please think back over your entire life and identify 5 important chapters in your life story. A chapter should describe *an extended period of time in your life*. For example, an adult might describe an important life chapter focusing on his or her marriage. Chapters do not need to have a clear beginning or end, and different chapters may refer to the same time period in your life. You can include chapters that are still ongoing. For each chapter, you will be asked to give a description of the chapter and then answer some questions. Be as specific and detailed as possible. Please start with the chapter that comes to mind first.

In the second condition ($N = 59$), participants were instructed to describe and rate five important specific memories from their life:

Please think back over your entire life and identify 5 important specific episodes in your life story. A specific episode should describe an event in your life lasting *no more than one day*. For example, an adult might describe his/her wedding day as one important specific episode. For each specific episode, you will be asked to give a description of the event and then answer some questions. Be as specific and detailed as possible. Please start with the specific episode that comes to mind first.

In the third (control) condition ($N = 58$), participants were instructed to provide factual information about five US presidents:

Please think back over the course of American history and identify 5 important US Presidents from any time in the past up to the present. For each President, you will be asked to provide information that you know about that President and then answer some questions. Be as specific and detailed as possible. For example, an adult might name Franklin D. Roosevelt and then describe how FDR served as President for 4 terms and was confined to a wheelchair as the result of contracting polio. Please start with the US President that comes to mind first.

In all three conditions, participants were given 7 lines on which to write their response. The following is an example of a chapter provided by a participant:

"Since I was born, my father suffered with brain cancer. He encountered endless chemo therapy, radiation, and five surgeries. Even at a young age, I was taught to take care of him. When he died, it was a very low time in my life, but I appreciated every moment and memory I had with him. His death made me grow up very fast and I miss him every day."

The following is an example of a specific memory provided by a different participant:

"The first time I was dumped was a very traumatic experience. I was in high school taking an exam after school and he called me. It was the day after Valentine's day, and I cried in front of my teacher, who consoled me until I could drive home. I cried

all afternoon thinking I was worthless and not good at relationships. I thought I would never date another guy."

Qualities of chapters and memories. After describing chapters/specific memories/presidents, participants answered several questions. Participants in the chapters condition provided their ages at the beginning and ending of the chapters or indicated that the chapter was still ongoing. Participants in the specific memories condition provided their age at the time of the event, and participants in the control condition provided a range of dates during which the president they chose was in office. Participants in the chapters and specific memories conditions assessed the emotional tone of their recollections: how positive the chapter [event] was and how negative the chapter [event] was (1 = *Not at all*; 5 = *Extremely*). Two separate scales measuring affect were used so that participants could accurately rate chapters/memories that contained both positive and negative emotions. Next, participants rated on five-point scales (1 = *Not at all*; 5 = *Extremely*) the typicality of the chapter or memory (*How likely is this type of chapter [event] to occur in the life story of a typical person?*) and the centrality of the chapter or memory (*To what degree is this chapter [event] a central part of your identity and self-understanding?*). Participants in the control condition answered similar questions about the US presidents that they had identified: "*In general, how positively would this President be evaluated?*" "*In general, how negatively would this President be evaluated?*" "*In general, how typical was this President compared to other US Presidents?*" and "*In general, to what degree is this President central to American history?*"

Trait scale measures. Next, participants in all three conditions completed the Self Concept Clarity Scale (SCC, Campbell et al., 1996); this scale was used as a measure of trait

self-continuity or the degree to which the participants viewed their self as being clearly defined, consistent, and temporally stable. Agreement with individual test items (e.g., *"In general, I have a clear sense of who I am and what I am"*) was rated on 5-point scales (1 = *strongly disagree*; 5 = *strongly agree*; Cronbach's $\alpha = .87$). Responses were scored such that higher ratings indicated a clearer self-concept. Although temporal stability of beliefs about the self is one prominent component of the SCC, some test items do not appear to directly assess self-continuity; for example, a participant could strongly agree with the statement *"My beliefs about myself often conflict with one another"* and yet also contend that this state of internal conflict has been a continuous aspect of the self. In spite of this limitation, the scale was selected for the present study because it does include items focusing on self-continuity and many studies testify to its psychometric qualities.

