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Childhood remembered: Reports of both unique and repeated events

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To explore the significance of repeated memories for individuals' personal histories, we compared the characteristics of young adults' unique and repeated memories of childhood experiences. Memory type (unique vs. repeated) was a within-participant variable. In Experiment 1, college-age participants generated as many early memories as possible in 4 minutes; in Experiment 2, another sample provided complete reports of five early memories in each condition. In both experiments, participants rated the vividness, biographical importance and personal meaning of each memory and labelled the accompanying emotion. Unique memories were more vivid than repeated memories as well as more likely to include negative emotion, regardless of the method of reporting. Most importantly, college students rated their memories for unique and repeated events as equivalently infused with personal meaning. Analysis of the content of the memories reported in Experiment 2 established that unique and repeated memories did not differ in word count or percentages of perceptual terms or words indicating positive affect, although unique memories contained a greater percentage of negative affect. Additional analyses of content provided evidence for differences in the functions served by unique and repeated memories. The results have implications for the study of autobiographical memory and for identifying over-general memories.

Keywords: Autobiographical memory; Childhood; Life story; Repeated events; Unique events.

Our lives largely comprise everyday events, and some of those events occur almost every day, at least for periods of time. Despite the extent to which repeated episodes constitute lived experience, they have traditionally been excluded from conceptualisations of autobiographical memory. For example, Nelson and Fivush (2004) define autobiographical memory as "an explicit memory of an event that occurred in a specific time and place in one's personal past" (p. 486). Recently, however, Rubin and Umanath (2015) have challenged the assumption that event memory must consist of unique episodes. They argue that some episodes are so similar that they are reported as a single scene at recall and that "the properties and construction of such repeated events overlap too heavily with those of unique events to be considered fundamentally different from them" (p. 10). In this paper, we contribute to the understanding of the similarities and distinctions between memories of unique versus repeated events, focusing particularly on the personal importance and content of these two categories of memories for childhood experiences. The

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examination of childhood memories allowed us to explore the extent to which memories of unique versus repeated events are available as influences on the self-concept and life story (Habermas & Bluck, 2000) at emerging adulthood.

Consistent with Waters, Bauer, and Fivush (2014), we define unique memories as reports of past single events experienced by the participant at a particular time and place, and repeated memories as representations of personally experienced events that occurred on multiple occasions and involved primarily the same people and setting. Although Rubin and Umanath (2015) categorise both these types of memory as event memory, they classify only unique memories as episodic. Both categories of unique and repeated memories exclude reports of extended events, defined by Waters et al. (2014) as important experiences or periods of life that may represent an amalgam of single and recurring events (see also Conway & Pleydell-Pearce, 2000). Extended memories provide summaries of a significant time in one's life, such as trips to Disneyland, one's first year of school, and other events that happened over a continuous and protracted period of time. Within these extended memories, one can often isolate memories of unique or repeated events (or both) that occurred during the period of life being recalled.

Repeated or recurring memories should not be confused with scripts. According to Schank and Abelson (1977), a script is "a structure that describes an appropriate sequence of events in a particular context" (p. 151). As investigated by Nelson and her colleagues (see Nelson, 1986), scripts are schemas that provide generic event representations. Hence, scripts convey the typical acts that comprise particular events (e.g., having dinner in a restaurant) in the order in which they occur and accommodate variations in the prototypical experience (e.g., through slot fillers and conditional acts). Abundant research evidence establishes that scripts have broad implications for understanding and remembering events and contribute to cognitive development (Nelson & Gruendel, 1986). However, scripts do not represent an individual's personal experience. Notably, scripted events are described in the second rather than the first person and in the present rather than the past tense (e.g., "You follow the hostess to your table"). In contrast, repeated events as provided by participants in reporting early memories denote the experiences of the self ("I"), including thoughts, reactions and emotions. Further, repeated memories often reflect personal awareness of the event as it unfolds, for example, in discussing sensory details of the experience. These properties are typically listed as defining characteristics of autobiographical memories by memory researchers (e.g., Bauer, 2007; Nelson & Fivush, 2004). Thus, repeated event reports appear to share more characteristics with unique memories than with scripts. Indeed, repeated memories arguably differ from the unique episodes typically defined as autobiographical memory in only one regard: they happen more than once.

Furthermore, repeated memories are not manifestations of the phenomenon of over-general memory. As defined by Williams et al. (2007), patients with depression or histories of trauma, in comparison to normal controls, more frequently summarise categories of events when asked to recall specific memories in response to cue words, thus demonstrating over-general memory. Conway and Pleydell-Pearce (2000) propose a hierarchical search model to explain this pattern. In this model, over-general memories are reported because an individual truncates a search of memory prematurely in order to avoid exposure to representations of distressing experiences. As a result, their reported memories consist of brief and unelaborated reports of categories of experience (e.g., "all the times I've failed exams"; Williams et al., 2007, p. 123). Although references to extended periods of the lifespan (e.g., "my first semester of university"; Williams et al., 2007, p. 123) were initially considered as indicators of over-general memory, such memories, in contrast to broad categorical reference, were not found to differentiate suicidal patients and controls (Williams & Dritschel, 1992) and would now be described as extended memories. In contrast to over-general memories, repeated memories as examined in the present research may be reports of quite specific events ("having Thanksgiving dinner with all my cousins at my grandmother's house") rather than instantiations of a category ("dinner time at home") and differ from over-general memories in that the event in question occurred on multiple occasions. In addition, by definition repeated memories could be comparable to specific event reports with regard to the amount of detail and inclusion of emotion. Hence, repeated memories cannot be considered

as the product of a truncated retrieval process (Rubin & Umanath, 2015).

Despite the possibility that repeated events are part of autobiographical memory, researchers have excluded such reports from consideration in many investigations of early childhood memories. For example, using a cue word procedure, researchers have asked for reports of memories for specific, one-time events with both child (Bauer, Burch, Scholin, & Guler, 2007) and adult (Jack & Hayne, 2007; Rubin, 2000) participants. Similarly, in studies eliciting narrative reports of earliest memories, children (Cleveland & Reese, 2008; Picard, Reffuveille, Eustache, & Piolino, 2009; Tustin & Hayne, 2010), adolescents (Jack, McDonald, Reese, & Hayne, 2009; Reese, Jack, & White, 2010), and adults (Bruce, Wilcox-O'Hearn, Robinson, Phillips-Grant, Francis, & Smith, 2005; Jack & Hayne, 2007; Mullen, 1994 [Study 3]) were instructed to describe only unique events. In contrast, a number of studies of memory for early childhood events have not limited participants' reports to unique episodes. These investigations include the administration of the cue word procedure with adults (Wang, 2006); elicitation of reports with both children (Peterson, Grant, & Boland, 2005; Peterson, Morris, Baker-Ward, & Flynn, 2014; Peterson, Wang, & Hou, 2009) and adults (Artioli, Cicogna, Occhionero, & Reese, 2012; Peterson, Smorti, & Tani, 2008); and the presentation of a fluency task to children (Peterson et al., 2009) and adults (Peterson et al., 2008).

