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# Age, memory type, and the phenomenology of autobiographical memory: Findings from an Italian sample

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The present research explored differences in phenomenology between two types of memories, a general self-defining memory and an earliest childhood memory. A sample of 76 Italian participants were selected and categorised into two age groups: 20–30 years and 31–40 years. The Memory Experiences Questionnaire (MEQ) was administered, taking note of latency and duration times of the narratives. Consistent with the literature, the self-defining memory differed significantly from the earliest childhood memory in terms of phenomenology, with the recency of the memory associated with more intense phenomenological experience. The self-defining memory took longer to retrieve and narrate than the earliest childhood memory. Meaningful differences also emerged between the two age groups: Participants in their 30s rated their self-defining memory as more vivid, coherent, and accessible than participants in their 20s. According to latency findings, these differences suggest an expanded period of identity consolidation for younger adults. Further applications of the MEQ should be carried out to replicate these results with other samples of young adults.

***Keywords:*** Memory Experiences Questionnaire; Self-defining memories; Earliest childhood memories; Phenomenological qualities.

Autobiographical memory plays a critical role in an individual's psychological functioning (Singer & Salovey, 1993; Sutin & Robins, 2005) through the construction of a personal history that relates the self through the past, present, and future. According to the Self-Memory System (SMS), autobiographical memories and the self are intimately related (Conway, 2005; Conway & Pleydell-Pearce, 2000; Conway, Singer, & Tagini, 2004). In particular, the *working self* plays a pivotal role in memory retrieval. A set of working self-control processes keep accurate track of goal-directed activity and simultaneously maintain coherence in response to goal changes by modulating the encoding, consolidation, and (in)accessibility of autobiographical knowledge. Thus the working self interacts with autobiographical knowledge in a fundamental tension between *adaptive correspondence* and *self-coherence* (Conway, 2005; Conway et al., 2004). Individuals form long-term goal-related autobiographical memories in which the episodic component may be integrated with abstract knowledge of one's self and one's life. This process accounts for a healthy balance between correspondence and self-coherence (Conway & Singer, 2011).

Singer and colleagues (Blagov & Singer, 2004; Singer & Salovey, 1993) have identified a special

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class of autobiographical memories called self-defining memories (SDMs) that are particularly important for self-coherence. These memories are highly relevant to the current self and are distinguished by the following features (Singer & Salovey 1993): they evoke *strong emotions* not merely at the time of occurrence but also at the time of recollection; they are *vivid* in the mind's eye, filled with sensory details; they are *repetitive* and readily accessible; they are strongly *linked* to related memories that share similar emotions and themes; they are also relevant to the individual's most important *enduring concerns and conflicts.* This subtype of autobiographical memories is thus a touchstone for self-understanding and plays a significant role in individuals' ongoing goals and emotional experiences. In particular, *thematic continuity* is a distinctive characteristic of SDMs. Even when varying in content, memories reflect similar motivational themes that are linked to the individual's current self. As postulated by Conway and colleagues (2004), these memories are closely related to developmental goals (e.g., growth, autonomy, achievement, intimacy, ageing, and loss) and become more active when these goals undergo change. A growing literature is further characterising these memories and demonstrating their importance to the self and to identity (e.g., Blagov & Singer, 2004; Lardi, D'Argembeau, Chanal, Ghisletta, & Van der Linden, 2010; Lardi, Ghisletta, & Van der Linden, 2012; Maccallum & Bryant, 2008; Singer, Rexhaj, & Baddeley, 2007; Sutherland & Bryant, 2005; Sutin, 2008; Sutin & Gillath, 2009; Sutin & Robins, 2005, 2010; Sutin & Stockdale, 2011; Thorne, McLean, & Lawrence, 2004; Wood & Conway, 2006).