Participants also completed four questions intended to measure self-continuity that were adapted from the Self subscale of the Thinking About Life Experiences questionnaire (TALE; Bluck & Alea, 2011): *"I feel that I am the same type of person now as I was earlier"*; *"I feel that my values have changed over time"*; *"I feel that my beliefs have changed over time"*; and *"I feel that I have not changed from who I was before."* Ratings were made on 5-point scales (1 = *strongly disagree*; 5 = *strongly agree*; $\alpha = .77$) and total scores were computed by combining responses to these four questions).

Participants then completed the Rosenberg Self Esteem scale (RSE; Rosenberg, 1965), which is a well-established 10-item measure of trait self-esteem; items were rated on 4-point scales (1 = *strongly disagree*; 4 = *strongly agree*; $\alpha = .88$). Responses were scored such that higher ratings indicated higher self-esteem.

Finally, participants provided demographic information including their age, gender, and ethnicity.

Results

A series of one-way ANOVAs examined the relationship between memory condition (chapters, specific memories, and impersonal facts) and ratings on the SCC scale, the RSE scale, and the TALE. Comparisons involving the SCC scale were not statistically significant (chapters $M = 39.35$, $SD = 7.92$, specific memories $M = 38.90$, $SD = 8.30$, control $M = 37.22$, $SD = 8.44$), $F(2, 172) = 1.07$, $p = .34$, $\eta^2 = .01$. Comparisons involving the RSE scale also failed to reach statistical significance (chapters $M = 31.49$, $SD = 4.79$, specific memories $M = 30.19$, $SD = 5.02$, control $M = 29.89$, $SD = 4.08$), $F(2, 169) = 1.91$, $p = .15$, $\eta^2 = .02$, as did comparisons involving the TALE self items composite (chapters $M = 9.45$, $SD = 3.38$, specific memories $M = 9.49$, $SD = 2.99$, control $M = 8.76$, $SD = 3.29$), $F(2, 172) = .95$, $p = .39$, $\eta^2 = .01$.

Characteristics of chapters and memories also were compared. A mean rating for each quality was computed by averaging across the 5 specific memories/chapters. Chapters were rated as more positive than specific memories (chapters $M = 3.53$, $SD = .61$, specific memories $M = 3.20$, $SD = .71$), $t(115) = 2.70$, $p < .008$, $d = .50$, more typical (chapters $M = 3.87$, $SD = .59$, specific memories $M = 3.50$, $SD = .76$), $t(115) = 2.96$, $p < .004$, $d = .54$, and more central to identity (chapters $M = 3.87$, $SD = .61$, specific memories $M = 3.32$, $SD = .68$), $t(115) = 4.61$, $p < .001$, $d = .85$. In contrast, negative ratings were similar across conditions (chapters $M = 2.39$, $SD = .60$, specific memories $M = 2.36$, $SD = .61$), $t(115) = .32$, $p = .75$, $d = .05$.

Relationships between memory ratings (positive, negative, typical, central) and SCC and RSE scores were examined for the chapters and specific memories conditions separately (Table

1). Participants who rated their chapters more positively had higher trait self-esteem and self-concept clarity. In contrast, correlations between emotion ratings of specific memories and trait RSE and SCC scores were not statistically significant. Correlations between chapters and specific memories ratings and the TALE composite score were not statistically significant. As would be expected, correlations between positivity ratings of US Presidents and SCC and RSE scores also were not significant.

[Table 1 Here]

Discussion

The hypothesis that instructing participants to remember life story chapters, specific memories, or impersonal facts would have differential effects on self-continuity and self-esteem was not supported; condition did not significantly affect ratings of trait self-esteem or self-continuity. However, the emotional tone of chapters was related to self-esteem and self-concept clarity such that participants who rated their chapters more positively had higher self-esteem and self-concept clarity; no such relationships existed in the specific memories or control conditions.