When individuals are not constrained by the requirement to limit their reports of early memories to unique episodes, they typically report both one-time and repeated events. In these investigations, reports of repeated events occurred frequently. Among children, Peterson et al. (2009) classified almost half the reported memories as describing repeated experiences, and Peterson et al. (2005) categorised about a quarter of children's memories as repeated. Among adult participants, both Wang (2006) and Peterson et al. (2008) reported that about half the reports of early childhood events consisted of accounts of repeated experiences.

It is clear that, when allowed to do so, participants define their childhood memories as involving both unique and repeated experiences. But do the two types of memories serve the same function in autobiographical memory? Waters et al. (2014) asked adults to generate both unique and repeated memories in two studies (extended memories were also included in one of the studies) and explored the functions served by these memories: self-definition, social connection, and directing future behaviour. They used narrative coding of the memories as well as questionnaire measures about narrative function filled out by the participants themselves in Study 2 and found that adults' memories of both unique and repeated events seemed to serve a self-defining function, although memories of unique events were more frequently identified as serving this function than were repeated memories. However, the timeframe for the recalled events was not specified, and thus memories were likely from relatively recent periods of the participants' lives.

Do repeated memories from early childhood, as frequently reported by participants in describing their childhood, also play an important role in identity? It makes sense that the similar episodes that comprise life as it unfolds, along with unique events, would serve to define characteristics of the self. Illustrating this possibility, famed biologist E.O. Wilson begins his autobiography (1994) with stories of the repeated as well as unique experiences embedded within his memory for an extended period of his life, and discussed all these memories as having initially established his identity as a naturalist. As a young child, he spent one summer at Paradise Beach, Florida (extended memory). He describes how every morning he would comb the beach, wading in and out of the water, looking for interesting forms of life (repeated memory). He also discusses one-time events, including encountering a gigantic ray, which he subsequently repeatedly tried to catch [unique memory]. Wilson considers all these experiences part of his autobiography: "Why do I tell you this little boy's story of medusas, rays, and sea monsters, almost 60 years after the fact? Because it illustrates, I think, how a naturalist is created" (1994, p. 11).

In this investigation, we explore the similarity of repeated and unique event reports with reference to a number of the defining characteristics of autobiographical memory among young adults describing early childhood experiences. We conducted two studies in which participants reported both unique and repeated early memories. Study 1 used a fluency task (Wang, Conway, & Hou, 2004), in which participants generated as many early memories as possible in a specified period of time. This procedure is seen as providing an

indication of the accessibility of early memories. In Study 2, participants provided detailed descriptions of a specified number of childhood memories. The use of a different methodology enabled us to examine additional characteristics of their memories as well as to overcome some limitations in the initial study.

Given our interest in the significance of these types of memories in constructing identity, we asked our participants in both studies to rate the likelihood that a reported event would be included in their potential future biographies. In addition, to minimise the risk that participants may hesitate to publicly share some childhood experiences, we obtained separate ratings of the personal significance of both types of events. Also, consistent with most research on early autobiographical experience, we obtained additional information about these memories, including the age at which the experience occurred (e.g., Rubin, 2000), the emotional valence of the memory (e.g., Talarico, LaBar, & Rubin, 2004), and its vividness (e.g., Jansari & Parkin, 1996). In examining memory reports, we also compared word count and characterised both unique and repeated memories in terms of the inclusion of words representing perception and positive and negative affect. These measures provided indicators of the extent to which memories in the two categories differed in detail and in inclusion of personal experience. In addition, to explore the different functions of memories in different categories, we compared the inclusion of terms referring to the self, social partners, and cognitive insight in repeated and unique memories. In this way, we built on the recent work of Waters et al. (2014) with a different methodology (i.e. ratings vs. narrative content).

Based on participants' frequent reporting of both unique and repeated childhood experiences, which sometimes even occur in equivalent proportions in unconstrained recall (Peterson, Smorti, & Tani, 2008; Peterson, Bonechi, Smorti, & Tani, 2010), we expected that the ratings of the public and personal significance of both types of memories would be comparable. In contrast, we predicted that unique memories would be rated as more vivid, reflecting their distinctiveness (Howe, 1997). We also expected differences in the emotions associated with the memories. We assumed that for children in stable life circumstances, everyday experiences in childhood consist largely of mildly positive content (e.g., Morris, Baker-Ward, & Bauer, 2010), and that this would be typically true for our sample of college students. Hence, we predicted that repeated memories would be less likely to be accompanied by negative emotion because they were less likely than unique memories to refer to unusual events such as injuries. We also expected to observe differences in the content of the two categories of memories, corresponding to the functions identified by Waters et al. (2014).

EXPERIMENT 1: MEMORY FLUENCY

Method

Participants. A total of 44 participants, all of whom were students at a public university in the Southeastern United States, were recruited for this investigation. All participants were at least 18 years of age and native speakers of English. They were all enrolled in introduction to psychology courses, and their participation fulfilled one option for course credit. A total of three participants did not contribute data to the study: the first because of disclosure of a developmental disability; the second due to equipment malfunction; and the third, because all reports of repeated memories extended beyond the target age range of 6.5. Hence, the final sample consisted of 41 participants, 16 of whom were female. The disproportionate inclusion of male participants reflects the characteristics of students in a course meeting a general education requirement in an institution with strong programmes that have traditionally attracted fewer female students. Further representing the student population of the university, the sample was primarily European American (82.90%), with 14.60% of the participants self-identified as African-American, and the remaining 2.40% (one student) categorised as Other. Six undergraduate research assistants, five females and one male, all of whom were European American, conducted all the interviews.

