



# The content and processes of autobiographical reasoning in narrative identity

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## Abstract

Building on research that focuses on individual differences in the narration of important life events, this study examined the content of self-event connections and thematic coherence in relation to the processes of autobiographical reasoning. Autobiographical reasoning was defined as making connections between the past and the self, the effort reported in making those connections and the emotional evaluation of the connections. Personality differences at the levels of traits and ego development were examined in relation to autobiographical reasoning. One hundred and nineteen younger and older adults completed a self-defining memory interview. Self-event connections reported in the interviews were coded as being about dispositions, values, outlook, and personal growth. Connections were then coded for the degree of cognitive effort required to make the connection and the emotional evaluation of the connection. Finally, the entire interview was coded for the presence or absence of a theme. Results showed that cognitive effort and evaluation differed across type of connection, and ego development and traits moderated some of these results. Further, across connections, there were individual differences in cognitive effort and evaluation, as well as in the reports of a themes across memories. Results are discussed in terms of individual differences in the construction of narrative identity.

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## 1. Introduction

The life story has been conceptualized as a level of personality that centers on an extended and selective narrative of one's life experiences constituting one's identity

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(e.g., McAdams, 1993, 2001). One of the major processes through which the life story is developed is via autobiographical reasoning, in which connections between the self and the past are made (Habermas & Bluck, 2000; McLean, Pasupathi, & Pals, 2007; Pasupathi & Mansour, 2006). Research has shown that the *processes* of autobiographical reasoning (e.g., sophistication and depth) are related to aspects of personality, such as traits and ego development (e.g., Bauer, McAdams, & Sakeda, 2005; King, Scollon, Ramsey, & Williams, 2000; McAdams, Reynolds, Lewis, Patten, & Bowman, 2001; McAdams et al., 2004; Pals, 2006), but less research has focused on the *content* of autobiographical reasoning. Therefore, this study examined autobiographical reasoning in terms of the *types of self-event connections* that people made in a sample diverse in terms of age and ethnicity. We hypothesized that autobiographical reasoning varies across experiences, such that the content of self-event connections should vary as a function of the processes involved, and furthermore that the extent of processing should vary across individuals as a function of personality traits and ego development.

Traditionally, narrative research has been carried out at the level of the individual. That is, researchers have aggregated aspects of content and process across many narratives, and then correlated these aggregate scores with other variables such as personality traits. We also examined variation in the aggregate, but we further employed multilevel modeling that allowed us to specify the connection as our unit of analysis in the spirit of a more purely intraindividual analysis. The nuance of this technique helps to unpack the varied experiences and processes that are used to create life stories.

### *1.1. Personality at three levels: Traits, characteristic adaptations, and the life story*

McAdams (1995) has proposed that personality is made up of three levels: traits, adaptations, and life stories, which constitute narrative identity. We examined variables at levels one and two as correlates of level three content and processes. At level one, traits are defined as general, internal, and comparative dispositions that account for the consistencies observed in behavior across situations and over time (Costa & McCrae, 1994; Roberts & Caspi, 2003). There is now general consensus upon a five-factor model of personality traits, which includes the dimensions of extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (Digman, 1996; Goldberg, 1993; John, 1990; McCrae & Costa, 1995). At level two, characteristic adaptations include motivational, cognitive, and developmental facets of human functioning that contextualize the individual in time, place, and role. In contrast to level two, and particularly to level one, level three is a more non-comparative and malleable aspect of personality (McAdams, 1993, 1995, 2001; Singer, 1995; Thorne & Latzke, 1996). Level three is composed of stories of one's experiences that are eventually woven into a life story, providing people with a sense of who they are based on a storied past.

While narration is a universal form of communication and understanding (Bruner, 1990), people narrate their lives in different ways, with some of this variation accounted for by personality at levels one and two (e.g., Bauer et al., 2005; King et al., 2000; McAdams et al., 2004; Pals, 2006; Singer & Salovey, 1993; Thorne, 2000; Woike, 1995). Our goal was to better understand how individual differences in traits and ego development were related to the narrative processes of making self-event connections.

## 2. Self-event connections and self-defining memories

Self-defining memories were our representation of level three and we focused on the construction of self-event connections within these memories. These are memories that are emotional, personally important, central to the life story, and about which autobiographical reasoning is likely to occur (McLean & Thorne, 2003; Singer & Moffitt, 1991–1992; Singer & Salovey, 1993; Thorne, 2000; Thorne, McLean, & Lawrence, 2004). We examined both the types of content and the processing of these connections.

To examine the types of content we identified each self-event connection that people made when talking about their self-defining memories; that is, any time when someone made an explicit connection between the past and the self (e.g., “This event made me realize that I am a good person.”). Pasupathi and colleagues (Pasupathi & Mansour, 2006; Pasupathi, Mansour, & Brubaker, *in press*) have proposed that making connections between experience and the self is one way that the life story is developed and maintained, yet no prior research has examined the different types of content of these connections (cf., McLean, *in press*; McLean, Breen, & Fournier, *under review*).

The rationale behind examining the topics of connections that people make is similar to the rationale that McAdams (1995) used in explaining the life story model of personality, when he asked the question: ‘What do you know when you know a person?’ While the answer to that question has often taken the path of examining *how* people construct stories, we wanted to ask *what* people say in the stories they construct. We hypothesized that representations of other aspects of personality (e.g., traits) would be found in people’s stories. Thus, while we used an inductive coding system for capturing content, we expected that connection types would fit into McAdams’ three-level framework. This is not to say that stories are simply another way of assessing traits, but rather that one of the contributions of looking at personality at the level of narrative is to see how people represent their characteristic behaviors and modes of adaptation.

We examined four types of content in self-event connections: dispositions, values, outlook, and personal growth (see Table 1). Dispositional connections involve understanding oneself in terms of traits (level one). Values connections focus on morality and beliefs (level two). Outlook connections focus on attitudes or perspectives about the world (level two). Personal growth connections involve the development of maturity, strength, confidence, or other such aspects of one’s personal development (level three). In trying to understand how these different types of connections fit into the construction of the life story, we examined two aspects of the processing of connections: the cognitive effort and the emotional evaluation of each connection (see Table 2).