Trait measures of self-esteem and self-concept clarity tend to be stable (Kuster & Orth, 2013; Trzesniewski, Donnellan, & Robins, 2003) and resistant to short-term manipulations (Heatherton & Polivy, 1991), which may account for the lack of support for hypotheses involving the experimental memory manipulation. A second study was designed to assess whether larger effects of memory condition would be apparent using state rather than trait measures. In addition, the second study provided an opportunity to replicate the key discovery that positive emotion ratings of life story chapters, but not specific memories, were related to

measures of trait self-continuity and self-esteem, and to examine correlations between emotion ratings of chapters and memories and state measures of self-continuity and self-esteem.

Study 2

In study 2, participants completed both trait and state measures of self-esteem and self-continuity and a state measure of mood. We predicted that participants in the chapters condition would report higher state self-esteem and self-continuity scores in comparison to those in the specific memories or control conditions. We also predicted that the emotional tone of chapters would be related to both trait and state self-esteem and self-concept clarity. Based on the study 1 results, we did not expect relationships between emotion ratings and self-measures to be evident for the specific memories or control conditions.

Method

Participants

Participants were 179 undergraduate students at the University of New Hampshire who completed questionnaires for course credit. Participants had one hour to complete the written questionnaire and did so in a quiet room. Two participants were excluded for not following the instructions and one was excluded for failing to provide demographic information, for a total of 176 participants (25 males). The mean age was 19.32 years ($SD = 2.33$, $range = 18-46$ years). With respect to ethnicity, 88.1% of students self-identified as Caucasian, 2.3% as Hispanic, 5.7% as Asian, .6% as African American and 3.4% as biracial or other.

Materials and Procedure

Trait scale measures. Participants in all conditions first completed the standard trait version of the Self Concept Clarity Scale (Campbell et al., 1996; $\alpha = .86$) and responded to the four statements that were adapted from the Self subscale of the TALE (Bluck & Alea, 2011; $\alpha = .81$). Participants then completed the standard trait version of the Rosenberg Self Esteem scale (Rosenberg, 1965; $\alpha = .89$). As in study 1, the instructions asked participants to indicate how much the statements applied to them in general. In this second study, these measures were included to examine associations with the emotional tone of chapters and specific memories and not to assess the experimental effect of recalling chapters, specific memories, or famous people. Hence they were administered before the experimental manipulation.

Test conditions. Test conditions were nearly identical to those in study 1. Participants were assigned in sequential order to one of three test conditions (i.e., 1,2,3,1,2,3): a chapters condition ($N = 58$), a specific memories condition ($N = 60$), and a factual information (control) condition ($N = 58$). In study 1, a number of participants orally reported to a researcher that they found the US presidents control condition to be difficult and struggled to complete the task. An alternative control condition was created for study 2 because we did not want the difficulty of the control condition to affect participants' ratings of their self-esteem.

In study 2, participants in the control condition provided factual information about five famous American people. Specific instructions to participants were as follows:

Please identify 5 famous American people from any time in the past up to the present.

For each person, you will be asked to provide information that you know about that

person and then answer some questions. Be as specific and detailed as possible. For

example, an adult might name James Dean and then describe how James Dean died at an

early age in a car crash and was famous for acting in movies that portrayed him as an angst-ridden teenager. Please start with the famous person that comes to mind first.

Qualities of chapters and memories. After completing the trait measures, participants provided and rated 5 life story chapters, specific memories, or facts about famous people. Participants in the chapters condition provided their ages at the beginning and ending of the chapters or indicated that the chapter was still ongoing. Participants in the specific memories condition provided their age at the time of the event, and participants in the control condition provided the years when the person they chose first became famous. Participants gave the same ratings for their chapters, memories, or famous people as in study 1.

State scale measures. Following the intervention, participants in all conditions provided a rating of their current mood. Responses were given on a five-point scale (1 = *Very Unpleasant*; 5 = *Very Pleasant*). Next, participants completed a state version of the SCC scale (Nezlek & Plesko, 2001; $\alpha = .78$), which used items 1, 4, 8, and 9 from the original SCC scale, based on factor loadings reported by Campbell et al. (1996). The instructions emphasized that participants should indicate how the statements applied to them right now. Responses were scored such that higher ratings indicated a clearer self-concept. Participants then completed the state measure of self-esteem, which used items 3, 6, 7, and 10 from the original RSE scale (Rosenberg, 1965; $\alpha = .86$). The items were reworded to reflect how the participant was feeling right now (Nezlek & Plesko, 2001). State SCC and RSE test items are presented in the Appendix. Responses were scored such that higher ratings indicated higher self-esteem. Participants also indicated how difficult they found the task of identifying and answering questions about the chapters, specific memories, or famous people. Responses were given on a five-point scale (1 = *Not at All*

Difficult; 5 = Extremely Difficult). Finally, participants gave demographic information including their age, gender, and ethnicity.