Procedure. All participants were interviewed individually in a laboratory room in the Psychology building. Interviews were audio recorded and subsequently transcribed for further analysis. Participants were asked to complete two memory fluency tasks (Wang et al., 2004), one for memories of unique events (defined as experiences that occurred on only one occasion) and the other for memories of repeated events. The order of the two fluency tasks was counterbalanced across

participants. In the fluency task for unique memories, participants were given 4 minutes to recall as many one-time memories for events that occurred before they entered elementary school (operationally defined as below 6.5 years of age) as they could. After the 4 minutes had passed, participants were asked to provide their ages, in years and months, at the time of each reported event. Following procedures used in previous research (Peterson & Nguyen, 2010), interviewers provided prompts (e.g., season of the year) as needed to help the participant accurately date the remembered event. Participants were also asked to report the vividness of each memory on a Likert scale (1 = very vague, 7 = vivid), and the emotion, if any, that was attached to the memory.

The fluency task for repeated memories was identical to the fluency task for unique memories, except participants were asked to report memories of events that occurred on multiple occasions. After the completion of the 4-minute fluency task, participants were asked to rate the vividness of the memory and describe the accompanying emotion, as described above. Additionally, participants reported the age in years and months in which the repeated event first began and the age at which the event ended.

After completion of these two memory tasks, participants were asked to report the biographical importance of each memory they recalled on a Likert scale (1 = definitely NOT include, 7 = definitely include). Specifically, the participants were instructed to:

> Pretend that at some point in the future you have become famous. Someone is writing a biography about you, and you would like to tell the story of your life, the events that were important or interesting or helped make you who you are. You would like others to know you. For each of the memories you gave, how likely are you to include that memory as something to go into your biography, to tell the story of your life?

Participants were also asked to rate the private significance of each memory on a Likert scale (1 = definitely NOT important, 7 = definitely important). There instructions were as follows:

> In thinking about your life and the memories you have of it, some memories are salient, important, interesting, or in other ways significant, but you may not want to include them in a biography. They are important for you privately, but not necessarily for public consumption. For each of the memories that you gave, how important or significant is that memory for you personally?

All procedures were approved by the University's Institutional Review Board

Coding. For unique events, the participant's estimated age at which the event occurred (age at encoding) in years was analysed. In the event that the participant could only specify a given year ("when I was 4"), the midpoint of the interval (4.5 years) was analysed.

Memories for events participants identified as occurring after childhood, operationalised as at or after 10.5 years, were omitted. We chose this age to correspond to the period of life prior to the typical end of the elementary school years. This period exceeded the target age range of below age 6.5 that was defined in the instructions; however, preliminary analyses revealed the same pattern of effects of condition when memories were omitted that occurred beyond age 6.5, with the only differences involving the effects of gender in one analysis and order in another. The extended age range made it possible to include an additional 119 memories. With the boundary defined as 10.5 years, no unique memories were deleted; however, 145 (36.99%) of the repeated memories failed to meet the criteria for inclusion. This figure reflects the fact that many repeated events continued beyond the 10.5-year boundary. Although memories for events that transpired before 1.5 years would not have been included in the analyses, no memories dating from this period of life were reported in either condition. (Memories for repeated events beginning before 1.5 years of age but continuing beyond that period were included.)

The label of the emotion accompanying each memory as generated by the participant was classified into the following categories: positive, negative, neutral, or mixed. This classification was based on the categories for positive and negative affect as included in the standard dictionary used with the Linguistic Inquiry and Word Count (LIWC) software (Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007). The neutral category consisted of words without positive or negative affect, and the mixed category comprised reports that included both positive and negative affect terms. Because the coding was objective, in that it involved only the identification of the presence or absence of the term in the LIWC dictionary categories for positive and negative affect,

TABLE 1
Characteristics of unique and repeated memories across participants (Experiment 1)

	Mean (SD)	Range for mean
Unique condition		
Age[a]	4.24 (0.93)	1.58–6.67
Vividness	5.47 (1.28)	2–7
Biographical importance	3.79 (1.91)	1–7
Personal significance	4.15 (1.95)	1–7
Repeated condition		
Age[a]	5.09 (1.16)	1.63–9.54
Vividness	4.98 (1.43)	1–7
Biographical importance	3.63 (1.91)	1–7
Personal significance	4.20 (1.96)	1–7

[a]Age refers to the age at which the unique was encoded or the participant's age at the midpoint of the duration of the repeated event.

TABLE 2
Results of tests of multilevel models (Experiment 1)

	Dependent variables for each model	
	Vividness rating	Averaged biographic and self-importance rating
Fixed effects		
Dependent variable, β_0		
Intercept, γ_{00}	5.45** (.13)	3.96** (.17)
Condition slope, β_1		
Condition, γ_{10}	−.50** (.10)	−.07 (.13)
Random effects		
Variable level, τ_{00}	.47** (.13)	.91** (.25)
Within-person fluctuation, σ^2	1.36** (.08)	2.30** (.14)

Standard error values are in parentheses.
*p < .05, **p < .001.

reliability was not calculated. No data reduction was necessary for the ratings of vividness, biographical importance, and personal significance.

Results

Reflecting the application of the exclusion criteria described above there were, not surprisingly, more unique (N = 318) than repeated (N = 247) memories. The characteristics of the unique and repeated memories are indicated in Table 1. Overall, the two categories of memories were characterised by greater similarity than difference.

To analyse these data, multilevel modelling (MLM) was used in order to control for the nesting of memories within participants (e.g., Morris et al., 2010; Peterson et al., 2014). In each of these analyses, we first conducted a preliminary analysis with no predictors included to determine whether there was sufficient variability between and within subjects to test the hypothesis (e.g., Raudenbush & Bryk, 2002). Additional preliminary analyses were then conducted to determine whether performance differed by gender or order of presentation of the memory tasks. No main effects were observed for any outcome; consequently, the final models did not include these variables. Condition (unique = 0; repeated = 1) was added to each model as a level 1 predictor. In each of these analyses, the following general model was used to examine within-subject effects between the major dependent variable under consideration and condition. All the following models are represented in Table 2.

$$\text{Level 1: } DV_{ij} = b_{0ij} + b_{1i}(\text{UNIQUE vs REPEATED}) + r_{ij}$$

$$\text{Level 2: } b_{0i} = c_{00} + u_{0i}$$

$$b_{1i} = c_{10} + u_{1i}$$

As indicated above, all models initially allowed for the slopes to vary (u_{1i}). However, we found either no significant variability around the slope or a better fit for the model in which the slopes were constrained [i.e. larger Akaike Information Criterion (AIC) value and significant difference between an indicator of fit, minus twice the residual log likelihood (-2LL), in the two models; Singer, 1998]. Therefore, all models were reported with constrained slopes (i.e. deletion of u_{1i}).