### 2.1. Cognitive effort

Prior research has suggested that negative events appear to take more effort to resolve than positive events. For example, a wealth of research has shown that in narratives of important personal experiences, negative or conflicting events are associated with narrative meaning-making (McLean & Pratt, 2006; McLean & Thorne, 2003; Thorne et al., 2004), exploratory processing (Pals, 2006), and cognitive accommodation (King et al., 2000). The dimensions examined in past studies reflect an effort towards constructing a

Table 1  
Content: Narrative examples and definitions

Label	Definition	Narrative example
Dispositions	Traits, stable behavioral characteristics	“... it was like another step in life, I guess, umm, to get an experience to work with others, cause I’m like a very introverted person, and where I work, there’s so many people, and it’s all about teamwork...”
Values	Morality, right and wrong	“... help those in need. We have a code of ethics and I try to live by that code of ethics, never to run anybody down, but to build them up. Uh, never to hold out a hand in anger, but to hold out a hand in friendship.”
Outlook	Attitudes, perspectives about the world	“it certainly changed my way of thinking and I think the circumstance also changes your outlook to the point where you never know what’s going to happen so enjoy life today and—worry about tomorrow tomorrow.”
Personal growth	Maturing, developing confidence, strength	“... it definitely gave me more confidence. . .It was my my first time going away. . .it was really a time when I broke out of being dependent from my parents and kinda became more independent like you’re your first...first major experience in life.”

Table 2  
Processes: Narrative examples and definitions

Label	Definition	Narrative example
Cognitive effort	Reflection, thought, processing of connection	High: “I remember writing about it and really elaborating on like, how wonderful my grandmother is...” Low: “I sort of blocked out the personal reflection at that time just because I get somewhat quite, more removed.”
Evaluation	Positive growth	High: “I learned that I could enjoy life again, we could have fun. . .and it was um, uh, good in that sense. . .uh, I’m much better off that uh, you know you get away from it all and you meet new people and you have new friends who are your friends and enjoy being with you and don’t care, they’re not judgmental or critical or anything of you. So I’m more, I’m more free that way.” Low: “like every time someone says something or you know I wanna believe them but I just look back to that memory. . .and I guess I can’t completely believe them. I still have that thing of doubt. . .it was really painful, hurtful.”

growth story about difficult experiences that often involve self-change, perhaps as one way to resolve the experience. That is, one way to resolve the negative affect of a memory is to narrate the memory with a meaningful insight about the self (e.g., McLean & Thorne, 2003; Pals & McAdams, 2004).

Given that dispositions are reasonably stable and visible (e.g., Albright, Kenny, & Malloy, 1988; Costa et al., 1994), we expected that these connections would require less effort. Due to the press for personal consistency (e.g., Pasupathi & Mansour, 2006; Swann, 1997) and the effort involved in storying self-change (e.g., King, 2001; McLean & Thorne, 2003), we expected personal growth connections would take more effort. Similarly, outlook connections may take more effort to story because these involve understanding one’s attitudes about the world, which may also take time to develop.

## 2.2. Evaluation

The second aspect of processing that we examined was the emotional evaluation of the connection. When people make connections between the past and the self, these connections may be positive or negative. Fredrickson and colleagues (e.g., Fredrickson & Joiner, 2002) have linked positive emotion and growth in the broaden and build theory of positive emotion (see also Pals, 2006). This theory proposes that positive emotions facilitate an opening up to experience with a more exploratory mindset, creating personal resources for coping, building relationships and overall positive functioning. Past research has also shown that stories of growth are often redemptive (e.g., McAdams, 2001). Thus, we expected that personal growth and values connections would be more positively evaluated. We also expected that making connections about one's values would be viewed as positive because most values conform to personal and community ideals (e.g., Colby & Damon, 1992; Pratt, Hunsberger, Pancer, & Alistat, 2003).

## 2.3. Thematic coherence

We examined one level of narrative analysis beyond that of self-event connections, focused on whether or not each person had a theme to his or her self-event connections. While self-event connections constitute part of the process of life story development, creating a theme to one's life appears to be one of the more advanced stages because having a theme across connections implies that one has reflected on life as a whole (Habermas & Bluck, 2000). Past research has examined the presence of different kinds of themes (e.g., agency, communion) in relation to other aspects of personality, such as motives and goals (e.g., McAdams, Hoffman, Mansfield, & Day, 1996). In contrast, in this study, we conceptualized thematic coherence as the presence of one metaphor throughout the interview.

Creating thematic coherence can be done in many ways, such as connecting events to each other, indicating that a certain event is similar to many others, or by explicitly offering a metaphor for one's life ("life is hard") (Habermas & Bluck, 2000; Luborsky, 1990). Having a theme to one's life provides a sense of personal coherence, direction, and self-knowledge, and also makes one's story comprehensible to others. In terms of relations to other narrative characteristics, we expected that those who had themes, compared to those who did not, would have more self-event connections and higher cognitive effort scores overall, both of which would indicate greater work toward reasoning about the past.

## 3. Level one and level two correlates of processing and content in narratives

The second goal of our study was to examine how the content and process of narrative identity were related to other levels of personality. Based on past research, we focused on three traits, extraversion, neuroticism, and openness, and the level two characteristic of ego development.

### 3.1. Extraversion

Extraversion is defined by variations in sociability, dominance, and positive affect (e.g., Barrett, 1997; Lucas & Fujita, 2000). Indeed, a recent study found a positive association

between extraversion and positive tone in narratives (McAdams et al., 2006). Thus, we expected extraversion to be related to positive emotional evaluations across connections.

### 3.2. Neuroticism

Neuroticism is defined by variations in insecurity, vulnerability, and negative affect (Emmons & Diener, 1986; Watson & Clark, 1992). Researchers have shown that neurotic individuals construct more negatively toned and linguistically negative narratives (McAdams et al., 2004; Pals, 2004; Pennebaker & King, 1999), and are less likely to interpret the past as bringing about growth (Bauer et al., 2005). Thus, we expected neuroticism to be related to negative emotional evaluations across connections.

### 3.3. Openness

In contrast to the more emotion-centered traits, openness to experience reflects dimensions of complexity (McCrae & Costa, 1997), the degree of interest in and willingness to explore novel experiences, and the degree of intensity and awareness of inner experience. Openness is related to the structural complexity of narratives (McAdams et al., 2004), and to perceiving growth in interpreting the past (Bauer et al., 2005; see also Pals, 2006). Thus, we expected openness to be related to higher cognitive effort, to positive emotional evaluation, and to being more likely to have a theme.