Results

One-way ANOVAs examining group differences in state SCC did not reach conventional levels of statistical significance (chapters $M = 14.40$, $SD = 2.85$, specific memories $M = 13.98$, $SD = 3.16$, control $M = 13.05$, $SD = 3.21$), $F(2, 173) = 2.91$, $p = .057$, $\eta^2 = .03$. For state RSE, group differences were not significant, chapters $M = 13.28$, $SD = 1.95$, specific memories $M = 13.30$, $SD = 1.92$, control $M = 12.79$, $SD = 1.73$), $F(2, 173) = 1.36$, $p = .26$, $\eta^2 = .02$, nor were group differences for the measure of current mood, (chapters $M = 3.97$, $SD = .73$, specific memories $M = 3.76$, $SD = .94$, control $M = 3.64$, $SD = .81$), $F(2, 173) = 2.31$, $p = .10$, $\eta^2 = .03$ and ratings of task difficulty, (chapters $M = 2.22$, $SD = 1.01$, specific memories $M = 2.58$, $SD = 1.07$, control $M = 2.69$, $SD = 1.20$), $F(2, 172) = 2.84$, $p = .06$, $\eta^2 = .03$. Analyses of covariance were conducted to assess whether group differences in state measures of SCC and RSE were significant when controlling for pre-intervention scores on the corresponding trait SCC and RSE measures. The pattern of group differences when a covariate was included in the analyses was similar to the unadjusted group differences.

As in study 1, characteristics of chapters and specific memories were compared. Chapters were rated as more central to self and identity than specific memories (chapters $M = 3.93$, $SD = .46$, specific memories $M = 3.58$, $SD = .63$), $t(116) = 3.48$, $p < .001$, $d = .64$. Unlike study 1, there were no statistically significant differences between chapters and specific memories for positive ratings (chapters $M = 3.43$, $SD = .75$, specific memories $M = 3.48$, $SD = .82$), $t(116) = -.32$, $p = .75$, $d = .06$ or ratings of typicality (chapters $M = 3.83$, $SD = .62$, specific memories $M =$

3.64, $SD = .69$), $t(116) = 1.54$, $p = .13$, $d = .29$. There were also no differences between chapters and specific memories in negative ratings (chapters $M = 2.37$, $SD = .68$, specific memories $M = 2.17$, $SD = .76$), $t(116) = 1.60$, $p = .11$, $d = .29$.

Relationships between memory ratings and trait and state RSE and SCC scores were examined for the chapters and specific memories conditions separately (Table 2). Participants who rated their chapters more positively had higher trait self-esteem and self-concept clarity while participants who rated their chapters more negatively had lower trait self-esteem and self-concept clarity. Similar relationships were apparent for the state RSE and SCC scores. In contrast, the specific memories condition showed no statistically significant correlations between memory ratings and trait RSE and SCC scores, replicating the results of study 1. However, participants who rated their specific memories more positively had higher state self-esteem while those who rated their specific memories more negatively had lower state self-esteem. Memory ratings were unrelated to TALE composite scores in both memory conditions. As expected, control group emotion ratings were not significantly related to trait or state measures of self-conceptions.

[Table 2 here]

To further examine associations between emotion ratings of chapters and specific memories and current beliefs about the self, partial correlations between emotion ratings and state measures of RSE and SCC were conducted when controlling for the corresponding trait measures as a baseline. Partial correlations between state RSE and positive ($r(54) = .13$, $p = .35$) and negative ($r(54) = -.13$, $p = .33$) chapters ratings when controlling for trait RSE were not statistically significant, nor were partial correlations for state SCC and positive ($r(55) = .08$, $p =$

.56) and negative ($r(55) = -.08, p = .56$) chapters ratings when controlling for trait SCC. In contrast, partial correlations between state RSE and both positive ($r(56) = .38, p = .004$) and negative ($r(56) = -.40, p = .002$) specific memories ratings when controlling for trait RSE were statistically significant, as were partial correlations between state SCC and positive ($r(57) = .26, p = .04$) and negative ($r(57) = -.31, p = .015$) specific memories ratings when controlling for trait SCC.