Vividness. Participants rated their unique memories as more vivid than their repeated memories. The fully unconditional model indicated that 24.71% of the variability was between subjects (τ_{00} = .47, z = 3.56, p = .0002) and 75.29% was within subjects (σ^2 = 1.42, z = 16.19, p < .0001). With condition included in the model, participants rated unique memories as significantly more vivid (M = 5.47, SD = 1.28) than repeated memories (M = 4.98, SD = 1.43; γ_{10} = −.50, t = −5.00, p < .0001). Approximately 4.43% of the within-person variance in vividness was accounted for by condition.

Emotion. Ten memories were not coded for emotion because the participant provided a term that did not indicate an emotion (e.g., hungry). A logistic MLM analysis was conducted with macro %GLIMMIX in SAS software (Guo & Zhao, 2000) to examine the emotion attached to each included memory. Logistic MLM is appropriate for this model because the outcome variable of emotion was coded as a dichotomous variable. Emotion was categorised into having no negative component (i.e. positive or neutral; coded as 0) or having a negative component (i.e. negative or mixed, coded at 1). The independent variable, condition (i.e. unique or repeated), remained the only level 1 predictor, consistent with the previous model. The fully unconditional model indicated that the average odds of the memory having an associated negative emotion was .55. When condition was included in the model as a level 1 predictor, repeated memories were associated with less likelihood of having an associated negative emotion ($M = 0.21$, $SD = 0.41$) compared to unique memories ($M = 0.46$, $SD = 0.50$, $OR = .29$, $t = -6.40$, $p < .0001$). In other words, repeated memories were .29 times less likely to have an associated negative emotion compared to unique memories. This model explained 2.29% of the within-person variance in emotion (see Table 3).

Biographical importance and personal significance. As indicated in Table 1, both unique and repeated memories were seen as having moderate importance and personal significance in an understanding of the participant's life, although we observed a full range of responding. Because these ratings were highly correlated, $r = .69$, $p < .001$, we analysed the average of the two. The fully unconditional model indicated that 28.40% of the variability was between subjects ($\tau_{00} = .91$, $z = 3.68$, $p = .0001$) and 71.60% was within subjects ($\sigma^2 = 2.29$, $z = 16.19$, $p < .0001$). No difference between the average of the two scores of unique and repeated memories was observed when condition was added to the model ($\gamma_{10} = -.07$, $t = -0.51$, $p = .61$). (We note that no differences between conditions were found when the ratings were analysed separately.)

To further explore the significance of unique and repeated memories, we examined only those memories rated on average as 6 or above on the two 7-point rating scales referencing the importance of inclusion in biographies of the participants' lives (7 = definitely include). The use of a paired-sample t-test revealed that the average percentage of unique memories rated as 6 or above ($M = 20.76$, $SD = 23.43$) was not significantly different from the average percentage of repeated memories rated as 6 or above ($M = 17.19$, $SD = 19.66$), $t(40) = 0.99$, $p = .33$.

TABLE 3
Logistic multilevel model of results for emotion associated with the memory (Experiment 1)

Variable	Estimate (SE)	Odds ratio	LCI	UCI
Fixed effects				
Probability of emotion, β_0				
Intercept, γ_{00}	−.11 (.15)	.90	.66	1.21
Condition slope, β_1				
Condition, γ_{10}	−1.24 (.19)	.29**	.20	.42
Random effects				
Variable level, τ_{00}	.42* (.19)			
Within-person fluctuation, σ^2	.93** (.06)			

LCI = lower boundary of the 95% confidence interval; UCI = upper boundary of the 95% confidence interval. Deviance = 619.42. n = 555 memories (10 memories were excluded due to the absence of reports of associated emotions). Standard error values are in parentheses.
*$p < .05$, **$p < .001$.

Discussion

Consistent with our hypotheses, this initial comparison of memories for unique and repeated experiences revealed both similarities and differences. Most importantly, participants rated their repeated memories and their unique memories as comparably significant for the understanding of their lives. In addition, when only the most important memories were selected, repeated memories were as likely as unique memories to be included.

As hypothesised, memories for unique events were rated as more vivid than repeated memories, corresponding to the greater salience in memory of more distinctive events (Howe, 1997). As further hypothesised, repeated memories were less likely to include negative emotion. This finding may correspond to the infrequent occurrence of salient negative events in the daily experience of children from generally stable backgrounds. This is not to say that events involving negative emotions (e.g., disputes with playmates) do not frequently occur in children's

lives; however, such everyday experiences are not likely to be distinctive. Highly negative events (e.g., significant injuries), are likely to be relatively rare among well-nurtured children. In this regard, our sample of college students, as a group, may not be representative of the broader population, and this finding may or may not apply to individuals from backgrounds characterised by adversity.

A limitation of this experiment is the reliance on very brief reports of memories in the fluency task. To examine the replicability of the results of Experiment 1 using a complementary methodology and to further elucidate the nature of repeated memories, we conducted Experiment 2, in which college students provided narrative accounts of their five earliest memories of both unique and repeated experiences. These participants were encouraged to provide as much information as possible about each memory. We also requested participants' reports of the period of time during which each event reported as a repeated memory occurred and the frequency of the occurrence of the event each week during this duration. This information, in conjunction with examination of the content of the memory, enabled us to examine the inclusion of memories of extended events (i.e. reports of events that transpired over a period of time, such as three-day car trips; Waters et al., 2014). We also tested for replication of the findings of Experiment 1 regarding the characteristics of the memories in each category. In addition, we examined the length of each report and the inclusion of specific terms. To examine possible converging evidence for ratings of vividness and emotion, we examined the percentages of words representing perception and affect, respectively. To explore possible instantiations of the different functions of unique memories and repeated memories (Bluck, Alea, Habermas, & Rubin, 2005; Waters et al., 2014), we analysed "I" terms and words indicating cognitive insight, predicting a greater percentage among unique memories, and social words and "we" terms, hypothesising a greater percentage among repeated memories.

EXPERIMENT 2: DETAILED MEMORY REPORTS

Method

Participants. A new sample of 45 native English-speaking participants, all of whom were 18 years of age or older, was recruited from the same source as described above. Data contributed by one participant who was an outlier with regard to age (52 years) were not included. The final sample thus consisted of 44 participants, 16 of whom were female. With regard to the racial composition of the sample, 77.30% identified as European American and 13.60% as African-American, with the remaining 9.10% of the participants (N = 4) classified as Other, a category that included Latina/Latino, Asian American, and Native American. The same six undergraduate research assistants involved in Experiment 1 also conducted the interviews for Experiment 2.