Autobiographical memories in general, and SDMs in particular, can be characterised by intense phenomenological experiences. Some memories are vivid and rich in sensory details whereas others are faded; some memories are experienced as emotionally intense whereas others are not; some events in the memory are viewed through the eyes of the individual, some are seen through the eyes of outside observers. These phenomenological characteristics have been linked to a number of psychological processes, such as emotion regulation (e.g., D'Argembeau & Van der Linden, 2006), psychological distress (e.g., Sutin & Gillath, 2009), and clinical disorders (Sumner, 2012; Williams et al., 2007). Individual differences in autobiographical memory phenomenology have also been linked to personality (e.g., Rasmussen & Berntsen, 2010; Rubin & Siegler, 2004; Sutin & Robins, 2005). As such, the phenomenology of memory reflects both the individual's retrieval style and characteristics of the memory retrieved.

The consolidation and integration of memories in a coherent life story extends through emerging adulthood and into middle-age (McAdams & Olson, 2010), which likely affects memory phenomenology as individuals advance through adulthood. Early adulthood, in particular, is a time of tremendous consolidation of both autobiographical memories and self and identity. As young adults pass through different developmental stages, differences between memories may emerge. Yet in adulthood age differences in memory characteristics are most often examined between younger and older adult samples (e.g., Kvavilashvili, Mirani, Schlagman, Erskine, & Kornbrot, 2010; McLean, 2008; Piolino et al., 2006; Ros & Latorre, 2010; Schlagman, Kliegel, Schulz, & Kvavilashvili, 2009; St Jacques & Levine, 2007). To our knowledge no studies have focused on phenomenological differences between close groups of young adults in this critical period of development.

Building on the work of Sutin and Robins (2007), the present research examines differences in phenomenology across two types of memories—a general self-defining memory (SDM) and an earliest childhood memory (ECM)—and across two age groups. We aim to address important questions about the nature of phenomenology and age differences in phenomenology. These two types of memories are commonly used in autobiographical memory research and provide a useful contrast. Memories from the first years of life may be marked with special personal significance—i.e., linked to individual's central themes and current concerns. They are thought to differ from later memories in the type and amount of information recalled (West & Bauer, 1999; see also Howes, Siegel, & Brown, 1993; Johnson, Foley, Suengas, & Raye, 1988; Kihlstrom & Harackiewicz, 1982; White & Pillemer, 1979): They are characterised as fragmentary, distinctive in perceptual information, and more often retrieved from a third-, rather than a first-, person perspective. Childhood memories are also more likely to engage reconstructive processes than more recent memories (Roediger & Marsh, 2003). As such, if phenomenology is memory specific, then differences in phenomenology would likely emerge between SDMs and ECMs

(Sutin & Robins, 2007). In addition, in identifying age differences in phenomenology SDMs and ECMs facilitate comparisons across age groups because early memories will come from a period of life experienced by all participants regardless of age, and general memories will not be potentially biased by stage of life.

Using a sample of adults and a comprehensive measure of phenomenology, the present research examines three issues related to the phenomenology of SDMs and ECMs: (1) the intercorrelations among phenomenological dimensions for each type of memory, (2) age effects on mean-level differences between SDMs and ECMs, and (3) the effect of *age at the time of the event* vs *memory age* on phenomenology. We hypothesise that the two memories will differ in their phenomenological quality. Specifically, we expect that participants will perceive their SDMs as more vivid and sensorily detailed, coherent, accessible, and emotionally intense compared to their earliest memories. They should frequently share SDMs with other people, and retrieve them from a clear time perspective and first-person visual perspective. By contrast, ECMs should be characterised by different perceptual information (e.g., fragmentary visual images, and gist of information from other senses besides sight), they should more likely be in the view of a third person, and perceived as more psychologically distant. Further, we hypothesise that participants in their 30s should have more intense phenomenological experience for their memories, retrieve them more quickly (shorter latency), and report longer narratives (duration) than participants in their 20s because they will have gone through a longer period of consolidation. We follow up with more exploratory analyses that examine the age at the event reported in the memory, and the age of the memory. These two facets might be conceptually different. The time in which the mnestic trace was formed may be particularly important for phenomenological features, a factor which is independent from the recency of the memory itself.

