

EMPIRICAL ARTICLE

The Experiences That Define Us: Autobiographical Periods Predict Memory Centrality to Narrative Identity

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Individuals experience a continuous stream of events during their everyday lives. Which events are remembered and become central to narrative identity? We examined whether connecting memories to autobiographical periods predicted later memory and life story importance. Forty-seven students took part in a 5-month diary phase where they recorded three events each week. The events were rated on event characteristics and whether they were a part of a period in the participant's life. At a test session 4 months later, participants rated all memories on memory qualities, i.e., vividness and detail, and life story importance (totaling 3,069 memories). Ratings of connection to autobiographical periods in the diary phase predicted higher life story importance of memories but did not predict memory qualities. The study provides support for the key role of autobiographical periods in shaping memories incorporated into narrative identity.

General Audience Summary

Individuals experience a continuous stream of events during their everyday lives. We examined which events are remembered and become important to individuals' life stories and their narrative identities. Specifically, we examined whether events that individuals perceive as a part of autobiographical periods (e.g., periods in their lives such as "my relationship to X" and "living in Ohio") are later remembered with more detail and become incorporated into narrative identity. University students described three events in a weekly diary during their first semester. Four months after the end of the term, they were asked to rate all diary events on memory qualities and life story importance. Events that were initially considered a part of autobiographical periods were more likely to become identity defining. The results highlight the key role of autobiographical periods in narrative identity and autobiographical memory and suggest that theories, research, and interventions could expand their focus on autobiographical periods, which may serve as chapters in life stories.

Keywords: autobiographical memory, life story, identity, chapters, diary study

Individuals experience a continuous stream of events in their everyday lives. Some events are remembered with vivid details (Pillemer, 1998), whereas others are forgotten. Those memories that carry significance to self-understanding become part of life stories, representing stability and change in narrative identity (McAdams, 2001; McAdams & McLean, 2013; Singer et al., 2013). In the present study, we address the broad question: Which events are remembered and incorporated into narrative identity? Answering

this question is at the heart of understanding how memory grounds identity.

We examined whether connecting memories to autobiographical periods predicted memory qualities and centrality to narrative identity. Autobiographical periods refer to mental representations of subjectively delimited life periods in the individual's past. They are constructed as individuals reflect on their lives as consisting of periods, a process scaffolded by socially and culturally shared

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knowledge of commonly experienced periods, for example, “semesters,” “childhood,” and “relationships.” Each autobiographical period includes information about its perceived beginning and end, as well as people, places, activities, and objects considered part of the period (Thomsen, 2015). Autobiographical periods can refer to weeks (“my vacation”) or years (“my marriage”) and they constitute intermediate levels of organization in autobiographical memory with prolonged autobiographical periods nesting briefer autobiographical periods and memories (Conway, 2005). Identity-salient and prolonged autobiographical periods serve as chapters in life stories, supporting temporal, causal, and thematic coherence (McAdams, 2001; Thomsen, 2009).

Do autobiographical periods play a role in which events are remembered and included into narrative identity? Some observations point in this direction. In a diary study of her own memory, Linton (1986) observed: “Events locked into larger units (extenders) are retained. ‘Isolated’ events have a higher probability of being lost” (pp. 64–65). In his highly influential theory of autobiographical memory, Conway (2005) stated: “Only those [memories] with an enduring association with current goals are retained and even then must become integrated with knowledge structures in the autobiographical knowledge base if they are to be retained in the long term” (p. 613). Grounded in these insights, we would expect that memories connected to autobiographical periods may be better retained over time. Given that autobiographical periods are at the intermediate level between memories and life stories, they could also influence which memories become important to narrative identity. Here, we report the first systematic test of this idea by conducting a long-term diary study.

Event Characteristics, Memory, and Centrality to Narrative Identity

A variety of studies demonstrate that event characteristics are related to remembering events with vividness and detail. Diary studies show that distinctive, emotionally intense, important, and rehearsed events are more likely to be retained than mundane events (Brewer, 1988; Skowronski et al., 1991; Thompson et al., 1996). Likewise, emotional intensity and importance are related to memory vividness (Pillemer, 1998; Rubin et al., 2003). Events representing significant goal progress (success or failure) have also been theorized to hold a privileged position in memory (Conway, 2005; Singer & Salovey, 1993).

While the above studies illuminate factors that influence remembering, they tell us little about what memories are selected into narrative identity, a question that has been examined in only one diary study. Participants described events each week during their first semester at university and rated events on factors known to predict memory: distinctiveness, importance, emotion, rehearsal, and goal relevance (Thomsen et al., 2015). Three years later, participants were asked whether they remembered the event and rated memory vividness and importance to their life story. Events that were more distinct, emotionally intense, and rehearsed were more likely to be remembered and more vivid. However, other event characteristics predicted importance to narrative identity. Individuals perceived memories high on goal relevance, importance, and emotional intensity as more central to the story of their life, consistent with the idea that goal-related memories become self-defining (Singer et al., 2013). The study demonstrates

that initial event characteristics predict the memories individuals select for their narrative identities. It also suggests that different event characteristics are involved in remembering and life story construction.