### 3.4. Ego development

Ego development centers on the complexity with which one views the self and the world (e.g., Hy & Loevinger, 1996). Previous research has shown that as people progress to higher stages of ego development they report more complex forms of autobiographical reasoning. For example, ego development is related to reporting integrative themes in autobiographical narratives (Bauer & McAdams, 2004), to reporting accommodative change in response to challenging life events (King et al., 2000; see also Pals, 2006), and to elaborating lost selves after experiencing a life transition (King & Raspin, 2004). Thus, we expected that those higher on ego development would be engaged in higher cognitive effort overall, and would also be more likely to have a theme across connections.

## 4. The present study

The aim of this study was to examine the process of creating a life story with a highly quantitative approach. We wanted to preserve the most nuanced levels of individual differences that manifest when narrating one's past with a method that allowed us to quantify these nuances. We did this by employing both connection-level analyses to examine how making each kind of connection was related to autobiographical reasoning processes, as well as person-level analyses to examine how content and process variables (aggregated across individuals) correlate with traits and ego development in a more traditional analysis of individual differences.

Before we summarize the hypotheses, we note that this sample included people at two age groups (see McLean, *in press*, for more detail). Thus, we examined age effects in all of our analyses, though these analyses were secondary to our analyses of personality.

## *Hypotheses*

### *4.1. Connection-level analyses*

Dispositional connections will be associated with lower cognitive effort. Personal growth and outlook connections will be associated with higher cognitive effort. Personal growth and values connections will be associated with positive evaluation. Having a theme will be related to higher cognitive effort and more self-event connections.

### *4.2. Person-level analyses*

Extraversion will be associated with positive evaluation scores, and neuroticism with lower evaluation scores. Openness to experience will be associated with increased cognitive effort, with more positive evaluation scores, and with having a theme. Higher ego development will be associated with increased cognitive effort and with having a theme.

## **5. Method**

### *5.1. Participants*

Participants were recruited in three ways. The younger group was recruited either through the Psychology subject pool at a public university in Southern Ontario, in which course credit was given for participation, or through snowballing methods in which undergraduate students in an advanced research methods class recruited participants who were not university students, and who received no remuneration. The older adult sample came from an older subject pool at this same public university. This latter pool is fairly diverse, and is recruited through word of mouth and advertisements in the community. Older adults received \$20 for their participation.

The full sample consisted of 134 participants, 49 participants in the older group ( $n = 25$  men) and 85 participants in the younger group ( $n = 42$ men). The younger group ranged in age from 17 to 35 ( $m = 21.4$ ), and the older group from 65 to 85 ( $m = 72.4$ ). In order for HLM analyses (described below) to converge, a minimum number of observations per person were necessary. Therefore, only those participants who had a least 3 self-event connections were selected for the present study, which left us with 495 connections across 119 participants. Self-reported ethnicity for the sample was as follows: Caucasian ( $n = 33$ ), South Asian ( $n = 21$ ), East Asian ( $n = 16$ ), West Asian ( $n = 1$ ), African ( $n = 4$ ), Arab ( $n = 3$ ), Latino ( $n = 1$ ), Canadian ( $n = 28$ ), Mixed ( $n = 4$ ), Other ( $n = 7$ ). One participant did not report ethnicity.

### *5.2. Measures*

#### *5.2.1. Demographics*

Before filling out the inventories described below, participants completed a demographics questionnaire, which included age, self-reported ethnicity, gender, and self-reported health, which was assessed via a 5 point scale, with 1 indicating “poor” health and 5 indicating “excellent” health.

### 5.2.2. *Ego development*

Level of ego development was assessed using the 36-item Washington University Sentence Completion Test (Hy & Loevinger, 1996). Ego level was rated based on the automatic ogive rules described by Hy and Loevinger (1996). Two blind coders reliably coded 29 protocols (overall  $k = .72$ ; individual levels range  $k$ 's =  $.72$ – $1.00$ ). Seventeen participants' ego levels could not be computed because they either did not complete the task or left too many sentence stems blank. The rest of the cases were coded by two raters and difficult cases were settled by consensus.

### 5.2.3. *Personality traits*

To assess personality traits participants completed the Big Five Inventory (BFI; John & Srivastava, 1999). The BFI is a 44-item, 5-point likert scale to measure extraversion (e.g., "is talkative"), agreeableness (e.g., "likes to cooperate with others"), conscientiousness (e.g., "does a thorough job"), neuroticism (e.g., "can be moody"), and openness (e.g., "is original, comes up with new ideas"). Alphas ranged from  $.63$  to  $.84$  for the individual scales.

## 6. Procedure

All participants completed a self-defining memory interview, followed by a survey, which included the assessments for ego development and personality traits. Participants took one and one-half to two hours to complete the assessment.

### 6.1. *Self-defining memory interview*

Singer and Moffitt (1991–1992) originally developed a written survey to elicit self-defining memories, which we adapted to an interview, eliciting three such memories. Participants were given the definition of a self-defining memory, which is a memory that is vivid, highly memorable, personally important, at least one year old, and that conveys powerfully how one has come to be the person one currently is. After reporting the memory, participants were asked to elaborate on what the memory means to their identity, as well as the reason for choosing it as self-defining. Participants were also asked several questions about whether or not they had told the memory to anyone else. Memory telling was not examined as a separate question here; rather, this part of the interview was used because these questions press for a longer time perspective, which allows the inclusion of more narrative data for capturing autobiographical reasoning processes (see McLean & Thorne, 2003). The interviews ranged in duration from 20 minutes to one hour.

## 7. Narrative coding

All interviews were transcribed verbatim, and a set of 30 interviews was used to develop the coding system. Interviews were coded by a team of 3–4 raters. Coders scored interview protocols in private and then met to discuss the codes for each interview. When there was disagreement all coders used the interviews and coding manual to reach consensus on the final code. Reliability was then conducted for each code with a new rater who was blind to the hypotheses of the study. Reliability was acceptable for all codes; kappas and intraclass correlations are reported for each code below.



### 7.1. Coding self-event connections

Coders identified self-event connections when a participant reported any kind of connection between one of the three self-defining memories and the self. Then each connection was coded on a series of characteristics described below (see [Tables 1 and 2](#) for examples). Sixty randomly selected connections were used for reliability analysis.