# METHOD

## Participants

Ethical approval for the study was obtained by the Ethical Committee of the University of Bologna. A total of 76 Italian participants were selected and categorised into two age groups: range 20–30 ($n = 40$, 50% female; mean age = 24.1) and range 31–40 ($n = 36$, 41.7% female; mean age = 35.6). More than 40% of participants from each group had a higher educational level. Other socio-demographic characteristics were collected through a brief self-report questionnaire that also included dichotomous choice questions about the presence/absence of recent emotional stress (e.g., bereavement), past traumatic brain injury, depression, anxiety, and dream recall (*dreamers* vs *no dreamers*). Differences between age groups were tested with chi-squared statistics; no differences were found ($p > .05$), except for marital status ($\chi^2 = 10.14$, $p \leq .01$): more participants in their 30s were married (80.0%) compared to participants in their 20s (20.0%).

## Measures

*Memory Experiences Questionnaire.* Sutin and Robins (2007) developed a psychometrically sound instrument to assess the phenomenological experience of autobiographical memories. The MEQ identifies 10 relevant dimensions on which a memory may vary: *Vividness*, which reflects the visual clarity and visual intensity of the retrieved memory; *Coherence*, which refers to the extent to which the memory retrieved involves a logical story and access to specific event-knowledge information; *Accessibility*, which refers to the ease of retrieval of the memory; *Time Perspective*, which refers to the perceived clarity of when the experience in the memory took place and the subjective feeling of how much time has passed since the event occurred; *Sensory Details*, which refers to the sensory details that are re-experienced during retrieval, except for visual details; *Visual Perspective*, namely if the past experience in the memory is seen through the participant's own eyes or whether the participant sees him/herself (first-person memory vs third-person memory); *Emotional Intensity*, which is the intensity of the emotions experienced both at the time of encoding and at the time of retrieval, independent of the valence of the emotion; *Sharing*, which refers to the extent to which a memory is shared with other people; *Distancing*, which is the degree to which individuals psychologically distance themselves from the past self in the memory; *Valence*, which refers to the degree to which the experience is perceived as positive or negative and includes the valence of the event

and the valence of the emotional experience at the time of event. The MEQ is composed of 63 items (range 5–8 for each subscale) with a 5-point response scale (from 1 = *strongly disagree* to 5 = *strongly agree*). Our previous research has shown that the 10-factor structure is invariant across different types of memories, including early and general self-defining memories (Sutin & Robins, 2007). As such, the underlying structure of phenomenology is similar across different types of memories.

The original version of MEQ was translated into Italian and verified by the *back translation method* in which the scale was translated back into English and examined to ensure that the items retained their meaning. The alpha reliability (Cronbach's α) of each scale for the two types of memories was comparable to the ones obtained by Sutin and Robins (2007). For the ECM the alphas of MEQ scales ranged from .73 (i.e., *Sensory Details*) to .95 (i.e., *Valence*), whereas for SDM the alphas ranged from .67 (i.e., *Coherence*) to .98 (i.e., *Valence*). Mean values of the MEQ scales were similar to the one reported by the authors.

## Procedure

The experimental sessions were conducted in a quiet room by a clinical psychologist. Following informed consent, each participant attended a single experimental session of about 1 hour, in which he/she retrieved two types of autobiographical memories—an earliest memory and a self-defining memory. We adopted instructions from Sutin and Robins (2007), which used a modified version of Singer and Moffitt's (1991–92) SDM request. For the SDM the emphasis was on the importance and centrality of the memory to the participant's identity:

> Please describe a memory that is personally meaningful to you. It can be either positive or negative, but it should convey the most important experience you have had that helps you to understand who you are and how you arrived at your current identity. It may be a memory about any kind of experience, but it should be something you have thought about many times and is still important to you, even as you are recalling it now. Please describe the memory in detail: What happened and when, whom you were with (if anyone), and how you felt or reacted.

Instructions for the earliest childhood memory (ECM) were:

> Please describe your earliest childhood memory. Describe what happened and when, whom you were with, and how each of you felt and reacted. What was your role and what was the outcome of your behaviour?

After reading the instructions, participants had 10 minutes to report each memory. The oral descriptions were audio-taped, taking note of latency time, duration, and age at the time of recalled event. The recollection order of SDM and ECM was counterbalanced across participants. After each memory was recalled, participants completed all 10 MEQ scales. There were no significant order effects for any of the phenomenological dimensions ($p > .05$). At the end of the experimental session, participants were debriefed.