In the present study, we build on these insights and examine memory qualities, such as vividness and detail, and life story importance as separate outcomes. This approach is consistent with the notion that memory and narrative identity are related, yet distinct. Life stories are grounded in autobiographical memory (Bluck & Habermas, 2000; McAdams, 2001; McLean et al., 2007) but are shaped by processes beyond remembering, for example, autobiographical reasoning (Habermas & Bluck, 2000; Pasupathi et al., 2007). At the same time, memories of specific episodes serve other functions than narrative identity, for example, directing concrete actions (Pillemer, 1998). We extend previous studies by addressing the question of whether connecting memories to autobiographical periods facilitate remembering and increase centrality to narrative identity.

Autobiographical Periods, Memory, and Centrality to Narrative Identity

Autobiographical periods serve as intermediate levels of organization in autobiographical memory, with life stories at the broadest temporal level and memories as reconstructions of shorter slices of the past (Conway, 2005). Individuals link memories to autobiographical periods through rehearsal, for example, rehearsing the memory of a first date as a part of an autobiographical period representing the relationship (Thomsen, 2015). Consistent with the idea that autobiographical periods organize memories, studies show that they facilitate retrieval and support dating of memories (Brown et al., 2009; Conway & Bekerian, 1987; Thompson et al., 1996; Thomsen, 2015). Studies have also demonstrated the key role of prolonged and identity-salient autobiographical periods (often termed life story chapters) with respect to narrative identity (McAdams, 2001). When individuals tell their life stories in a free format, they recount it chapter by chapter, not memory by memory (Thomsen, 2009). Life story memories such as high and low points are considered part of chapters, and chapters are more stable parts of life stories over time compared to memories (Thomsen et al., 2014, 2019). This research has led to the suggestion that chapters form a coherent and relatively stable life story structure that scaffolds self-continuity (Prebble et al., 2013; Thomsen et al., 2019). However, the reviewed studies do not address the question of whether linking memories to autobiographical periods predict memory qualities and life story importance beyond the effects of goal relevance, emotional intensity, and rehearsal, which impact vividness and centrality to narrative identity (Conway, 2005; Singer et al., 2013). Answering this question helps illuminate whether autobiographical periods as an intermediate memory organization level facilitate memory and narrative identity construction.

The Present Study

We extend previous research by testing whether those events that individuals consider a part of an autobiographical period are later better remembered and more important to life stories. We control for event characteristics that may be alternative explanations of memory qualities and life story importance, including goal relevance, emotional intensity, and rehearsal.

To study the principles governing autobiographical periods and their relationships to memory and narrative identity, we followed 47 students during their first term at university. During a diary phase lasting 5 months and spanning the first semester at university, we asked participants to report memories of three events from the last week and to indicate whether they thought of the memory as part of an autobiographical period (our first measure of part-of-period). Approximately 3–5 months after the diary phase, we invited participants to a test session. Here, they identified autobiographical periods for their first semester in an open recall task. Participants then read each memory from their diary in random order and rated it on memory qualities and life story importance. Finally, they placed each memory into the autobiographical periods identified in the first part of the test session or into a separate pile if the memory was not a part of a period (our second measure of part-of-period). For both part-of-period measures (the diary and the test session measure), we related it to memory qualities and life story importance of the memories as measured in the test session. We supplemented the diary part-of-period measure with the test session measure because autobiographical periods change over time (Thomsen, 2015). Obtaining two measures of part-of-period provides a more complete test of our prediction that memories connected to autobiographical periods would be better remembered and more important to narrative identity.

Method

The study was not preregistered, and full data are not shared in a public repository due to national data sharing regulations. The study was conducted according to national ethical guidelines.

Participants and Recruitment

The participants were 47 university students recruited at the beginning of their first semester at Aarhus University. The sample consisted of 34 women and 13 men, with a mean age of 21.47 years ($SD = 1.99$). Fifty participants completed the diary part of the study but three did not complete the follow-up test session and hence their data were not analyzed. Thirty-three events were missed either during the diary period or due to procedural error in the test session. In total, 3,069 memories were included in the analyses, with a mean of 65.30 ($SD = 3.14$) memories per participant. The sample size was determined from prior studies and by reasoning that three memories per week per participant would yield a high number of memories allowing detection of small effect sizes (the exact specification of number of memories was not made because dropout was not known).