Procedure. Procedures for the two experiments differed only with regard to the method used to obtain the memory reports. Participants were asked to provide full reports of five memories for unique events and five memories for repeated events. The order of report of unique versus repeated events was again counterbalanced across participants. Participants were read the following instructions for the reports of unique and repeated memories, respectively.

> We are interested in hearing about five of your earliest memories from before kindergarten. We want you to recall as much information about these memories as possible. These memories need to be unique events, that is, they happened only one time. The researchers will write some notes about each memory and ask you to answer questions about them as well. Are you ready? What is your very earliest memory? [If necessary, the interviewer prompted for reports of the participant's next four earliest unique memories]

> We are interested in hearing about five of your earliest memories from before kindergarten. We want you to recall as much information about these memories as possible. These memories need to be repeated events, that is, they happened more than once. The researchers will write some notes about each memory and ask you to answer questions about them as well. Are you ready? What is your very earliest memory? [If necessary, the interviewer prompted for reports of next four earliest repeated memories]

After the participants completed each report of both the unique and repeated memories, the interviewer prompted the participants to ensure that they provided all the information they could remember. After reporting each memory, participants were asked to provide the same information regarding the memory as described above: age at

the time of the reported unique memory or at the first and last occurrences of the repeated memory and the frequency with which the repeated event occurred during this duration, vividness of the memory (1–7), and the associated emotion as labelled by the participant. After completion of these two memory tasks, participants were again asked to rate (1–7) the biographical importance and private significance of each memory they recalled.

Coding. The same criteria for the inclusion of memory reports as cited for Experiment 1 were used in this experiment. Further, the previous procedures for coding age, emotional valence of the memory as labelled by the participant, and biographical importance and personal significance were again applied. To confirm participants' compliance with the instructions, each memory in each condition was coded as unique, repeated, or extended. Memories reported in response to either the repeated or unique prompts were classified as extended if the narrative indicated that the event transpired over a period of one day or more. To examine the content of the memories, we used the LIWC programme developed by Pennebaker, Booth, and Francis (2007). This computer-based word count programme matches written transcripts against an extensive dictionary and generates the percentage of words in a large set of categories and subcategories. As reported by Pennebaker, Chung, et al. (2007), this widely used computer tally system provides reliable and exhaustive counts, categorising approximately 85% of specific words used in a wide corpus of narratives. Following the instructions provided by Pennebaker, Booth, et al. (2007), we transcribed the interviews verbatim and then edited them to delete dysfluencies and repetitions. The following categories were selected from LIWC for analysis: word count, positive emotion, negative emotion, perception, "I," "we," social terms (e.g., "people," "relationship"), and cognitive insight (e.g., "understood," "realised"). As discussed above, we selected these categories in order to compare the extent of the reports, to correspond to ratings (perception, emotion), or to enable an examination of the function of the memories ("I," "we," social, cognitive insight). Word count was simply the number of words in the edited transcript. The remaining dependent measures represented the percentages of words in the report that were assigned to each category.

Results

With the exception of one participant who reported only four unique memories, all participants reported all five requested memories in each condition. We applied the criteria for including memories as in Experiment 1, with deleted memories extending beyond the age limit of 10.5 years (4 unique memories and 59 repeated memories deleted). Additionally, after analyzing the narratives, five repeated and one unique memory were deleted because the memory did not fit into the appropriate category (i.e. the participant reported a repeated memory as a unique memory and vice versa). In addition, we classified as extended memories a total of 10 memories reported in response to the prompt for unique memories and 2 memories generated when repeated memories were requested. These memories were deleted from the analysis. Therefore, across participants, we analysed 200 (8.68% excluded) unique and 158 (28.18% excluded) repeated memories.

We examined the characteristics of repeated memories to ensure that they were distinct from unique as well as extended event reports. Participants indicated that the events described in the repeated memory reports had occurred over a period of 2.07 years on average (SD = 1.55) and during this period, had been repeated an average of 2.43 times per week (SD = 2.28). These data were reported for each included repeated memory. Hence, participants complied with the instructions to produce repeated event reports. Inspection of the memories further indicated that a total of 22 repeated memories included an embedded description of a particular instantiation of the repeated event. The content of this report was deleted prior to analysis of the content of the memories, but the repeated memory was included in the analysis. Similarly, the one unique memory that included a description of a repeated, related memory was included, but the additional information was deleted. The characteristics of the unique and repeated memories are indicated in Table 4.

MLM was again used in order to control for the nesting of memories within participants. The procedures described above were again followed, and the same general model was tested in each analysis. As in Experiment 1, all slopes were constrained. In comparison to Experiment 1, preliminary analyses revealed one main effect of

TABLE 4
Characteristics of unique and repeated memories across participants (Experiment 2)

	Mean (SD)	Range for mean
Unique condition		
Age[a]	4.77 (1.48)	1.50–10.42
Vividness	5.17 (1.32)	1–7
Biographical importance	3.88 (1.97)	1–7
Personal significance	4.25 (1.99)	1–7
Repeated condition		
Age[a]	5.26 (1.15)	1.38–8.29
Vividness	4.69 (1.27)	1–7
Biographical importance	3.95 (1.81)	1–7
Personal significance	4.40 (1.92)	1–7

[a]Age refers to the participant's report of the age at which the unique was encoded or the participant's age at the midpoint of the duration of the repeated event.

TABLE 5
Results of tests of multilevel models (Experiment 2)

	Dependent variables for each model	
	Vividness rating	Averaged biographic and self-importance rating
Fixed effects		
Dependent variable, β_0		
Intercept, γ_{00}	5.16** (.14)	4.02** (.16)
Condition slope, β_1		
Condition, γ_{10}	−.41** (.11)	.16 (.17)
Random effects		
Variable level, τ_{00}	.57** (.15)	.62* (.21)
Within-person fluctuation, σ^2	1.11** (.09)	2.49** (.20)

Standard error values are in parentheses.
*$p < .05$, **$p < .001$.

order when included in the model and one main effect of gender. When the effects were found, order and/or gender were included in the main analysis for that particular dependent variable. The models are shown in Table 5.

Vividness. The participants' ratings of the vividness of their reported memories, as shown in Table 4, were similar to those ratings reported for Experiment 1. The fully unconditional model indicated that 33.50% of the variability was between subjects ($\tau_{00} = .58$, $z = 3.74$, $p < .0001$) and 66.50% was within subjects ($\sigma^2 = 1.15$, $z = 12.56$, $p < .0001$). With condition added to the model, as in Experiment 1, unique memories ($M = 5.17$, $SD = 1.32$) were again rated as significantly more vivid than repeated memories ($M = 4.69$, $SD = 1.27$, $\gamma_{10} = -.41$, $t = -3.60$, $p = .0004$) (see Table 5). This model accounted for approximately 3.33% of the within-person variance in vividness.