Relationships between mood and memory ratings were examined for the chapters condition and the specific memories condition separately. Participants who rated their chapters more positively and as more typical rated their current mood as being more pleasant ($r = .30, p = .02$; $r = .28, p = .03$) while participants who rated their chapters more negatively rated their mood as less pleasant ($r = -.33, p = .01$). In the specific memories condition, participants who rated their memories more positively also rated their current mood as being more pleasant ($r = .29, p = .03$), while participants who rated their memories more negatively rated their mood as less pleasant ($r = -.33, p = .01$).

General Discussion

The present studies tested the hypothesis that instructing people to recall life story chapters or specific memories would increase self-continuity and self-esteem compared to a control condition. There was little support for the hypothesized effect of memory condition on measures of trait self-continuity and self-esteem in study 1. In study 2, where we used more sensitive state measures of self-continuity and self-esteem, group differences were modest and did not reach conventional levels of statistical significance. The memory intervention may have been too brief and superficial to have a strong impact on these measures; participants were

required only to describe five chapters or memories on a written questionnaire. In future research, the intervention could engage participants more deeply and thoughtfully in the chapter or memory recall process. For example, they could be asked to tell their entire life story focusing either on chapters or specific memories and then to answer questions designed to encourage reflection on the interconnections between chapters or specific memories.

An alternative explanation for the absence of statistically significant effects of the memory intervention on state measures of self-esteem and self-continuity is that recalling chapters or specific memories does not exert a strong impact on current beliefs about the self. Rather, beliefs about the self may influence the types and emotional tone of chapters and memories that come to mind (Conway, 2005). In order to evaluate this alternative proposal, experiments should be designed that manipulate people's current self-beliefs and then examine the impact on the emotional tone and themes of chapters and specific memories. If temporarily lowering self-esteem resulted in participants describing more negative chapters, this finding would support the idea that beliefs about the self influence, rather than are influenced by, the content and emotional tone of remembered chapters. Yet another research strategy would use a directed rather than open-ended prompt for chapters and memories. Participants could be instructed to recall intensely positive or intensely negative or more neutral chapters/memories and then provide ratings of self-esteem and self-continuity; this experimental design would assess the direct impact of the emotional tone of chapters and memories on these aspects of the self.

Study 1 and study 2 provided consistent support for the idea that the emotional tone of life story chapters is more strongly associated with trait self-continuity and self-esteem than is

the emotional tone of specific memories. Substantial correlations between chapters' emotion ratings and trait self-continuity and self-esteem were evident in both studies, whereas correlations between specific memories' emotion ratings and trait measures did not approach statistical significance. People who reported highly positive chapters appear to experience enduring self-continuity and high self-esteem, whereas people who reported highly positive specific memories do not. These results are similar to a recent study where the emotional tone of chapters was more closely related to personality traits than the emotional tone of specific memories (Thomsen & Pillemer, 2016).

In study 2, emotion ratings for chapters were significantly correlated with state measures of self-continuity, self-esteem, and mood. In addition, emotion ratings for specific memories also were correlated with state self-esteem and current mood. Consistent with prior research (Cili & Stopa, 2014; Seidlitz & Diener, 1993), recalling specific positive memories was associated with elevated beliefs about the self in the present moment. It is primarily when trait measures of self-continuity and self-esteem are used that chapters demonstrate their advantage over specific memories.

A discrepancy across studies involves associations between negative emotion ratings for chapters and trait measures of self-continuity and self-esteem: correlations were substantial and statistically significant only in study 2. Trait self-continuity and self-esteem served as outcome measures in study 1 and as such were administered after the memory intervention. In contrast, study 2 was designed to assess the effects of the intervention on state self-continuity and self-esteem, and trait scores were obtained prior to the intervention as a baseline. In study 2, it is possible that participants who initially presented with more negative beliefs about their self on

trait measures subsequently described their life story chapters in a more negative light, so that the observed associations involving negative emotion ratings were evident only when trait measures preceded (study 2) rather than followed (study 1) a request to report chapters. Additional research systematically varying order of presentation within the same study is necessary to clarify these between study differences.