#### 7.1.1. Type of self-event connections

Nine different mutually exclusive topics of self-event connections were coded (overall kappa = .85): personal growth, disposition, values, outlook, self-esteem, intimacy, interests, behavior, and roles.<sup>1</sup> This was not meant to be an exhaustive list; rather, these connections emerged from the data with which we were working. Only those connections with a significantly high base rate of occurrence were included in the present analyses, except for the analyses of the number of different kinds of connections. The four connections used in the present study made up 2/3 of the total connections. *Personal growth* connections emphasize maturing or developing confidence, strength, or other such aspects of one's personal development (kappa = .76). *Dispositional* connections concern one's trait attributes (kappa = .80). *Values* connections concern morality and right and wrong (kappa = 1.00). *Outlook* connections concern one's attitudes or perspectives about the world (kappa = .67).

### 7.2. Cognitive effort

Cognitive effort was derived from the narratives, and thus was a self-reported variable rather than an objective assessment. Each self-event connection was coded for the degree of cognitive effort on a 5-point scale, with 5 indicating the highest levels of effort and 1 indicating the lowest levels of effort ( $r = .85$ ). High levels of effort manifested as someone thinking about or reflecting upon the event to make a connection. Evidence included words such as “thought about,” “analyzed,” or “reflected upon.” Low effort was reflected by the absence of reflective words or in statements such as, “I don't know why I thought of that. It just came to me,” or “I never really thought much about it.” Mid-level effort manifested in narratives that mentioned reflecting on the event, but not in great depth (e.g., “I think about it sometimes.”).

### 7.3. Evaluation

Each self-event connection was coded for evaluation, using a coding system adapted from [Pals \(2006\)](#). Any subjectively positive connections were viewed as evidence for high levels of evaluation. The opposite of highly positive evaluation were negative evaluations that lead to limitations or restrictions of the self, such as connections that had a negative impact on oneself, often limiting one's development or positive interaction with the world. Mid-level of evaluation scores either included a mix of positive and negative evaluation, or evaluation that was not highly intense in either direction. This code was also scored on a 5-

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<sup>1</sup> A copy of the coding manual can be obtained from the first author that describes all types of connections.

point scale, with 5 indicating a highly positive outcome and 1 indicating a highly negative outcome ( $r = .91$ ).

## 8. Theme

Themes were coded as present when the reporter noted something as central to the self, something as a central metaphor for one's life, or when he or she noted connections between events on a thematic level. For example, simply reporting three relationship memories would not be coded as relational theme unless the participant repeatedly emphasized the importance of relationships to one's life. Examples include the impact of war, overcoming obstacles, or relationships. Each interview was coded for the presence or absence of a theme; 25 cases were used for reliability ( $\kappa = .83$ ).

## 9. Results

### 9.1. Descriptive statistics

As can be seen in Table 3, participants reported close to four self-event connections over the course of the interview. Cognitive effort scores fell slightly below the scale midpoint and evaluations scores fell slightly above the scale midpoint.

Women ( $m = .26$ ) were more likely than men ( $m = .13$ ) to report personal growth connections,  $t(117) = -2.85$ ,  $p < .01$ , but this difference did not affect the analyses reported below. Older ( $m = 4.10$ ) and younger ( $m = 4.04$ ) adults did not differ on self-reported health,  $t(132) = -.45$ ,  $p = \text{ns}$ .<sup>2</sup> Older adults scored higher on ego development  $t(89) = -3.22$ ,  $p < .01$ , agreeableness,  $t(130) = -2.27$ ,  $p < .05$ , and conscientiousness,  $t(130) = -3.72$ ,  $p < .001$ , and scored lower on neuroticism than the younger adults,  $t(130) = 5.39$ ,  $p < .001$ .

### 9.2. Analyses at the level of the self-event connection

Given that each person provided more than one memory, we used hierarchical nonlinear modeling procedures (HLM6.02) to examine the relations between self-event connections, cognitive effort, evaluation, traits, and ego development. Hierarchical models are suited for instances in which observations are classified, arranged, or nested into groups, which themselves have properties of interest and influence. Observations and groups thus constitute different levels of the hierarchical model. In the present investigation, the observation of interest was the self-event connection, and connections were grouped within persons. Explanatory variables can be specified at either the level of the observation (connection), at the level of the group (person), or both.

Within-person predictors (cognitive effort and evaluation) were all group-mean centered, such that each subject's score was expressed in units of deviation from his or her own mean level. First we tested the main effects for cognitive effort and evaluation on

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<sup>2</sup> Females ( $m = 2.36$ ) were more likely than males ( $m = 2.05$ ) to score higher on cognitive effort,  $t(117) = -2.69$ ,  $p < .01$ , and to have a theme,  $\chi^2(1) = 3.63$ ,  $p < .05$ . The older group was more likely to report a theme than was the younger group,  $\chi^2(1) = 4.59$ ,  $p < .05$ , but see McLean (in press) for a discussion of these results. None of these findings affected the results of the present study.

Table 3  
Means, percentages, standard deviations, and ranges for main variables

Variable	%*/Mean (SD)	Range
Number of self-event connections	3.82 (1.44)	1–8
Mean cognitive effort score	2.21 (.69)	1–5
Mean evaluation score	3.52 (.58)	1–5.00
Percent of dispositional connections	.18 (.23)	0–1
Percent of outlook connections	.16 (.23)	0–1
Percent of values connections	.10 (.16)	0–1
Percent of personal growth connections	.20 (.27)	0–1

\* Percents are the number of these kinds of connections per total connections per person, and they do not all sum to 100 because there were five other types of connections not listed here.

the probability of making different types of connections, and then we tested the two-way interactions with age (younger versus older groups).<sup>3</sup> We also examined the kinds of connections in relation to the between-person variables of traits and ego development. As connections constituted binary outcomes, Bernoulli models were used. In all instances below, we report the population-average models with robust standard errors: the population-average results are based on generalized least squares given the variance-covariance estimates from the unit-specific model; robust standard errors are relatively insensitive to misspecification of the variances and covariances at the two levels, and to the distributional assumptions at each level (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004). Ethnic differences were tested but were insignificant and so are not considered further.