Emotion. As in the first experiment, a logistic MLM analysis was conducted to examine the emotion attached to each memory. Emotion was categorised into having no negative component (i.e. positive or neutral; coded as 0) or having a negative component (i.e. negative or mixed, coded at 1). The independent variable, condition (i.e. unique or repeated), remained the only level 1 predictor, consistent with the previous models. Ten memories were not analysed because there was no attached emotion or the term given was not an emotion (e.g., mischievousness, concentration). The fully unconditional model indicated that the average odds of the memory having an associated negative emotion was .81. When condition was included in the model as a level 1 predictor, repeated memories were associated with less likelihood of having an associated negative emotion ($M = 0.28$, $SD = 0.45$) compared to unique memories ($M = 0.58$, $SD = 0.50$, $OR = .28$, $t = -5.49$, $p < .0001$). In other words, repeated memories were .28 times less likely to have an associated negative emotion compared to unique memories. The percentage of within-person variance explained was negative and was therefore not interpretable (see Table 6).

Biographical importance and personal significance. Given that the biographical importance and personal significance ratings were again highly correlated ($r = .66$, $p < .001$), the average of the two variables was analysed. As was observed in Experiment 1, both the unique and repeated memories were rated as moderately important for inclusion in a biography. The fully unconditional model indicated that 19.78% of the variability was between subjects ($\tau_{00} = .61$, $z = 3.02$, $p = .001$) and 80.22% was within subjects ($\sigma^2 = 2.49$, $z = 12.52$, $p < .0001$). When condition was added to the model, there was not a significant difference in condition ($\gamma_{10} = .16$, $t = 0.91$, $p = .36$), thus indicating that reported memories for unique and repeated experiences were seen as comparably important for telling the story of participants' lives. (As in Experiment 1, no condition differences were observed when the ratings were analysed separately.)

TABLE 6
Logistic multilevel model results for emotion associated with the memory (Experiment 2)

Variable	Estimate (SE)	Odds ratio	LCI	UCI
Fixed effects				
Probability of emotion, β_0				
Intercept, γ_{00}	.31 (.14)	1.37*	1.03	1.82
Condition slope, β_1				
Condition, γ_{10}	−1.28 (.23)	.28**	.18	.44
Random effects				
Variable level, τ_{00}	0 (0)			
Within-person fluctuation, σ^2	1.01** (.08)			

LCI = lower boundary of the 95% confidence interval; UCI = upper boundary of the 95% confidence interval. Deviance = 446.35. n = 348 memories (10 memories were excluded due to the absence of reports of associated emotion). Standard error values are in parentheses.
*p < .05, **p < .001.

TABLE 7
Total words and percentages of words in selected LIWC categories (Experiment 2)

	Mean (SD)	Range for mean
Unique condition		
Total word count	109.27 (61.24)	20–423
Perception	1.90 (1.74)	0–8.20
Positive affect	2.07 (2.05)	0–12.33
Negative affect	1.33 (1.51)	0–6.73
Cognitive insight	3.63 (2.09)	0–10.53
I	10.65 (3.70)	0–20.88
We	1.74 (2.24)	0–12.50
Social	8.62 (4.81)	0–28.12
Repeated condition		
Total word count	106.09 (57.66)	16–274
Perception	1.96 (2.27)	0–13.41
Positive affect	2.11 (1.99)	0–10.45
Negative affect	.65 (1.05)	0–4.50
Cognitive insight	2.79 (2.22)	0–11.54
I	8.23 (3.85)	1.09–18.42
We	2.38 (2.77)	0–15.09
Social	8.47 (4.50)	0–20.75

Word categories are not exhaustive. Hence, percentages do not add up to 100.

To further explore the significance of unique and repeated memories, we examined only those memories rated as 6 or 7 on average on the 7-point rating scales referencing the importance of inclusion in biographies of the participants' lives (7 = definitely include). The percentage of unique memories rated as 6 or above (M = 20.95, SD = 22.02) was not significantly different from the percentage of repeated memories rated as 6 or above (M = 20.23, SD = 25.92), t(43) = 0.16, p = .87.

Content of the memories (LIWC data). Eleven additional unique memories and 11 repeated memories were excluded from this analysis due to the poor quality of the audio file. See Table 7 for descriptive statistics for each variable indicating memory content. The content of the memories was analysed using multi-level modelling. Slopes were again constrained. See Table 8 for the MLM models we analysed.

Word count. The first model examined whether the unique and repeated memories differed in total length (i.e. word count). The fully unconditional model for word count indicated that 52.28% of the variability was between subjects (τ_{00} = 1912.57, z = 4.05, p < .0001) and 47.72% was within subjects (σ^2 = 1745.67, z = 12.10, p < .0001). Order (unique then repeated = 0, repeated then unique = 1) was a significant predictor and was therefore included in the analysis. With order and condition in the model, condition (γ_{10} = −4.13, t = −0.88, p = .38) was not significantly related to word count. However, memories that were recalled in the first condition (M = 125.27, SD = 65.15), regardless whether unique or repeated, contained significantly more words compared to memories that were recalled in the second condition (M = 84.41, SD = 41.04; γ_{01} = −36.95, t = −2.82, p = .0073). Order accounted for approximately 17.10% of the between-person variance in word count.

Perception. This model tested whether there was a difference between conditions in percentage of perception words in the narratives. The fully unconditional model indicated that 7.37% of the variability was between subjects (τ_{00} = .29, z = 1.73, p = .04) and 92.63% was within subjects (σ^2 = 3.66, z = 12.15, p < .0001). When condition was added to the model, condition (γ_{10} = .05, t = 0.26, p = .80) was not significantly related to percentage of perception words.