The study was advertised via email lists among students accepted into social science programs. Interested students emailed the researchers and were invited for an initial meeting lasting approximately 1.5 hr. At the meeting, they received oral information about the study and signed an informed consent. They were then given a detailed explanation of autobiographical periods, including various examples, and were asked to provide autobiographical periods from their own lives. The research assistant provided feedback by pointing out when participants identified memories or autobiographical facts instead and by validating correct identification of autobiographical periods. Subsequently, participants were asked to list their ongoing autobiographical periods with titles, estimated

beginning and end dates, and then they were asked to list projected future autobiographical periods with titles, estimated beginning and end dates. This part of the meeting served to familiarize participants with the concept of autobiographical periods. In the final part of the meeting, they practiced the questionnaire they would complete each week during the semester (see below). After the meeting, they filled in a measure of personality traits at home (these data are not analyzed in the present study).

Materials and Procedure

The Diary Phase

Each Monday from the beginning of September to the end of January (a full semester), the participants were sent an electronic questionnaire asking them to describe and rate three events from the previous week. Participants were reminded by email, by text message, or by telephone call on Tuesday and/or Wednesday and Thursday morning, the questionnaire was closed. Participants who completed all diaries in a month received a gift voucher worth 400 Danish kroner (approximately \$60). If they remained in the study throughout the semester, they were rewarded with an extra gift voucher of 500 Danish kroner (approximately \$75).

The instructions in the weekly questionnaire were as follows:

Before answering the questionnaire, please spend 5 min thinking back to last week, that is from Monday to Sunday last week. Following this, please chose the three concrete events that first come to mind. By concrete events, we mean events lasting maximum 1 day, the event can last from minutes to a full day. We are not interested in any particular type of events. It is completely up to you what events you choose. It can be both important and less important, positive and negative, emotionally intense and more neutral, and unusual or more typical. Some weeks it may be easy to think of three events; in other weeks, it may seem as if there is nothing worth reporting. Even for such weeks, we ask you to please chose three events, although you may not feel it is anything worth talking about.

Participants were then presented with the following instructions, which were similar for all three events: “Please give the event a title” (followed by an open text field).

Describe the event and spend about 10 min. Please include where it took place (please mention place both at a more abstract level and more precisely), what happened, who was there (include names), your actions, what you thought and felt, as well as any other details that you remember. The text field is unlimited, and you can write as much as you wish (followed by an open text field).

“Please date the event” (followed by an open text field). Each event was then rated on event characteristics and whether participants thought the event was a part of an autobiographical period (see Table 1, for questions).

The Test Session

Approximately 3–5 months after completing the last diary, participants were invited for a test session, which lasted approximately 2.5 hr. Participants received a gift voucher of 200 Danish kroner (approximately \$30) for their participation in this session.

Table 1
Overview of Questions in the Diary and in the Test Session

Questions	Rating scale/answer
Diary	
1. How important was the event to you?	1–7, anchored with 1 (<i>not at all important</i>), 4 (<i>moderately important</i>), and 7 (<i>very important</i>)
2. Was the event planned or completely unexpected? Sometimes, an event can be planned but then have a completely unexpected outcome. In that case, you can rate the event somewhere between 2 and 6 depending on how unexpected the content was.	1–7, anchored with 1 (<i>completely unexpected</i>), 4 (<i>planned but with some unexpected content</i>), and 7 (<i>completely according to plan</i>)
3. Independent of whether events are planned or not, they can be more or less unusual depending on how often you have experienced events like that. How unusual was the event for you?	1–7, anchored with 1 (<i>not unusual at all</i>), 4 (<i>moderately unusual</i>), and 7 (<i>very unusual</i>)
4. Some events are very significant to our long-term goals, while others are less important to our goals. Events that are significant to our goals can both help us toward our goals and oppose our goals. To what degree and in what way was the event significant to your goals when it happened?	1–7, anchored with 1 (<i>opposed my goals to a high degree</i>), 2 (<i>opposed my goals to a moderate degree</i>), 3 (<i>opposed my goals to a low degree</i>), 4 (<i>completely irrelevant to my goals</i>), 5 (<i>led to progress on my goals to a low degree</i>), 6 (<i>led to progress on my goals to a moderate degree</i>), and 7 (<i>led to progress on my goals to a high degree</i>). Recoded into goal relevance 0–3 (with 0 = 4; 1 = 3 and 5; 2 = 2 and 6; and 3 = 1 and 7)
5. How emotionally intense was the event for you?	1–7, anchored with 1 (<i>not at all intense</i>), 4 (<i>moderately intense</i>), and 7 (<i>very intense</i>)
6. How positive was the event?	1–7, anchored with 1 (<i>not at all positive</i>), 4 (<i>moderately positive</i>), and 7 (<i>very positive</i>)
7. How negative was the event?	1–7, anchored with 1 (<i>not at all negative</i>), 4 (<i>moderately negative</i>), and 7 (<i>very negative</i>)
8. How much have you talked about the event since it happened?	1–7, anchored with 1 (<i>not at all</i>), 4 (<i>a few times</i>), and 7 (<i>very often</i>)
9. How much have you thought about the event since it happened (apart from thinking about it now)?	1–7, anchored with 1 (<i>not at all</i>), 4 (<i>a few times</i>), and 7 (<i>very often</i>)
10. Some event can be perceived as a part of a time course or a period, which is either ongoing or starting with the event. Do you think of the event as a part of a time course or a period?	1–7, anchored with 1 (<i>not at all</i>), 4 (<i>to some degree</i>), and 7 (<i>to an extremely high degree</i>)
11. Which time course/period? (you can mention up to three)	Open text field
12. How often have you thought about this time course/period? (asked 1–3 times depending on how many time courses/periods were identified in response to question 11)	1–7, anchored with 1 (<i>not at all</i>), 4 (<i>a few times</i>), and 7 (<i>very often</i>)
Test session	
1. I remember the event (that is you don't just know that it took place, but you actually remember the concrete event)	1–7, anchored with 1 (<i>not at all</i>) and 7 (<i>to a very high degree</i>)
2. I feel that this event has become a central part of my life story	1–7, anchored with 1 (<i>not at all</i>) and 7 (<i>to a very high degree</i>)
3. This memory gives me a sense of traveling back in time to the event	1–7, anchored with 1 (<i>not at all</i>) and 7 (<i>to a very high degree</i>)
4. This event is a symbol of important themes in my life story	1–7, anchored with 1 (<i>not at all</i>) and 7 (<i>to a very high degree</i>)
5. When I recall this event, it is like I relive it all	1–7, anchored with 1 (<i>not at all</i>) and 7 (<i>to a very high degree</i>)
6. I can see connections and similarities between this event and many other memories, also memories from other periods	1–7, anchored with 1 (<i>not at all</i>) and 7 (<i>to a very high degree</i>)
7. When I recall this event, I can see what happened	1–7, anchored with 1 (<i>not at all</i>) and 7 (<i>to a very high degree</i>)