### 9.3. Topics of self-event connections: cognitive effort, evaluation, and age

#### 9.3.1. Dispositional connections

In the prediction of dispositional connections, significant main effects were found for cognitive effort and for evaluation. As expected, the probability of making a dispositional connection decreased with increasing levels of cognitive effort, coefficient =  $-.86$ , odds ratio =  $.42$ ,  $t(492) = -5.84$ ,  $p < .001$ , and also decreased with increasing levels of evaluation, coefficient =  $-.43$ , odds ratio =  $.65$ ,  $t(492) = -2.43$ ,  $p < .05$ . There was a significant main effect for age, coefficient =  $.56$ , odds ratio =  $1.74$ ,  $t(117) = 2.01$ ,  $p < .05$ , suggesting that older adults were more likely than younger adults to make dispositional connections. Although the age X evaluation interaction effect was not significant,  $t(489) = -.67$ ,  $p > .05$ , a significant age X cognitive effort interaction effect was found,  $t(489) = 2.96$ ,  $p < .01$ , which suggests that for younger people, the probability of making a dispositional connection decreased with increased cognitive effort.

#### 9.3.2. Values connections

In the prediction of values connections, as expected, a significant main effect was found for evaluation. The probability of making a values connection increased with increasing levels of evaluation, coefficient =  $.67$ , odds ratio =  $1.95$ ,  $t(492) = 2.83$ ,  $p < .01$ . There was no main effect for cognitive effort, coefficient =  $.04$ , odds ratio =  $1.04$ ,  $t(492) = .22$ ,

<sup>3</sup> This was a rather conservative test because there was variation of almost 20 years in both age groups.

$p = ns$ . The main effect of age was non-significant, coefficient = .43, odds ratio = 1.54,  $t(117) = 1.47$ ,  $p = ns$ . There was no significant age X evaluation interaction, coefficient =  $-.50$ , odds ratio = .60,  $t(489) = -1.07$ ,  $p = ns$ . However, there was a significant age X cognitive effort interaction, coefficient =  $-.75$ , odds ratio = .47,  $t(489) = -2.09$ ,  $p < .05$ , which suggests that for younger adults the probability of making a values connection increases with increased cognitive effort, while the reverse was true for older adults.

### 9.3.3. Outlook connections

In the prediction of outlook connections, as expected, there was a main effect of cognitive effort with the probability of making an outlook connection increasing with increased levels of cognitive effort, coefficient = .62, odds ratio = .77,  $t(492) = 3.40$ ,  $p < .01$ . There was no main effect for evaluation, coefficient =  $-.27$ , odds ratio = .77,  $t(492) = -1.75$ ,  $p = ns$ . The main effect of age was non-significant, coefficient =  $-.03$ , odds ratio = .97,  $t(117) = -.10$ ,  $p = ns$ , as was age X cognitive effort, coefficient = .12, odds ratio = 1.13,  $t(489) = .33$ ,  $p = ns$ , and age X evaluation, coefficient = .60, odds ratio = 1.82,  $t(489) = 1.86$ ,  $p = ns$ .

### 9.3.4. Personal growth connections

In the prediction of personal growth connections, significant main effects were found for cognitive effort and for evaluation. As expected, the probability of making a personal growth connection increased with increasing levels of cognitive effort, coefficient = .63, odds ratio = 1.87,  $t(492) = 4.13$ ,  $p < .001$ , and also increased with increasing levels of evaluation, coefficient = .87, odds ratio = 2.39,  $t(492) = 5.39$ ,  $p < .001$ . There were no significant effects for age, coefficient =  $-.22$ , odds ratio = .80,  $t(117) = -.77$ ,  $p = ns$ , age X cognitive effort, coefficient = .02, odds ratio = 1.02,  $t(489) = .07$ ,  $p = ns$ , or age X evaluation, coefficient =  $-.13$ , odds ratio = .88,  $t(489) = -.40$ ,  $p = ns$ .

Overall, Fig. 1 summarizes how each type of connection can be described in terms of high or low/no cognitive effort and high or low/no evaluation. The results suggest that cognitive effort and evaluation clearly differentiated the likelihood with which each type of connection was made.

Next, we examined whether or not personality served as a moderator of cognitive effort and evaluation for the different kinds of connections. In contrast to the previous analyses, in which age was examined as a moderator, we controlled for age in these analyses, given that there is established covariation between age and dimensions of personality. Ego development did serve as a moderator of cognitive effort in making personal growth connections. For those at lower levels of ego development the probability of making a personal growth connection increased with increasing levels of cognitive effort, coefficient =  $-.59$ , odds ratio = .55,  $t(412) = -2.74$ ,  $p < .01$ . Age had no effect in this model.

		Cognitive Effort	
		High	Low/None
Evaluation	High	<b>Personal Growth</b>	<b>Values</b>
	Low/None	<b>Outlook</b>	<b>Dispositions</b>

Fig. 1. Type of connection as a function of cognitive effort and evaluation.

Conscientiousness served as a moderator for cognitive effort of both values and personal growth connections. Conscientiousness predicted an increased association between cognitive effort and the likelihood of a personal growth connection, coefficient = .07, odds ratio = 1.07,  $t(402) = 2.44$ ,  $p < .05$ . Conscientiousness predicted a decreased association between cognitive effort and the likelihood of a values connection, coefficient =  $-.09$ , odds ratio = .91,  $t(402) = -2.48$ ,  $p < .05$ .

In spite of the possibility for Type I error, we tested triple interactions between age and personality on the relation between cognitive effort and evaluation for each connection type. The number of significant interactions did not exceed that which we would expect by chance.

#### 9.4. Analyses at the level of the person

We then examined the relation between the content and processing of autobiographical reasoning at the aggregate level with traits and ego development. We divided the number of connections that each person provided of each type by the total number of connections provided by that person for connection type, and we averaged effort and evaluation scores across connections. Aggregate scores for content and processing were then correlated with ego development (partialing out age) and with each of the Big Five personality traits (partialing out age and the other four traits).

As expected, openness was positively correlated with evaluation,  $r(125) = .18$ ,  $p = .05$ , but unexpectedly, was not related to cognitive effort. As expected, extraversion was positively correlated with evaluation, but only marginally,  $r(125) = .19$ ,  $p = .09$ , and also with the number of values connections,  $r(125) = .22$ ,  $p < .05$ . Neuroticism was negatively correlated with the frequency of outlook connections,  $r(125) = -.21$ ,  $p < .05$ . Conscientiousness was negatively correlated with the number of dispositional connections,  $r(125) = -.29$ ,  $p < .001$ . Unexpectedly, there was no relation between ego development and cognitive effort.