Positive affect. This model was tested to determine whether there was a difference between conditions in the percentage of use of positive terms in the narratives. The fully unconditional model indicated that 9.13% of the variability was between subjects (τ_{00} = .37, z = 1.98, p = .02) and

TABLE 8
Tests of multilevel models of memory content (Experiment 2)

	Dependent variables for each model (LIWC category)							
	Word count	Perception	Positive affect	Negative affect	Cognitive insight	I	We	Social
Fixed effects								
Dependent variable, β_0								
Intercept, γ_{00}	126.78** (9.13)	1.89** (.16)	2.06** (.17)	1.33** (.11)	3.63** (.20)	11.29** (.45)	1.74** (.22)	8.59** (.40)
Gender, γ_{01}						−1.07 (.53)		
Order, γ_{01}	−36.95* (13.09)							
Condition slope, β_1								
Condition, γ_{10}	−4.13 (4.71)	.05 (.21)	.07 (.21)	−.67** (.14)	−.81** (.22)	−2.32** (.40)	.62* (.26)	−.09 (.49)
Random effects								
Variable level, τ_{00}	1585.50** (410.17)	.29* (.17)	.38* (.19)	.16* (.08)	.87* (.33)	1.11* (.63)	.84* (.32)	2.36* (1.07)
Within-person fluctuation, σ^2	1751.10** (145.22)	3.67** (.30)	3.73** (.31)	1.60** (.13)	3.82** (.32)	12.94** (1.07)	5.33** (.44)	19.56** (1.61)

Variables gender and order are both listed as (γ_{01}) because they were included in different models. Standard error values are in parentheses.
$*p < .05$, $**p < .001$.

90.87% was within subjects ($\sigma^2 = 3.73$, $z = 12.14$, $p < .0001$). In the full model, condition ($\gamma_{10} = .07$, $t = 0.34$, $p = .74$) was not significantly related to positive words.

Negative affect. This model assessed whether there was a difference between conditions in the percentage of negative emotion words in the narratives. The fully unconditional model indicated that 8.77% of the variability was between subjects ($\tau_{00} = .16$, $z = 1.92$, $p = .03$) and 91.23% was within subjects ($\sigma^2 = 1.71$, $z = 12.13$, $p < .0001$). When condition was added to the model, condition ($\gamma_{10} = -.67$, $t = -4.78$, $p < .0001$) was significantly related to percentage of negative words, indicating that unique memories ($M = 1.33$, $SD = 1.51$) include a higher percentage of negative words than repeated memories ($M = 0.65$, $SD = 1.05$). Approximately 6.43% of the within-person variance in negative affect was accounted for by condition.

Cognitive insight. This model assessed whether there was a difference between conditions in the percentage of cognitive insight words in the narratives. The fully unconditional model indicated that 18.02% of the variability was between subjects ($\tau_{00} = .87$, $z = 2.64$, $p = .0042$) and 81.98% was within subjects ($\sigma^2 = 3.97$, $z = 11.99$, $p < .0001$). When condition was added to the model, condition ($\gamma_{10} = -.81$, $t = -3.71$, $p = .0002$) was significantly related to percentage of cognitive insight words, indicating that unique memories ($M = 3.63$, $SD = 2.09$) include a higher percentage of cognitive insight words than repeated memories ($M = 2.79$, $SD = 2.22$). Approximately 3.97% of the within-person variance in cognitive insight was accounted for by condition.

"I." This model tested whether there was a difference between conditions in the percentage of the use of "I" in the narratives. The fully unconditional model indicated that 8.50% of the variability was between subjects ($\tau_{00} = 1.33$, $z = 1.84$, $p = .03$) and 91.50% was within subjects ($\sigma^2 = 14.32$, $z = 12.09$, $p < .0001$). Gender significantly predicted the use of "I" and therefore was included in the model. With gender and condition in the model, the main effect of gender was no longer significant ($\gamma_{01} = -1.07$, $t = -2.01$, $p = .05$). However, there was a significant difference in the percentage of "I" terms in the narratives, indicating that unique memories ($M = 10.65$,

SD = 3.70) included a higher percentage of "I" terms compared to repeated memories (M = 8.23, SD = 3.85; $\gamma_{10} = -2.32$, $t = -5.81$, $p < .0001$). Approximately 9.66% of the within-person variance was accounted for by condition.

"We." This model tested whether there was a difference between conditions in the percentage of the word "we" in the narratives. The fully unconditional model indicated that 13.45% of the variability was between subjects ($\tau_{00} = .84$, $z = 2.58$, $p = .005$) and 86.55% was within subjects ($\sigma^2 = 5.42$, $z = 12.19$, $p < .0001$). With condition in the model, there was a significant difference in the percentage of "we" in the narratives, indicating that unique memories (M = 1.74, SD = 2.24) included a lower percentage of "we" compared to repeated memories (M = 2.38, SD = 2.77; $\gamma_{10} = .62$, $t = 2.43$, $p = .02$). Approximately 1.52% of the within-person variance was accounted for by condition.

Social terms. This model examined whether there was a difference between conditions in the percentage of the social words in the narratives. The fully unconditional model indicated that 10.85% of the variability was between subjects ($\tau_{00} = 2.37$, $z = 2.21$, $p = .01$) and 89.15% was within subjects ($\sigma^2 = 19.49$, $z = 12.14$, $p < .0001$). In contrast to the results involving "we," condition was not a significant predictor when added to this model ($\gamma_{10} = -.09$, $t = -0.18$, $p = .86$).

Discussion

This experiment allowed us to confirm the validity of our categorisation of repeated versus unique memories on the basis of the duration and frequency of the reports of the former. Further, we identified only a small number of repeated memories that were actually extended memories. The results support the conclusion that memories for repeated as well as unique childhood experiences are available to emerging adults as sources of self-definition. Further, the present findings clearly establish that the similarities in ratings of both biographical importance and personal significance initially identified in Experiment 1 are robust across methodology. In this experiment, the previous results were generally replicated, despite the present reliance on narrative accounts of early childhood experiences rather than on the generation of very short synopses of as many memories as can be reported. Moreover, as indicated by a comparison of Table 1 and Table 4, generally similar levels of responding were observed across the two experiments.

An examination of the content of the reported memories corroborated the pattern of results that emerged from the analysis of the ratings. Consistent with participants' reports of emotions associated with the memories they generated in the fluency task, the content of unique memories in comparison to repeated memories included more terms representing negative affect. However, the memories did not differ with regard to words denoting perception, even though a difference could have corroborated the vividness ratings. The greater density of terms referencing "I" and indicating cognitive insight among the unique memories was consistent with the identity and self-direction functions, respectively, of memories in this category (Waters et al., 2014). Moreover, the higher percentage of "we" terms corresponded to the role of repeated memories in social connectedness (Waters et al., 2014), although the absence of a difference in density of social terms is counter to this hypothesis.

GENERAL DISCUSSION

The results of these two experiments generally converged across two divergent methods for eliciting reports of childhood experiences. As hypothesised on the basis of their greater distinctiveness (Howe, 1997), unique memories were more vivid than repeated memories. Nonetheless, it is important to note that participants did not see their repeated memories as vague recollections. The mean ratings for the repeated as well as the unique memories were all greater than 4.5 on a 7-point scale, and the full range of the scale was used in both conditions.