A possible explanation for the stronger association between trait measures and the emotional tone of chapters rather than specific memories is that life story chapters represent extended and thematically organized life periods that reflect aspects of the self (Habermas & Bluck, 2000; Conway & Pleydell-Pearce, 2000; Thomsen, 2009; Thomsen et al., 2011). In contrast, specific memories persist in part because the remembered events are distinctive and unique (Pillemer, 1998; Pillemer et al., 1988; Selimbegovic et al., 2011; Thomsen et al., 2015; Tulving, 1983). Across studies, chapters were rated as more central to identity and self-understanding than were specific memories; this supports the idea that the emotional tone of chapters should be more strongly tied to enduring self-conceptions than the emotional tone of specific memories. But other studies have found associations between qualities of memories and aspects of the self (e.g., Adler et al., 2013; Cili & Stopa, 2014; McAdams et al., 2001). These studies have focused on underlying themes derived from content coding and have explicitly asked for positive and negative memories, rather than obtaining self-ratings of specific life story memories. Also, in some cases participants in these studies may have identified extended autobiographical periods rather than specific memories (see McAdams et al., 2001, p. 478 for examples). Our results indicate that when chapters and specific memories are examined in the same study using parallel prompts, emotional ratings of chapters show stronger associations with stable aspects of the self.

The weaker correlations between trait measures and the emotional tone of specific memories compared to chapters need not imply that these memories do not contribute to personal identity. It is possible that people with high self-esteem vividly remember both positive and negative episodes, and that they integrate these disparate experiences into the broader life story. For example, a person who has a mostly positive chapter focusing on the early years of marriage may nevertheless remember both high and low points from this time period and build a coherent life story that incorporates both types of experiences. In this instance, the overall positive tone of the chapter may be predictive of self-esteem whereas the varying emotional tone of the particular memories may not, even though they still contribute to the life story.

In the current studies, participants identified life story chapters and specific memories without any restrictions on when the remembered experiences occurred, and differences in temporal distance from the present could have affected the results. Memories and chapters may have occurred recently or long ago, and chapters could still be ongoing. Specific memories portray episodes that took place at a particular time and place whereas chapters often span months or years, so that it is not possible to directly compare or equate chapter ages and memory ages. Nevertheless, both chapters and memories tended to focus on early adolescence: the mean chapter start ages in studies 1 and 2 were 13.32 and 13.29 years and the mean specific memory ages in studies 1 and 2 were 14.57 and 15.35 years. Studies could utilize temporal prompts that direct the search for chapters and memories to more precisely defined time periods (e.g., a chapter/event that started/occurred before age 8 or in the past year).

Partial correlations examined relationships between the emotional tone of chapters and specific memories and state measures of self-continuity and self-esteem when controlling for

trait self-continuity and self-esteem as baseline (pre-intervention) measures. Correlations between emotion ratings of specific memories and state measures were significant when controlling for trait measures; this finding suggests that the emotional contents of recently activated specific memories are linked to transient beliefs about the self. In contrast, correlations between emotion ratings of chapters and state measures were no longer significant when controlling for trait measures; this finding indicates that associations between chapter emotions and current beliefs about the self may be secondary to underlying relationships between chapter emotional tone and more stable and persistent beliefs about the self.

It is important to ask if our conclusions can be generalized to age groups other than young adults. The ability to coherently narrate a single, specific event from one's life is present early in childhood (Bohn & Berntsen, 2008; Fivush, Haden, & Reese, 2006). However, the ability to narrate a coherent life story has a much longer developmental trajectory. By late adolescence, life stories tend to be globally coherent, with a steep increase in coherence between late childhood and mid-adolescence (Bohn & Berntsen, 2008; Habermas & Paha, 2001; Habermas & de Silveira, 2008). By age 18, young adults tell their life stories in a linear fashion using autobiographical reasoning, and these are causally, temporally, and culturally coherent, similar to the life stories told by older adults (see Habermas & Reese, 2015 for a review of the developmental trajectory of life stories). As such, we would not expect to find major differences in the organization and coherence of life stories produced by our college age participants and older adults. Future research should examine whether a similar relationship exists between the emotional tone of chapters, specific memories, and beliefs about the self for younger and older adults.