In the first part of the test session, participants were asked to identify autobiographical periods in their first semester. They were given the following instruction:

Please think back to your first semester, that is from the beginning of September to the end of January and identify periods that are a part of your first semester. Periods refer to delimited time courses in your life with a beginning and an end, which are longer than 1 day. It could for example be a vacation, a romantic relationship, a hobby or leisure time activity, a living place, or a period of personal development. You can identify periods that have now ended and periods that are still ongoing. The important thing is that it is periods that were ongoing or started during your first semester. It is how you think about periods in your first semester now that is important. Don't try to remember what periods you have previously identified. Please give each period a title on these sheets, one period per sheet.

The participants were then given 20 sheets with period numbers 1–20 and space for writing a title for the period.

In the second part of the test session, participants were given a document containing all the events they had described in their diary in random order. The initial instruction was as follows: "In this part of the study, we will present you with the events you described during the semester. We ask you to please read through them and answer the accompanying questions." After reading each event, they rated it on memory qualities and life story importance using questions derived from previous research (Bertsen & Rubin, 2006; Rubin et al., 2003; see Table 1, for questions).

In the third part, participants were asked to place all their reported events with respect to the autobiographical periods they had identified in the first part of the test session (inspired by Burt et al., 2003). They were given the following instruction:

In this part of the study, we ask you to look back over all your events and sort them into piles corresponding to the periods you wrote down as a part of the first task (see sheets with periods 1–20). That is, if some events belong to the same period, you should sort them into the same

pile. I will now set out the sheets with your periods on this table. Please put the events belonging to each period with the sheet that labels that period. There is no right or wrong way to do this. It is how you think about events in relation to periods that we are interested in. Events can be a part of a period or not, it is how you think about it that is important. If some events belong to two or more periods, please put them with the period that you think they are most closely associated with. You can then note on the event sheet what other periods the event may also be a part of (just note the number for the period the event is also associated with, e.g., "2"). If some events are not a part of a period, you can simply put them aside in a separate pile. If some events belong to a period that you did not mention as a part of the first task, you can put them in another separate pile.

We added the final part of the instruction because participants may here realize that their memories are in fact a part of an autobiographical period even if this period was not recalled in the first part of the test session.

Results

Below, we first report preliminary analyses, including factor analyses of the questions concerning memory qualities and life story importance, as well as descriptive analyses of relationships between part-of-period and other measures. Second, we report analyses of whether part-of-period as measured in the diary phase predicted later memory qualities and life story importance. Third, we describe a similar set of analyses, but examine whether the test session measure of part-of-period was associated with memory qualities and life story importance. There were missing responses for some questions and hence *N* varies slightly in the reported analyses. Examples of autobiographical periods and events can be found on the study's Open Science Framework site at https://osf.io/q2jpe/?view_only=.