#### 9.5. Theme

We examined the presence or absence of a theme in relation to ego development, traits, cognitive effort, the number of self-event connections, and the number of different kinds of connections that one reported. As expected, those who had a theme ( $m = 5.63$ ) were more likely than those who did not have a theme ( $m = 5.10$ ) to be higher on ego development,  $t(101) = 3.05$ ,  $p < .01$ . Unexpectedly, those who had a theme ( $m = 36.93$ ) were not more likely than those without a theme ( $m = 36.01$ ) to score higher on openness to experience,  $t(116) = .88$ ,  $p = \text{ns}$ . However, those who had a theme ( $m = 36.38$ ) were more likely than those without a theme ( $m = 33.92$ ) to be agreeable,  $t(116) = 2.60$ ,  $p = .01$ , and those who had a theme ( $m = 33.86$ ) were more likely than those who did not ( $m = 30.13$ ) to be conscientious,  $t(116) = 3.31$ ,  $p < .001$ .

As expected, those with a theme ( $m = 2.33$ ) were more likely than those without a theme ( $m = 2.08$ ) to have higher cognitive effort scores,  $t(117) = 2.19$ ,  $p < .05$ , and tended to have more self-event connections ( $m = 4.32$ ) than those without a theme ( $m = 3.87$ ),  $t(117) = 1.91$ ,  $p = .06$ , though this result did not reach standard levels of significance. In our exploratory analyses, those with a theme were more likely to have personal growth connections ( $m = .25$ ) than those without a theme ( $m = .15$ ),

$t(117) = 2.33, p < .05$ , and to have a lower percentage different kinds of connections per total connections ( $m = .70$ ) than those who did not have a theme ( $m = .78$ ),  $t(117) = -2.14, p < .05$ .

## 10. Discussion

This study has shown that the content of autobiographical reasoning concerns dispositions, outlook and values, and personal growth, paralleling the three levels of McAdams' model of personality. The probability of making these connections was related to whether the connection involved cognitive effort, whether the evaluation was positive or negative, and to a lesser extent, on personality at levels one and two, and age.

### 10.1. Self-event connections: Cognitive effort and evaluation

While there are important individual differences in narrative identity, the kinds of connections that people make are not equivalent. Indeed, these results suggest that engaging in complex reasoning about the past does not necessarily mean that these abilities are always applied to every experience. The most effortful kinds of connections were those that involved personal growth. This finding converges with prior studies of the narration of more difficult life experiences, in which greater efforts towards processing of these experiences is related to personal growth (Bauer et al., 2005; King et al., 2000; Pals, 2006). Outlook connections also appeared to require more cognitive effort, and dispositional connections required less effort, particularly for younger people. For values, we found an interaction with age such that with more cognitive effort the likelihood of making a values connection increased for younger people and decreased for older people. Thus, the exploration of personal values and ideals at younger ages seems to be more effortful than at older ages when values are perhaps already solidified.

In terms of evaluation, as expected, personal growth and values connections were perceived as more positive and growth promoting. This makes sense in linking positive emotion to a sense of growth and opening up to experience (Fredrickson & Joiner, 2002), and shows that the topics of autobiographical reasoning that may have the most impact on moving a story forward are those that have to do with understanding how one has changed over time and what one's most important values are. McAdams (e.g., 1993) has discussed values as an important part of a commitment script in the life story; these data suggest that they are also a *positive* part of that story (see also Pratt et al., 2003).

One way to conceptualize these findings in reference to each other is to see that in Fig. 1, moving along the diagonal from the bottom right to the top left, connection types are distinguished by the amount of reasoning involved in making them, with dispositions requiring little reasoning in terms of effort or evaluation, values and outlook requiring at least one but not both kinds of reasoning, and personal growth requiring both effortful and evaluative reasoning. This continuum quite neatly parallels the location of these aspects of persons in McAdams' three-level model of personality: with dispositions, we sketch an outline of the person; with values and outlook, we fill in the details; and with growth, we are integrating a life (McAdams, 1995).

### 10.2. Level one and level two personality characteristics

As expected, openness to experience predicted higher evaluation, though only marginally, and did not predict cognitive effort. As expected, extraversion was related to higher evaluation, and although this replicates past research, the correlation was only marginally significant (e.g., McAdams et al., 2006). Even when aggregating across connections, connection-level codes may be more fine-grained than aggregating across characteristics of entire memory narratives.

In terms of content analyses, extraversion was also related to making more values connections. Similarly, McAdams et al. (2004) found that extraversion was related to help and caring themes. Conscientiousness was negatively associated with making dispositional connections, which may reflect the effort that conscientious individuals put into growth connections; that is, their time and effort may have been devoted to the more complex connections rather than the more simplistic dispositional connections. Finally, neurotic individuals were less likely to make outlook connections, suggesting that neuroticism is related to less reflection on more outward aspects of one's life.

It was expected that ego development would be related to increased cognitive effort across connections, but this was only true for personal growth connections. Specifically, those at lower stages of ego development were more likely to make a personal growth connection with increased effort. In contrast, those at higher stages of ego development were no more or less likely to make personal growth connections in relation to effort, but instead more frequently made these kinds of connections. This is an interesting finding because prior research, on which we based our hypothesis, has consistently found a connection between constructs similar to cognitive effort and ego development (e.g., King et al., 2000). However, these studies have often focused on difficult life experiences where personal growth is a relevant outcome. These findings suggest that ego development is most important to cognitive effort in potentially growth-promoting contexts, rather than in all contexts. These results highlight the importance of examining the topics of reasoning more specifically than in the aggregate to understand how different experiences might elicit different reasoning processes and be more specifically related to individual differences in personality at levels one and two.

Traits and ego development did not play a major role in moderating the topics of connections, which may be because traits are at too broad of a level of personality and connections too narrow. Alternatively, this may suggest that the levels of personality are independent (McAdams et al., 2004). That is, while we did see representations of levels one and two at level three, these levels of personality are not reducible to each other.

### 10.3. Thematic coherence

As expected, thematic coherence was related to high levels of cognitive effort and ego development, as well as to reporting connections about personal growth. Thus, these results suggest a general motif of growth, which is consistent with recent theoretical formulations about stories of redemption in North America (McAdams, 2006). Indeed, stories focused on growth, particularly when bad turns to good, hold special currency in North America, appearing to serve an integrative purpose for the person.

Having a theme was related to having fewer kinds of connections, suggesting that showing consistency in one's stories is central to having a theme. Themes are a way of giving

meaning to one's life, particularly when we need a clear point to the story (Labov & Waletzky, 1967), and a theme provides that point quite clearly. Conscientious and agreeable people were more likely to report themes, suggesting that they may have been diligent about this task, either to perform the task properly or to please.