Research could also examine relationships between the emotional tone of chapters, the emotional tone of specific memories, and beliefs about the self in more diverse samples. Participants in the current studies were primarily white and female, and it is possible that different patterns of findings would be evident in samples of males and people representing other ethnicities. For example, prior studies have shown that adult females may exhibit a more episodic memory style than males, showing enhanced memory for specific personal events (e.g., Seidlitz & Diener, 1998) and more frequently sharing specific memories (e.g., Pillemer, Wink, DiDonato, & Sandborn, 2003). With respect to culture, Caucasians often provide more detailed and emotion-focused personal memories than do Asians, and they may assign more importance to specific memories (see Wang, 2013, for a review and synthesis). New research could examine gender and cultural differences in the sharing, meaning, emotional tone and perceived importance of life story chapters, and explore how these qualities of chapters relate to aspects of the self.

In conclusion, autobiographical memory research has focused primarily on specific memories (Rathbone et al., 2015; Thomsen, 2009; Waters et al., 2014). In the present studies, positive correlations between the emotional tone of life story chapters and trait measures suggest that chapters not only provide an organizational structure for specific memories, they are also strongly tied to enduring conceptions of the self (Thomsen, 2015). Research designed to examine relationships between memories and aspects of the self will be enriched by adopting a new focus on life story chapters.

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Table 1. Intercorrelations between chapter/specific memory qualities (positive, negative, typicality, centrality) and ratings on the trait RSE and SCC (study 1).

Variables	Chapter Condition +				Specific Memory Condition ++			
	Positive	Negative	Typical	Central	Positive	Negative	Typical	Central
1.Trait RSE	.310*	.038	-.290*	.246	.147	-.086	.183	.210
2.Trait SCC	.284*	-.018	-.196	-.012	-.082	.071	.019	.078

* $p < .05$

+ $N = 57$ for trait RSE, $N = 58$ for trait SCC.

++ $N = 58$ for trait RSE, $N = 59$ for trait SCC.

Table 2. Intercorrelations between chapter/specific memory qualities (positive, negative, typicality, centrality) and ratings on the trait and state RSE and SCC (study 2).

Variables	Chapter Condition +				Specific Memory Condition ++			
	Positive	Negative	Typical	Central	Positive	Negative	Typical	Central
1.Trait RSE	.393**	-.471**	.207	-.033	.060	-.059	-.100	.167
2.State RSE	.360**	-.414**	.111	.164	.330*	-.346**	-.310*	.183
3.Trait SCC	.333*	-.395**	.039	-.244	.015	-.064	-.123	.020
4.State SCC	.298*	-.342**	.016	-.035	.174	-.244	-.029	.031

* $p < .05$

** $p < .01$

+ $N = 57$ for trait RSE, $N = 58$ for trait SCC, $N = 58$ for state RSE, $N = 58$ for state SCC.

++ $N = 59$ for trait RSE, $N = 60$ for trait SCC, $N = 60$ for state RSE, $N = 60$ for state SCC.

Appendix

List of items adapted from the full SCC scale (Campbell et al., 1996) in study 2. Ratings were made on 5-point scales (1 = *strongly disagree*; 5 = *strongly agree*).

1. *My beliefs about myself conflict with one another.*
2. *I feel that I am not really the person I appear to be.*
3. *My beliefs about myself change very frequently.*
4. *If I were asked to describe my personality right now, my description might end up being different today than tomorrow.*

List of items adapted from the full RSE scale (Rosenberg, 1965) in study 2. Ratings were made on 4-point scales (1 = *strongly disagree*; 4 = *strongly agree*).

1. *Right now, I feel that I have a number of good qualities.*
2. *Right now, I feel useless.*
3. *Right now, I feel that I'm a person of worth.*
4. *Right now, I take a positive attitude toward myself.*