Although the instructions for SDMs and ECMs varied slightly, this difference should not limit the interpretation of the findings. Indeed, our previous research has shown the same underlying phenomenological structure across these two different memory-prompts (Sutin & Robins, 2007). In addition, the phenomenological and emotional evaluations in response to these SDM and ECM prompts have theoretically meaningful associations with personality, personal strivings, and motives (Sutin & Robins, 2005, 2007, 2008).

## Analytic strategy

All analyses were performed using PASW (SPSS version 18.0 for Windows). Pearson correlations were used to examine the intercorrelations between the MEQ scales for each memory, and between MEQ scales and both age at the time of event and memory age; Fisher *Z*-transformation analyses were performed to compare correlation coefficients. To examine mean-level differences between the two memories, and age effects on those differences, a series of repeated-measures analyses of variance (ANOVA) were conducted on the mean scores of each MEQ scale and the latency and duration of each memory with Type of Memory (two levels: *Earliest* vs *Self-defining*) as a within-participants factor, and Age Group

(two levels: *20s* vs *30s*) as a between-participants factor. The partial eta squared statistic ($\eta_p^2$), indicating the proportion of between variance explained by one experimental factor and the total variance, was calculated and reported.

## RESULTS

The results are divided into three main sections that examine: (1) the correlations between the MEQ scales, (2) the effect of age on mean-level differences in phenomenology, latency and duration times, and (3) the role of age at the time of the event vs memory age.

### Correlations between the MEQ scales

We first examined the intercorrelations among the 10 MEQ scales for the two types of memories separately (Table 1). A number of the phenomenology dimensions were significantly interrelated, especially for the SDM. For both types of memories, *Vividness* was positively correlated with *Coherence*, *Time Perspective*, *Sensory Details*, and *Sharing*: Memories that were rated as more vivid also involved a logical story in a specific time and place, had more sensory details, and were shared with other people. Significant correlations were also observed between *Emotional Intensity* and *Sharing*, and *Visual Perspective* and *Distancing* for both SDM and ECM. That is, memories that were rated as more emotionally intense were also more likely to be shared with others and memories that were perceived as psychologically distant from the self were also more likely to be retrieved from the third person.

Significant differences emerged between the correlation coefficients across the two memories. In particular, *Vividness* and *Emotional Intensity* were more strongly correlated in the SDM compared to the ECM ($Z = -2.08$, $p < .05$), and the correlations between *Accessibility* and *Vividness* and *Accessibility* and *Coherence* were stronger in the ECM compared to the SDM (respectively $Z = 2.02$, $p < .05$, and $Z = 2.45$, $p < .05$); *Accessibility* was not correlated with either *Vividness* or *Coherence* in the SDM. Although no other significant differences were detected, interrelations among *Vividness*, *Visual Perspective*, and *Emotional Intensity*—along with *Time Perspective* and *Sensory Details*, these are dimensions commonly associated with the reliving

**TABLE 1**
Intercorrelations among MEQ scales for ECM and SDM

| | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *MEQ Scales* | *ECM* | *SDM* | *ECM* | *SDM* | *ECM* | *SDM* | *ECM* | *SDM* | *ECM* | *SDM* | *ECM* | *SDM* | *ECM* | *SDM* | *ECM* | *SDM* | *ECM* | *SDM* |
| 1. Vividness | .72** | .61** | .45** | .15 | .32** | .56** | .44** | .54** | .11 | .29** | .08 | .40** | .28* | .25* | −.19 | −.16 | .09 | −.02 |
| 2. Coherence | 1 | 1 | .55** | .21 | .12 | .40** | .27* | .25* | .14 | .28* | −.02 | .01 | .19 | .08 | −.11 | −.14 | −.05 | −.17 |
| 3. Accessibility | | | 1 | 1 | .16 | .03 | .20 | .00 | .07 | .00 | .04 | .08 | .05 | .23* | .08 | .01 | .01 | .10 |
| 4. Time Perspective | | | | | 1 | 1 | .18 | .42** | .11 | .33** | .15 | .28* | .10 | .29* | −.18 | −.26* | .06 | −.00 |
| 5. Sensory Details | | | | | | | 1 | 1 | .16 | .28* | .60** | .61** | .42** | .36** | −.23* | −.25* | .02 | .21 |
| 6. Visual Perspective | | | | | | | | | 1 | 1 | −.01 | .17 | .16 | .08 | −.30** | −.28* | −.06 | .07 |
| 7. Emotional Intensity | | | | | | | | | | | 1 | 1 | .26* | .36** | −.34** | −.16 | −.06 | .08 |
| 8. Sharing | | | | | | | | | | | | | 1 | 1 | −.17 | −.25* | .12 | .31** |
| 9. Distancing | | | | | | | | | | | | | | | 1 | 1 | −.16 | −.22 |
| 10. Valence | | | | | | | | | | | | | | | | | 1 | 1 |