Preliminary Analyses

In order to examine whether the questions concerning memory qualities and life story importance asked in the test session reflected

two constructs, we conducted a principal component factor analyses with varimax rotation on these seven questions. Consistent with expectations, two factors were identified (eigenvalues = 4.13 and 1.33). The questions concerning memory qualities loaded highly and positively on the first factor (remember = .87; traveling = .89; relive = .88; and see = .90) and the questions concerning life story importance loaded highly and positively on the second factor (central = .73; symbol = .88; and connections = .81); cross-loadings were below .36. Hence, we created two mean scores for memory qualities and life story importance (Cronbach's α of .93 and .78, respectively).

The means for all variables and intercorrelations are displayed in Table 2 (note that these analyses violate independence of data points assumptions and are reported here as descriptive analyses). Most relevant for the present purpose, ratings of part-of-period during the diary were positively correlated with life story importance rated in the test session several months later (.25). The correlation with memory qualities was close to 0 (.06).

In the test session, participants sorted their memories into piles according to whether they were a part of autobiographical periods identified at the beginning of the test session (2,021 memories), a part of autobiographical periods not identified in the initial part of the test session (597 memories), or not a part of any periods (451 memories). As an initial examination of whether memories considered a part of autobiographical periods in the test session scored higher on memory qualities and centrality to narrative identity, we conducted two one-way analyses of variance (Table 3). These tests indicate a larger effect size for part-of-period on importance to narrative identity compared to memory qualities (note that these analyses violate independence of data points assumptions and are reported here as descriptive analyses). We further explored whether part-of-period ratings during the diary phase related to part-of-period as measured through pile sorting in the test session. The test indicates some stability in whether memories are considered part of autobiographical periods as higher ratings during the diary were found for those memories sorted into period piles versus not sorted into period piles at the test session with a large effect size (Table 3).

Table 2

Correlations Between Event Characteristics and Part of Autobiographical Period (Measured During the Diary Phase) and Memory Qualities and Life Story Importance (Measured in the Test Session)

Variable	<i>M</i> [95% CI]	Memory	Life story	Important	Planned	Unusual	Goal	Intense	Positive	Negative	Talked	Thought
Part-of-period	4.29 [4.22, 4.36]	.06	.25	.33	.05	.02	.58	.13	.07	.01	.16	.22
Memory	4.74 [4.68, 4.80]	—	.48	.20	-.14	.19	.09	.24	.03	.05	.26	.24
Life story	3.85 [3.80, 3.91]		—	.32	.01	-.07	.28	.24	.10	-.03	.15	.23
Important	4.65 [4.59, 4.71]			—	.08	.14	.46	.48	.26	-.10	.37	.50
Planned	4.26 [4.20, 4.32]				—	-.28	.04	-.16	.36	-.36	-.09	-.16
Unusual	4.13 [4.07, 4.19]					—	.07	.28	-.14	.18	.27	.30
Goal	1.27 [1.24, 1.31]						—	.23	.11	.00	.20	.30
Intense	4.19 [4.12, 4.25]							—	-.13	.29	.36	.57
Positive	5.32 [5.26, 5.39]								—	-.83	.06	-.01
Negative	2.35 [2.29, 2.41]									—	.04	.17
Talked	3.13 [3.07, 3.18]										—	.58
Thought	4.05 [3.99, 4.11]											—

Note. Variables measured during the diary phase include the following: part-of-period, important, planned, unusual, goal, intense, positive, negative, talked, and thought. Variables measured in the test session include the following: memory and life story (both represent mean scores of items shown in Table 1). Note that goal relevance ranges from 0 to 3 with higher scores indicating higher goal relevance, both helping and opposing goal progress. For all other variables, the ranges were 1–7 (see Table 1). Note that these analyses violate independence of data points assumptions and are reported here as descriptive analyses. CI = confidence interval.

Table 3
Part of Autobiographical Period (Rated in Diary), Memory Qualities, and Life Story Importance (Rated in Test Session) in Relation to Part of an Autobiographical Period Measured in the Test Session

Variable	Part-of-period identified at beginning of test session <i>M</i> [95% CI]	Part-of-period not identified at beginning of test session <i>M</i> [95% CI]	Not part-of-period <i>M</i> [95% CI]	<i>F</i>	η^2
Memory qualities	4.79 [4.71, 4.86]	4.64 [4.51, 4.77]	4.67 [4.52, 4.82]	2.32	.002
Life story importance	4.01 [3.94, 4.08]	3.73 [3.60, 3.86]	3.31 [3.18, 3.45]	39.98	.025
Part-of-period in diary	4.75 [4.67, 4.83]	4.04 [3.88, 4.20]	2.53 [2.34, 2.72]	254.88	.143

Note. These analyses violate independence of data points assumptions and are reported here as descriptive analyses. CI = confidence interval.