Regardless of method, unique memories were more likely to have a negative affective component than were repeated memories, as predicted. Unique memories were not only more likely to be given a negative overall affective label by participants in both experiments, repeated memories were less likely to have an associated negative emotion compared to unique memories when individual types of words were tabulated in Experiment 2. In the current sample, highly negative events are likely to be relatively rare, unique, and memorable. In contrast, events that happen over and over are less likely to be negative.

Most importantly, participants rated their memories for unique and repeated events as equivalently infused with personal meaning. In addition, comparable percentages of unique and repeated memories were assigned the highest ratings. Approximately a fifth of the average ratings of biographical and personal significance of both types of memories were rated as very important. These proportions may at first seem to be high. However, many have seen early events as having formative effects on the person (e.g., see Wilson, 1994, quoted above). Experiment 1 used a memory fluency task that elicits memories that are highly accessible, according to Wang et al. (2004). The memories reported in Experiment 2 were also readily accessible to individuals. Since the events being recalled typically occurred over a decade previously, it is likely that they were somehow salient to the individual rather than a mere reflection of the typical experiences of everyday life.

We realise that our conclusions involve the interpretation of null findings. However, as described above, we detected differences across conditions, even though the magnitude of the mean differences was not large, indicating that the design had sufficient power to avoid Type B errors. Further, the initial results as reported in Experiment 1 were replicated in Experiment 2 using a different methodology.

An additional question regarding the pattern of results could arise from the numbers of memories that did not meet the criteria for inclusion. These numbers admittedly represented a sizeable corpus of repeated memories. We emphasise that memories, not participants, were deleted. Indeed, across the two experiments, only one participant was excluded because he/she did not provide any memories that met the age for inclusion in the repeated memory condition in all cases. It should also be noted that we used the memory as the unit of analysis, rather than an average of the characteristics of the memories within the participant, as has traditionally been analysed. This analytic strategy, which offered a number of advantages, also made the disqualification of specific memories more salient.

Our comparison of unique and repeated memories has three major implications for the understanding of autobiographical memory. First, memories for early childhood events appear to be an important component for constructing personal identity. Waters et al. (2014) similarly found that memories of both unique and repeated events could serve a self-defining function, although their corpus was likely to mostly consist of relatively recent events. In their study, the self-definition function was more prevalent in memories of unique events than of repeated ones; in contrast, in the current study of very early life events, unique and repeated memories were equivalently significant. The difference between the two studies may be because the types of memories that one keeps for many years are those that are preferentially salient. Alternatively, differences between the two studies may be due to different methodologies. Nevertheless, some memories of early childhood events may become part of the life story, even though individuals only begin to construct life stories during adolescence (Habermas & Bluck, 2000; McAdams & McLean, 2013). The fact that a number of memories dating from the preschool years were highly significant and important for both biographical and personal meaning indicates that they are likely to be incorporated into a life story. After all, what is a biography, as referenced in one of these questions, if not a life story?

Second, the results suggest that characterisations of autobiographical memory are incomplete unless memories for repeated experiences are included. In particular, autobiographical memory cannot be limited to the consideration of memories for events that occurred only one time (cf. Nelson & Fivush, 2004). More specifically, not all reports of repeated events are general representations, as seems to be often assumed. Repeated memories are vivid, infused with emotion, and personally meaningful, as indicated by participants' ratings in both experiments in this investigation, and in these regards differ markedly from scripted representations. Our analyses of the content of repeated memories in Experiment 2 further indicate that they are distinct from scripted representations, as evinced by the density of first-person pronouns. Reports of repeated events in this investigation did not differ from unique event reports with regard to the inclusion of perceptual detail and infusion with positive emotion. Indeed, in a summary of their body of research, Rubin and Umanath (2015) state that whether an event memory was single or repeated did not affect other properties of the memories. There is also face validity for including repeated memory in examinations of autobiographical remembering. After all, lived experience consists

to a large extent of events that occur on multiple occasions during some periods of our lives. It may also be the case that repeated experiences are particularly characteristic of the everyday lives of children, whose worlds are largely structured by adults.

Finally, the results may call into question widely used procedures for identifying over-general memories. In most investigations of this clinically relevant phenomenon (for review, see Williams et al., 2007), repeated memories are classified as over-general memories. In the widely used criteria established for coding responses to cue words in the autobiographical memory test (Williams & Dritschel, 1992), memories are categorised as specific only if they refer to personally experienced events that last less than a day. Summarised categories of events as well as repeated memories (e.g., Bunnell & Greenhoot, 2012) are classified as over-general memories. As frequently applied, over-general memories are defined as the inverse of specific memories; that is, if memories are not specific they are over-general. We suggest that this way of classifying memories as over-general is too undifferentiated (see also Rubin & Umanath, 2015; Williams & Dritschel, 1992). Indeed, Waters (2014) found that repeated memories were as highly correlated with measures of psychological well-being as were unique memories. Clinical correlates may well vary if one differentiates the various types of event memories that are not of specific unique events rather than lumping them together as "over-general memories."

It is important to note that the task contexts in which we observed remembering differ from the method used to measure memory specificity and that our characterisations of repeated memory were obtained with a nonclinical, university sample. With regard to implications of the present research for understanding over-general memory, it is critical to replicate our characterisation of repeated memories with a clinical sample. If these results are generally replicated, then it is important to ask if characterisations of over-general memory would be altered if repeated memories were examined separately.

In addition to a replication with a clinical sample, future examinations of repeated memories should avoid one of the limitations of the present study. To reduce the number of memories that cannot be analysed, research should provide instructions that focus participants' attention specifically on a designated age range. It would also likely be helpful to include a practice procedure to help ensure that participants thoroughly understand the importance of limiting their reports to events that did not endure beyond the age criterion. Although the requirements of the fluency task prohibit the interviewer from reminding the participant of the instructions or replacing memories that cannot be analysed, such practices should be incorporated with methods that elicit narrative accounts in procedures that are not time limited.

The acknowledged limitations to our method notwithstanding, the results of the present investigation justify greater attention to repeated memories. Given their similarities to unique memories on a number of measures and their rated biographical importance and personal significance as replicated with different methods, repeated memories are important inclusions in investigations of autobiographical remembering. Indeed, the understanding of autobiographical memory cannot be complete without attention to memories for experiences that transpire on multiple occasions. To paraphrase Wilson (1994), both unique and repeated experiences play a part in the creation of identity.

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