*N* = 76. MEQ = Memory Experiences Questionnaire; ECM = Earliest Childhood Memory; SDM = Self-Defining Memory.
**. Correlation is significant at the 0.01 level (Pearson Correlation; 2-tailed).
*. Correlation is significant at the 0.05 level (Pearson Correlation; 2-tailed).

experience of a memory—were significant for the SDM but not for the ECM. In addition there was a negative correlation between *Distancing* and *Visual Perspective* for the ECM but not for the SDM. Although correlation coefficients did not differ significantly (all $ps > .05$), the relatively small sample size might have precluded the detection of other significant differences.

## Effect of age on mean-level differences in phenomenology, latency time, and duration of the memories

We next examined mean-level differences between SDMs and ECMs, and whether these differences varied by participant age. Mean values and univariate tests are reported in Table 2. As expected, a main effect of Type of Memory was significant for all MEQ scales ($p \leq .001$) except for *Accessibility* and *Valence* ($p > .05$). Compared to their early memory, participants rated their SDM as more vivid, coherent, and emotionally intense. These memories also had more sensory details, a clearer time perspective, and lower psychological distance, and were more likely to be shared with others and viewed from a first-person perspective.

There were phenomenological differences between participants in their 20s and those in their 30s. Specifically, the main effect of age group was significant for the *Vividness*, *Coherence*, and *Accessibility* scales: Compared to the participants in their 20s, participants in their 30s rated their memories as more vivid, coherent, and accessible. Participants in their 30s also recalled memories that were more distant in time from their current age ($M = 30.69$ years, $SD = 3.50$ for ECM; $M = 12.56$ years, $SD = 8.41$ for SDM) than participants