Part-of-Period Rated in Diary, Memory Qualities, and Centrality to Narrative Identity

We examined whether part-of-period ratings during the diary phase predicted memory qualities and narrative identity importance as rated in the test session 3–5 months later while controlling for other event characteristics. We conducted multilevel model analyses because the different events and their characteristics, Level 1, were clustered around different participants, Level 2. We ran two analyses, one with memory qualities as the dependent variable and one with life story importance as the dependent variable. In both analyses, we first tested the assumption that there was significant variation across individuals, that is, random intercepts (Models 1.1 and 2.1 in Table 4). Then, we tested three different models, one

assessing the fixed effect of part-of-period ratings on our dependent variables (Models 1.2 and 2.2), a model testing this effect while controlling for event characteristics (Models 1.3 and 2.3), and, finally, a model including part-of-period ratings, event characteristics, and random effects, that is, individual slopes (Models 1.4 and 2.4). Both our dependent and independent variables are from Level 1, that is, from the different events reported in the diary phase. Because we ran two different analyses on the same data, we applied a Bonferroni correction (.05/2) for multiple comparisons and set the new α level to $\alpha = .025$.

The analyses concerning the memory qualities showed that the intercepts for memory qualities varied significantly across participants (see Model 1.1 in Table 4). However, there was no significant association between part-of-period and the memory qualities (see

Table 4
Comparison of Fit Indices in Models Fitted to Memory Qualities and Life Story Importance

Model	χ^2	<i>df</i>	<i>p</i>	AIC	BIC	Δ AIC	Δ BIC
Memory qualities predicted by diary measures							
Baseline				11,734.59	11,746.65		
1.1. Random intercepts	600.72	1	<.001	11,135.87	11,153.95	598.72	592.70
Fixed effects							
1.2. Part-of-period	0.28	1	.597	11,137.59	11,161.70	–1.72	–7.75
1.3. Part-of-period and control variables	563.82	9	<.001	10,591.76	10,670.11	545.83	491.59
Random effect							
1.4. Part-of-period and control variables	6.02	2	.049	10,589.75	10,680.15	2.01	–10.04
Life story importance predicted by diary measures							
Baseline				11,445.05	11,457.10		
2.1. Random intercepts	1,346.46	1	<.001	10,100.59	10,118.67	1,344.46	1,338.44
Fixed effect							
2.2. Part-of-period	113.41	1	<.001	9,989.18	10,013.28	111.41	105.38
2.3. Part-of-period and control variables	471.85	9	<.001	9,535.33	9,613.68	453.85	399.61
Random effect							
2.4. Part-of-period and control variables	18.42	2	<.001	9,520.90	9,611.31	14.42	2.37
Memory qualities predicted by test session measure							
Fixed effect							
3.1. Part-of-period	0.05	2	.977	11,139.82	11,169.96	–3.95	–16.01
Random effect							
3.2. Part-of-period	21.90	5	<.001	11,127.92	11,188.19	11.90	–18.23
Life story importance predicted by test session measure							
Fixed effect							
4.1. Part-of-period	58.91	2	<.001	10,045.68	10,075.81	54.91	42.86
Random effect							
4.2. Part-of-period	66.43	5	<.001	9,989.25	10,049.52	56.43	26.29

Note. AIC = Akaike information criterion; BIC = Bayesian information criterion.

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Model 1.2 in Table 4) and this nonsignificant association remained when controlling for the event characteristics (Model 1.3). Finally, our fourth model revealed that the slopes did not significantly vary across participants (see Model 1.4 in Table 4) and the slopes and intercepts were negatively but nonsignificantly correlated, $cor = -.30$ ($-.69, .22$). Because our fourth model was nonsignificant, Model 1.3 in Table 4 represented the best fit for our data. According to this model, connecting memories to autobiographical periods during the diary phase did not significantly predict memory qualities and this nonsignificant effect remained when controlling for other event characteristics (see Table 5, for coefficients for part-of-period and event characteristics).

For centrality to narrative identity, we tested a similar set of models. The analyses revealed that the intercepts for life story importance varied significantly across participants (see Model 2.1 in Table 4). There was a significant association between part-of-period and life story importance (see Model 2.2 in Table 4), and this significant association remained when controlling for the event characteristics (see Model 2.3 in Table 4). Finally, our fourth model revealed that the slopes varied significantly across participants (see Model 2.4 in Table 4). The slopes and intercepts were negatively but nonsignificantly correlated, $cor = -.31$ ($-.63, .11$). Model 2.4 in Table 4 represented the best fit for our data. Connecting memories to autobiographical periods during the diary phase significantly predicted life story importance, and the significant relation remained after controlling for event characteristics (see Table 5, for coefficients for part-of-period and event characteristics).