In some ways our results concerning thematic coherence contrast with theories that privilege a multiplicity of "voices" in narrative (e.g., Hermans, 1996). Our results suggest that keeping the kinds of connections one makes to a minimum is one way to preserve, or to create, a unified identity. Nevertheless, multiplicity may be beneficial in some contexts. For example, Pals (2005) has shown that having multiple kinds of causal connections that are *positive* is related to greater well-being.

Turning to a narrative example of thematic coherence, the narrative from the following woman shows how the experience of evacuating her hometown during World War II led to a general fear in her approach to life:

"...But anytime I've thought about it since then um, it's always that feeling of um, of how 'there but the grace of God' kind of thing. I, I think I sort of developed that philosophy that very minor things can make such a difference. And maybe that had colored my, my attitude to some of what I've done or not done out of fear, too. . . I just remember the sort of um, upset and, and um, strangeness of it all. And I, I was an only child so I wasn't used to a lot of people around and suddenly we were, it's all these people and everything was, it was night time and it was dark and cold and so on. So, I guess there was, there was that sort of fear that came with that and maybe some of my um, the way I've lived my life has been a little bit fearful. . ."

Across her interview, this theme of fear emerged, creating some integration to her many experiences. In terms of some of her other personality attributes, not surprisingly, this woman was above the average score of the sample on neuroticism.

## 11. Limitations and conclusions

In terms of limitations, we note that our age groups were broad. While this can be viewed as a strength because we were able to conduct a more conservative test of age differences, these results could also be masking important heterogeneity within groups, which future research might examine by modeling linear relations.

We also note that we did not collect life stories, but rather self-defining memories, which we view as central components to the life story (McAdams, 2001; Singer & Moffitt, 1991-1992; Thorne, 2000). We chose these memories as our unit of analysis in part because of the feasibility of examining self-event connections. Further, these important memories provide a narrative context to examine the specific content and processes of developing a life story as they are likely candidates to be included in that story (e.g., McLean et al., 2007), but future research might examine these topical and process oriented characteristics in full life stories.

In conclusion, there are several ways to examine how individuals go about the process of creating a life story, and we suggest that what makes these analyses unique is the way in which they merge the two strands of the field of personality that emphasize both quantitative assessment and an appreciation for the individual. One can examine the broad strokes of the creation of a life story by aggregating across many narratives to see how people generally differ in their orientation toward and achievement of this task. Indeed, the life story is shaped by multiple aspects of personality, including the life story itself



(e.g., McLean et al., 2007; Singer & Blagov, 2004). What we were able to further show in this study, however, was that the kinds of experiences people choose to integrate into the life story provide different opportunities for story making. In undertaking an intraindividual analysis of how each person connects the self to the past, we were able to see that within each person there is important diversity in the types of self-event connections made. The life story includes simple and positive stories, as well as difficult and deeply reflective stories. All of these stories are important to understanding narrative identity, and this paper highlights the diversity of content in people's self-defining experiences and the processes used to narrate these varied experiences.

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### References

- Albright, L., Kenny, D. A., & Malloy, T. E. (1988). Consensus in personality judgments at zero acquaintance. *Journal of Personality and Social Psychology*, *55*, 387–395.
- Barrett, L. F. (1997). The relationships among momentary emotion experiences, personality descriptions, and retrospective ratings of emotion. *Personality and Social Psychology Bulletin*, *23*, 1100–1110.
- Bauer, J. J., & McAdams, D. P. (2004). Personal growth in adults' stories of life transitions. *Journal of Personality*, *72*, 573–602.
- Bauer, J. J., McAdams, D. P., & Sakeda, A. R. (2005). Interpreting the good life: Growth memories in the lives of mature, happy people. *Journal of Personality and Social Psychology*, *88*, 203–217.
- Bruner, J. S. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.
- Colby, A., & Damon, W. (1992). *Some do care: Contemporary lives of moral commitment*. New York, NY: Free Press.
- Costa, P. T., Jr., & McCrae, R. R. (1994). Set like plaster? Evidence for the stability of adult personality. In T. F. Heatherton & J. L. Weinberger (Eds.), *Can personality change?* (pp. 21–40). Washington DC: APA Books.
- Digman, J. M. (1996). A curious history of the Five-Factor model. In J. Wiggins (Ed.), *The five-factor model of personality: Theoretical perspectives* (pp. 1–20). New York, NY: Guilford.
- Emmons, R. A., & Diener, E. (1986). An interactional approach to the study of personality and emotion. *Journal of Personality*, *54*, 371–384.
- Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science*, *13*, 172–175.
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, *48*, 26–34.
- Habermas, T., & Bluck, S. (2000). Getting a life: The emergence of the life story in adolescence. *Psychological Bulletin*, *126*, 248–269.
- Hermans, H. J. M. (1996). Voicing the self: From information processing to dialogical interchange. *Psychological Bulletin*, *119*, 31–50.
- Hy, L. X., & Loevinger, J. (1996). *Measuring ego development* (2<sup>nd</sup> ed.). Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- John, O. P. (1990). The "Big Five" factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In L. Pervin (Ed.), *Handbook of personality theory and research* (pp. 66–100). New York, NY: Guilford.