**TABLE 2**
Multiple Analyses of Variance (ANOVAs)

| *MEQ 3Scales* | *ECM* | *SDM* | *Main Effect Type of Memory* | *Main Effect Group Age* | *Interaction Type of Memory*Age Group* |
|---|---|---|---|---|---|
| Vividness | 20.45 (5.83) | 27.01 (3.18) | $F(1, 74) = 84.68$, $p \leq .001$<br>$\eta_p^2 = .53$, o.p. = 1.00 ECM < SDM | F(1,74) = 6.47,<br>$p \leq .05$<br>$\eta_p^2 = .08$, o.p. = .71<br>20s < 30s | n.s. |
| 20s | 19.02 (4.92) | 26.55 (3.46) | | | |
| 30s | 22.03 (6.40) | 27.53 (2.80) | | | |
| Coherence | 31.29 (6.09) | 34.67 (4.55) | $F(1, 74) = 21.94$, $p \leq .001$<br>$\eta_p^2 = .23$, o.p. = 1.00 ECM < SDM | $F(1, 74) = 7.01$,<br>$p \leq .05$<br>$\eta_p^2 = .09$, o.p. = .74<br>20s < 30s | n.s. |
| 20s | 29.67 (5.89) | 33.85 (5.32) | | | |
| 30s | 33.08 (5.89) | 35.58 (3.36) | | | |
| Accessibility | 19.08 (4.69) | 20.33 (3.64) | n.s. | F(1, 74) = 10.63,<br>$p \leq .01$<br>$\eta_p^2 = .13$, o.p. = .90<br>20s < 30s | n.s. |
| 20s | 17.67 (4.12) | 19.75 (3.58) | | | |
| 30s | 20.64 (4.84) | 20.97 (3.66) | | | |
| Time Perspective | 13.49 (6.06) | 23.04 (6.67) | $F(1, 74) = 111.59$, $p \leq .001$<br>$\eta_p^2 = .60$, o.p. = 1.00 ECM < SDM | n.s. | n.s. |
| 20s | 13.05 (6.40) | 22.82 (7.03) | | | |
| 30s | 13.97 (5.70) | 23.28 (6.35) | | | |
| Sensory Details | 25.14 (5.78) | 30.34 (5.62) | $F(1, 74) = 43.63$, $p \leq .001$<br>$\eta_p^2 = .37$, o.p. = 1.00 ECM < SDM | n.s. | n.s. |
| 20s | 24.70 (5.43) | 29.37 (5.52) | | | |
| 30s | 25.64 (6.19) | 31.42 (5.62) | | | |
| Visual Perspective | 22.25 (5.11) | 24.93 (4.48) | $F(1, 74) = 20.45$, $p \leq .001$<br>$\eta_p^2 = .22$, o.p. = .99 ECM < SDM | n.s. | n.s. |
| 20s | 22.32 (5.14) | 26.00 (3.53) | | | |
| 30s | 22.17 (5.16) | 23.75 (5.13) | | | |
| Emotional Intensity | 19.75 (6.22) | 25.62 (4.53) | $F(1, 74) = 67.42$, $p \leq .001$<br>$\eta_p^2 = .48$, o.p. = 1.00 ECM < SDM | n.s. | n.s. |
| 20s | 19.80 (6.00) | 25.57 (4.35) | | | |
| 30s | 19.69 (6.53) | 25.67 (4.79) | | | |

**TABLE 2** (*Continued*)

| *MEQ 3Scales* | *ECM* | *SDM* | *Main Effect Type of Memory* | *Main Effect Group Age* | *Interaction Type of Memory*Age Group* |
|---|---|---|---|---|---|
| Sharing | 13.45 (6.19) | 18.00 (6.68) | $F$ (1, 74) = 24.48, $p \leq .001$ $\eta_p^2 = .25$, o.p. = 1.00 ECM < SDM | n.s. | n.s. |
| 20s | 13.22 (6.03) | 16.72 (6.15) | | | |
| 30s | 13.69 (6.44) | 19.42 (7.04) | | | |
| Distancing | 16.38 (5.30) | 13.76 (5.53) | $F$ (1, 74) = 11.27, $p \leq .001$ $\eta_p^2 = .13$, o.p. = .91 ECM < SDM | n.s. | n.s. |
| 20s | 16.32 (5.29) | 12.85 (4.99) | | | |
| 30s | 16.44 (5.38) | 14.78 (5.97) | | | |
| Valence | 20.01 (8.61) | 17.53 (10.09) | n.s. | n.s. | n.s. |
| 20s | 19.45 (8.55) | 18.25 (9.95) | | | |
| 30s | 20.64 (8.75) | 16.72 (10.33) | | | |
| Latency | 55.41 (72.22) | 88.04 (133.28) | $F$ (1, 74) = 6.36, $p \leq .05$ $\eta_p^2 = .08$, o.p. = .70 ECM < SDM | n.s. | F (1, 74) = 4.18, $p \leq .05$ $\eta_p^2 = .05$, o.p. = .52 > for SDM in 20s |
| 20s | 58.50 (80.20) | 115.18 (169.59) | | | |
| 30s | 51.97 (63.13) | 57.89 (65.11) | | | |
| Duration | 160.91 (82.36) | 284.80 (178.81) | $F$ (1, 74) = 46.43, $p \leq .001$ $\eta_p^2 = .39$, o.p. = 1.00 ECM < SDM | n.s. | n.s. |
| 20s | 159.08 (67.79) | 273.37 (155.82) | | | |
| 30s | 162.94 (96.98) | 297.50 (202.84) | | | |
| Age at the time of event | 4.96 (2.03) | 20.14 (7.94) | $F$ (1, 74) = 318.89, $p \leq .001$ $\eta_p^2 = .81$, o.p. = 1.00 ECM < SDM | $F$ (1, 73) = 8.70, $p \leq .01$ $\eta_p^2 = .10$, o.p. = .83 20s < 30s | F (1, 74) = 10.69, $p \leq .01$ $\eta_p^2 = .13$, o.p. = .90 > for SDM in 30s |
| 20s | 5.00 (1.55) | 17.53 (6.02) | | | |
| 30s | 4.92 (2.48) | 23.06 (8.84) | | | |