Part-of-Period in Test Session, Memory Qualities, and Centrality to Narrative Identity

We conducted two analyses similar to the above, but this time entering part-of-period as measured through pile sorting in the test session as the predictor variable. Recall that we asked participants to

assess memories for whether they were a part of autobiographical periods identified at the beginning of the test session (2,021 memories), a part of autobiographical periods although not those periods identified in the first part of the test session (597 memories), and not a part of periods at all (451 memories). The crucial comparison is between memories that are a part of an autobiographical period (either identified at the beginning of the test session or during the later part of the test session) and memories that are not a part of an autobiographical period. Hence, memories not considered a part of a period in the test session were our reference group. We tested whether memories that were considered part of autobiographical periods were significantly related to memory qualities and centrality to narrative identity. As before, we conducted two separate analyses with memory qualities and with life story importance as the dependent variables, respectively. Because the assumption that there was significant variation across individuals on both of our dependent variables had already been established (Models 1.1 and 2.1 testing for random intercepts in Table 4), we tested only two different models. Models 3.1 and 4.1 tested the effect of part-of-period, and Models 3.2 and 4.2 tested whether the slopes varied across participants—random effects. We applied a Bonferroni correction ($.05/2$) for multiple comparisons and set the new α level to $\alpha = .025$.

The analyses concerning memory qualities revealed a nonsignificant relation between part-of-period and memory qualities (see Model 3.1 in Table 4). However, our second model showed that the slopes varied across participants for both levels of our predictor variable (see Model 3.2 in Table 4). That is, $SD = 0.29$ (0.11, 0.80) for events categorized as being part of any autobiographical period and $SD = 0.46$ (0.28, 0.77) for events categorized as part of autobiographical periods identified at the beginning of the test session. The slopes and intercepts were positively but nonsignificantly correlated, $cor = .39$ ($-.59, 0.90$), for events categorized as being part of any autobiographical period and negatively and nonsignificantly correlated for events belonging to autobiographical

Table 5
Best Model Fit Coefficients of Event Characteristics and Part of Autobiographical Period Question on Memory Qualities and Life Story Importance

Variable	Memory qualities				Life story importance			
	<i>b</i>	<i>SE b</i>	[95% CI]	<i>p</i>	<i>b</i>	<i>SE b</i>	[95% CI]	<i>p</i>
Predictors, diary period								
Part-of-period	-0.03	0.02	[-0.06, 0.01]	.106	0.04	0.02	[0.00, 0.07]	.006
Importance	0.02	0.02	[-0.03, 0.06]	.409	0.16	0.02	[0.12, 0.19]	<.001
Planned	-0.05	0.02	[-0.09, -0.02]	.001	-0.01	0.01	[-0.03, 0.02]	.578
Unusual	0.14	0.02	[0.11, 0.18]	<.001	-0.09	0.01	[-0.11, -0.06]	<.001
Goal	-0.10	0.03	[-0.17, -0.04]	.001	0.07	0.03	[0.01, 0.12]	.017
Intensity	0.14	0.02	[0.10, 0.18]	<.001	0.12	0.02	[0.08, 0.15]	<.001
Positive	0.11	0.03	[0.06, 0.16]	<.001	0.01	0.02	[-0.03, 0.06]	.505
Negative	0.02	0.03	[-0.03, 0.08]	.425	-0.02	0.02	[-0.06, 0.03]	.565
Talked	0.14	0.02	[0.10, 0.18]	<.001	-0.01	0.02	[-0.05, 0.02]	.395
Thought	0.10	0.03	[0.05, 0.15]	<.001	0.13	0.02	[0.09, 0.17]	<.001
Predictors, test session								
Part of any period	-0.01	0.11	[-0.23, 0.21]	.92	0.52	0.14	[0.25, 0.79]	<.001
Part-of-period identified in beginning of test session	-0.01	0.11	[-0.23, 0.20]	.91	0.57	0.10	[0.37, 0.76]	<.001

Note. The test values represent the four models with the best fit reported in Table 4: Model 1.3 for predictors, diary period with respect to memory qualities; Model 2.4 for predictors, diary period with respect to life story importance; Model 3.2 for predictors, tests session with respect to memory qualities; and Model 4.2 for predictors, test session with respect to life story importance. *SE* = standard error; *CI* = confidence interval.

periods identified at the beginning of the test session, $cor = -.25$ ($-.65, .26$). Therefore, Model 3.2 in Table 4 represented the best fit for our data. According to this analysis, connecting memories to autobiographical periods, both any autobiographical period and autobiographical periods identified at the beginning of the test session, was not significantly associated with memory qualities (see Table 5, for coefficients for part-of-period and event characteristics).

Concerning centrality to narrative identity, analyses revealed a significant relation between part-of-period and life story importance (see Model 4.1 in Table 4). In addition, Model 4.2 revealed that the slopes varied across participants, $SD = 0.69$ (0.48, 0.99), for events categorized as being part of any autobiographical period and $SD = 0.46$ (0.29, 0.72) for events identified as part of autobiographical periods at the beginning of the test session (see Model 4.2 in Table 4). The slopes and intercepts were negatively but nonsignificantly correlated, $cor = -.10$ ($-.42, .25$), for events categorized as being part of any autobiographical period and negatively and significantly correlated, $cor = -.40$ ($-.67, -.05$), for events identified as part of autobiographical periods at the beginning of the test session. Model 4.2 in Table 4 represented the best fit for our data. Connecting a memory to an autobiographical period was significantly associated with life story importance. Both being a part of any autobiographical period and being a part of autobiographical periods identified at the beginning of the test session were positively associated with life story importance as compared to events that were not considered part of a period (see Table 5, for coefficients for part-of-period and event characteristics).