- John, O. P., & Srivastava, S. (1999). The big five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York: Guilford Press.
- King, L. A. (2001). The hard road to the good life: The happy, mature person. *Journal of Humanistic Psychology, 41*, 51–72.
- King, L. A., & Rospin, C. (2004). Lost and found possible selves, subjective well-being, and ego development in divorced women. *Journal of Personality, 72*, 603–632.
- King, L. A., Scollon, C. K., Ramsey, C., & Williams, T. (2000). Stories of life transition: Subjective well-being and ego development in parents of children with Down Syndrome. *Journal of Research in Personality, 34*, 509–536.
- Labov, W., & Waletzky, J. (1967). Narrative analysis. In J. Helm (Ed.), *Essays on the verbal and visual arts* (pp. 12–44). Seattle, WA: University of Washington Press.
- Luborsky, M. R. (1990). Alchemists' visions: Cultural norms in eliciting and analyzing life history narratives. *Journal of Aging Studies, 4*, 17–29.
- Lucas, R. E., & Fujita, F. (2000). Factors influencing the relation between extraversion and pleasant affect. *Journal of personality and social psychology, 79*, 1039–1056.
- McAdams, D. P. (1993). *The stories we live by: Personal myths and the making of the self*. New York: William Morrow & Co, Inc.
- McAdams, D. P. (1995). What do we know when we know a person? *Journal of Personality, 63*, 365–396.
- McAdams, D. P. (2001). The psychology of life stories. *Review of General Psychology, 5*, 100–122.
- McAdams, D. P. (2006). *The redemptive self: Stories Americans live by*. New York, NY: Cambridge University Press.
- McAdams, D. P., Anyidoho, N. A., Brown, C., Huang, Y. T., Kaplan, B., & Machado, M. A. (2004). Traits and stories: Links between dispositional and narrative features of personality. *Journal of Personality, 72*, 761–784.
- McAdams, D. P., Bauer, J. J., Sakeda, A. R., Anyidoho, N. A., Machado, M. A., Magrino- Failla White, K. W., & Pals, J. L. (2006). Continuity and change in the life story: a longitudinal study of autobiographical memories in emerging adulthood. *Journal of Personality, 74*, 1371–1400.
- McAdams, D. P., Hoffman, B. J., Mansfield, E. D., & Day, R. (1996). Themes of agency and communion in significant autobiographical scenes. *Journal of Personality, 64*, 339–377.
- McAdams, D. P., Reynolds, J., Lewis, M., Patten, A., & Bowman, P. J. (2001). When bad things turn good and good things turn bad: Sequences of redemption and contamination in life narrative, and their relation to psychosocial adaptation in midlife adults and in students. *Personality and Social Psychology Bulletin, 27*, 472–483.
- McCrae, R. R., & Costa, P. T. (1995). Toward a new generation of personality theories: Theoretical contexts for the five-factor model. In J. S. Wiggins (Ed.), *The five-factor model of personality: Theoretical perspectives* (pp. 51–87). New York, NY: Guilford Press.
- McCrae, R. R., & Costa, P. T. (1997). Conceptions and correlates of openness to experience. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 825–847). San Diego, CA: Academic Press.
- McLean, K. C. (in press). Stories of the young and the old: Reflections on self-continuity. *Developmental Psychology*.
- McLean, K. C., Breen, A., Fournier, M. A. (under review). Constructing the self in early, middle, and late adolescent boys: Processes of narrative identity development and well-being.
- McLean, K. C., Pasupathi, M., & Pals, J. L. (2007). Selves creating stories creating selves: A process model of narrative self development in adolescence and adulthood. *Personality and Social Psychology Review, 11*, 262–278.
- McLean, K. C., & Pratt, M. W. (2006). Life's little (and big) lessons: Identity statuses and meaning-making in the turning point narratives of emerging adults. *Developmental Psychology, 42*, 714–722.
- McLean, K. C., & Thorne, A. (2003). Adolescents' self-defining memories about relationships. *Developmental Psychology, 39*, 635–645.
- Pals, J. L. (2004). Insight, emotion, and the self: Patterns of word use in the narration of the life story. Poster presented at the 5th annual meeting of the society for personality and social psychology, Austin, TX.
- Pals, J. L. (2006). The narrative identity processing of difficult life experiences: pathways of personality development and positive self-transformation in adulthood. *Journal of Personality, 74*, 2–31.
- Pals, J. L. (2005). *Constructing growth: causal connections between past events and self within the life story*. Washington, D.C.: Paper presented at the American Psychological Association.

- Pals, J. L., & McAdams, D. P. (2004). The transformed self: A narrative understanding of posttraumatic growth. *Psychological Inquiry*, 14, 65–69.
- Pasupathi, M., & Mansour, E. (2006). Adult age differences in autobiographical reasoning in narratives. *Developmental Psychology*, 42, 798–808.
- Pasupathi, M., Mansour, E., & Brubaker, J. (in press). Stability and change in personal storytelling: Developmental relations in autobiographical narratives.
- Pennebaker, J. W., & King, L. A. (1999). Linguistic styles: Language use as an individual difference. *Journal of Personality & Social Psychology*, 77, 1296–1312.
- Pratt, M. W., Hunsberger, B., Pancer, S. M., & Alistat, S. (2003). A longitudinal analysis of personal values socialization: Correlates of a moral self-ideal in late adolescence. *Social Development*, 12, 563–585.
- Raudenbush, S., Bryk, A., Cheong, Y. F., Congdon, R., & du Toit, M. (2004). *HLM 6: Hierarchical linear and nonlinear modeling*. Lincolnwood, IL: Scientific Software International, Inc.
- Roberts, B. W., & Caspi, A. (2003). The cumulative continuity model of personality development: Striking a balance between continuity and change in personality traits across the life course. In U. M. Staudinger & U. Lindenberger (Eds.), *Understanding human development: Dialogues with lifespan psychology* (pp. 183–214). Dordrecht, Netherlands: Kluwer Academic Publishers.
- Singer, J. A. (1995). Seeing one's self: Locating narrative memory in a framework of personality. *Journal of Personality. Special Issue: Levels and domains in personality*, 63, 429–457.
- Singer, J. A., & Blagov, P. S. (2004). The integrative function of narrative processing: Autobiographical memory, self-defining memories and the life story of identity. In Beike, D., Behrend, D., & Lampinen, J., (Eds.), *Memory and the Self*. Philadelphia, PA: The Psychology Press (to appear).
- Singer, J. A., & Moffitt, K. H. (1991-1992). An experimental investigation of specificity and generality in memory narratives. *Imagination, Cognition, and Personality*, 11, 233–257.
- Singer, J. A., & Salovey, P. (1993). *The remembered self: Emotion and memory in personality*. New York: Free Press.
- Swann, W. J. (1997). The trouble with change: Self-verification and allegiance to the self. *Psychological Science*, 8, 177–180.
- Thorne, A. (2000). Personal memory telling and personality development. *Personality & Social Psychology Review*, 4, 45–56.
- Thorne, A., & Latzke, M. (1996). Contextualizing the storied self. *Psychological Inquiry*, 7, 372–376.
- Thorne, A., McLean, K. C., & Lawrence, A. M. (2004). When remembering is not enough: Reflecting on self-defining memories in late adolescence. *Journal of Personality*, 72, 513–541.
- Watson, D., & Clark, L. A. (1992). Affects separable and inseparable: On the hierarchical arrangement of the negative affects. *Journal of Personality and Social Psychology*, 62, 489–505.
- Woike, B. A. (1995). Most-memorable experiences: Evidence for a link between implicit and explicit motives and social cognitive processes in everyday life. *Journal of Personality & Social Psychology*, 68, 1081–1091.