$N = 76$. MEQ = Memory Experiences Questionnaire; ECM = Earliest Childhood Memories; SDM = Self-Defining Memories. $\eta_p^2$ = Partial Eta Squared; o.p. = observed power; n.s. = not significant. Note: latency and duration are expressed in seconds; age at the time of the event is expressed in years.

in their 20s ($M = 19.10$ years, $SD = 2.76$ for ECM; $M = 6.58$ years, $SD = 5.91$ for SDM), $F(1, 74) = 86.73$, $p \leq .001$, $\eta_p^2 = .54$, o.p. = 1.00.

There were also effects of both memory type and participant age on the latency and duration of the memories. In particular, participants took longer to retrieve and describe their SDM compared to their ECM. A significant interaction between Type of Memory and Age Group was also found for latency ($p \leq .05$). Participants in their 20s had greater latencies for their SDMs compared to participants in their 30s; there was no difference in latency for the ECM across the two age groups. A significant main effect of the Type of Memory on age at the time of the event was also found ($p \leq .001$), along with a main effect of Age Group ($p \leq .01$) and an interaction of Type of Memory and Age Group ($p \leq .01$). Mean age at the time of ECMs was lower than the mean age at the time of SDMs. The 20s showed mean values similar to the 30s for age at the time of earliest episode, whereas the two groups differed for age at the time of the self-defining event.

## Age at the time of event vs memory age

Finally we considered two related but conceptually distinct variables: age at the time of the event and memory age. Considering the time in which a memory was formed (i.e., the particular period of lifespan in which the event occurred) may differ from considering the time since by the event. We first examined the relation between the age at the time of the event and the 10 MEQ scales (Table 3). Significant correlations were observed with *Vividness*, *Sensory Details*, and *Sharing* for both ECM and SDM; that is, more recent self-related memories were more vivid ($r_{ECM} = .35$; $r_{SDM} = .49$), sensorily detailed ($r_{ECM} = .30$; $r_{SDM} = .44$), and shared ($r_{ECM} = .26$; $r_{SDM} = .51$). In addition, age at the time of the event was significantly related to *Distancing* scores for

ECMs; memories of events from later childhood were less psychologically distant ($r_{ECM} = -.25$). Significant correlations were also found with *Time Perspective* and *Emotional Intensity* for SDMs; memories formed in early adulthood had a clearer time perspective ($r_{SDM} = .49$) and were more emotionally intense ($r_{SDM} = .35$). There were no significant differences in the correlation coefficients across the two types of memory ($ps > .05$), except for *Time Perspective* ($Z = -2.39$, $p < .05$): This scale showed a stronger relation with age at the time of the event for the SDM compared to the ECM.