Discussion

We examined whether memories connected to autobiographical periods would be more vividly remembered and more central to narrative identity. Surprisingly, we did not find support for our prediction concerning remembering. Memories were not more likely to be vividly retained over time if they were considered part of an autobiographical period. As predicted, however, memories connected to autobiographical periods were evaluated as more central to narrative identity. This result was consistent for both measures of autobiographical periods (diary phase and test session) and when controlling for other event characteristics, such as goal relevance, emotional intensity, and rehearsal, that could be alternative explanations of why memories become central to narrative identity.

Autobiographical Periods, Memory, and Centrality to Narrative Identity

We based our predictions concerning memory on previous observations from a diary study (Linton, 1986) and theoretical assumptions (Conway, 2005). Our nonsignificant findings may reflect that we used very strong memory cues (participants' full event descriptions), which could override beneficial effects of organizing memories into autobiographical periods. Recalling memories through strategic retrieval may depend on autobiographical periods (Conway, 2005), whereas the event descriptions we provided may provide a retrieval shortcut and facilitate direct retrieval of memories (Conway, 2005; Uzer et al., 2012). It is possible that a free recall task requiring the use of strategic retrieval would have revealed an effect on memory because participants would activate autobiographical periods as a part of their strategic retrieval.

Memories connected to autobiographical periods were later selected as central to narrative identity. This finding is consistent with the key role important autobiographical periods play in life stories, where they function as chapters (McAdams, 2001; Thomsen, 2009), although the autobiographical periods identified by our participants likely refer to shorter and less identity-salient autobiographical periods. The results indicate that the advantage of organizing memories into autobiographical periods was not explained by other factors, such as high goal relevance and emotional intensity, which could link memories directly to life stories (Singer et al., 2013; Thomsen et al., 2015). Benefitting from the stable structure of autobiographical periods, incorporated memories may attract autobiographical reasoning that facilitates organization into causally thematically related memory clusters that collectively carry greater identity salience than isolated memories (Brown & Schopflocher, 1998; Habermas & Bluck, 2000).

Event Characteristics, Memory, and Centrality to Narrative Identity

Replicating previous studies, we found that certain event characteristics predicted memory and life story importance (Brewer, 1988; Skowronski et al., 1991; Thompson et al., 1996). Regarding memory qualities, distinctive, emotionally intense, and positive events that were often thought about and shared with others were more likely to be vividly retained. Surprisingly, lower goal relevance and less planning also predicted memory qualities (see Table 5). Regarding centrality to narrative identity, another pattern emerged: Highly goal relevant, important, emotionally intense, and often mentally rehearsed events that were lower on distinctiveness were more likely to be considered important to life stories (see Table 5).

The finding that event characteristics differed in their predictive relationships with memory and narrative identity agrees with our earlier study (Thomsen et al., 2015). Furthermore, there was a positive, but moderate relation between life story importance and memory qualities, and autobiographical period connections related differentially to the two constructs. These results draw attention to the different nature of remembering and narrative identity construction, a distinction that is easily overlooked when life stories are proposed as an overall organizing level in autobiographical memory (Conway, 2005; Conway et al., 2004). While memories are the raw material narrative identity is created from, a more accurate depiction of the relationship between memory and narrative identity includes their intersection as well as their distinctive features.

Limitations

The participants were university students who are generally highly organized people with ongoing role transitions, which may affect ratings of connection to autobiographical periods and life story importance. They constitute a White, Educated, Industrialized, Rich, and Democratic sample (Henrich et al., 2010) and results may not generalize to other groups. We have argued that the results illuminate processes involved in how memories are incorporated into narrative identity through chapters. However, the diary spanned only 5 months with short autobiographical periods and findings may not generalize to constructing life stories with chapters spanning decades. Finally, we cannot ascertain causal relationships between autobiographical periods and outcomes as confounding variables may explain the

relations. While we controlled for known predictors such as goal relevance, it remains possible that other unmeasured constructs drove the associations. Relatedly, we did not measure life story importance of memories during the diary (close to encoding) and cannot exclude the possibility that memories may be directly linked to life stories soon after they have been formed. This could be the case for memories high on self-defining properties that capture key concerns and conflicts (Singer & Salovey, 1993).

Conclusion and Perspectives

We found that memories connected to autobiographical periods become more central to narrative identity. Together with existing studies, this emphasizes the key role of autobiographical periods with respect to life story construction encouraging further research into this construct. It also points to the potential gains of working with identity-salient autobiographical periods, i.e., chapters, in interventions targeting narrative identity reconstruction (Thomsen et al., 2023).

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