Second, we considered the relation between age of the memory (obtained by subtracting the age at the time of the recalled event from the participant's current age) and the MEQ scales (Table 3). Significant correlations were observed for *Coherence* and *Accessibility* for ECM; that is, more remote memories were defined by a logical story ($r_{ECM} = .24$) and were easier to remember ($r_{ECM} = .39$). On the other hand, with regard to SDM, significant correlations were observed with *Vividness*, *Sensory Details*, *Emotional Intensity*, *Visual* and *Time Perspective*, and *Sharing*. These MEQ dimensions seemed to be particularly affected by the recency of the memory (higher scores on memory age are less recent): More-distant SDMs tended to be less vivid ($r_{SDM} = -.40$), detailed ($r_{SDM} = -.25$), emotionally intense ($r_{SDM} = -.34$), and shared ($r_{SDM} = -.36$), with a less-clear time perspective ($r_{SDM} = -.47$) and were more likely to be third-person memories ($\beta_{SDM} = -.38$). There were a few significant differences between correlations coefficients of the two types of memory. Specifically, *Coherence* and *Accessibility* were more strongly related to memory age for the ECM compared to SDM (respectively $Z = 2.02$, $p < .05$ and $Z = 2.25$, $p < .05$), whereas memory age showed a stronger relation with *Vividness* ($Z = 3.6$, $p < .05$), *Sensory Details* ($Z = 1.97$, $p < .05$), *Emotional Intensity* ($Z = 2.14$, $p < .05$), *Visual Perspective*, ($Z = 1.81$, $p = .07$), *Time Perspective* ($Z = 3.38$, $p < .05$), and *Sharing* ($Z = 2.28$, $p < .05$) for the SDM compared to the ECM.

Results evidenced independent relations of MEQ scales with memory-related constructs—i.e, the specific time in life in which a memory is formed vs its recency. A different pattern of intercorrelations emerged when considering age at the time of the event and memory age.

**TABLE 3**
Interrelations between age at the time of the event vs. age of the memory with MEQ scales

| | *Age at the Time of the Event* | | *Age of the Memory* | |
|---|---|---|---|---|
| MEQ Scale | *ECM* | *SDM* | *ECM* | *SDM* |
| Vividness | .35** | .49** | .17 | −.40** |
| Coherence | .02 | .22 | .24* | −.09 |
| Accessibility | −.15 | .11 | .39** | .04 |
| Time Perspective | .14 | .49** | .05 | −.47** |
| Sensory Details | .30** | .44** | .07 | −.25* |
| Visual Perspective | .17 | .18 | −.10 | −.38** |
| Emotional Intensity | .19 | .35** | .00 | −.34** |
| Sharing | .26* | .51** | .00 | −.36** |
| Distancing | −.25* | −.02 | .02 | .14 |
| Valence | .07 | .07 | .06 | −.09 |

$N = 76$. MEQ = Memory Experiences Questionnaire; ECM = Earliest Childhood Memory; SDM = Self-Defining Memory.
**. Significant at the 0.01 level.
*. Significant at the 0.05 level.

## DISCUSSION

In this study we assessed phenomenological qualities of participants' earliest and self-defining memories using a comprehensive measure of phenomenology and behavioural measures—latency and narrative duration times—to compare these two types of memories. We also examined how age—participant age, age at the time of the event in the memory, and the age of the memory—was associated with the phenomenological experience of memory.

The intercorrelations between the phenomenological dimensions for each memory showed the expected theoretically meaningful relations. However, interesting differences in these associations emerged across the two types of memories. In particular, *Vividness* was more strongly linked to *Accessibility* in the early memory, whereas *Vividness* was more strongly linked to *Emotional Intensity* in the self-defining memory. For more-remote memories it may be that the case that retrieval contributes to describing the memory as vivid. For self-defining memories, however, it may the strength of the emotional content that is more important for vivid retrieval. In addition to *Vividness*, *Accessibility* was also more strongly associated with *Coherence* in the early memory compared to the SDM. This pattern suggests that vivid and coherent memories are memories that remain more accessible with time, perhaps due to the family reminiscing over these early experi-

ences (Artioli, Cicogna, Occhionero, & Reese, 2012). In regard to SDMs, significant positive intercorrelations were observed for the spatio-temporal and perceptual dimensions related to reliving of the experience, i.e., *Vividness*, *Coherence*, *Sensory Detail*, *Visual Perspective*, *Time Perspective*, *Emotional Intensity*. These dimensions are the ones that may help keep the memory central to maintain engagement in reaching personal goals. In contrast to Sutin and Robins' findings (2007), however, these "quality" dimensions of the MEQ were not related to an easier retrieval of the memory. In the present study the *Accessibility* scale only correlated with the *Sharing* dimension.

We found the expected mean-level differences in phenomenology across the two types of memories. That is, participants rated their SDMs as more vivid, coherent, rich in sensory details, and clear in time perspective. SDMs were also experienced as more emotionally intense, they were more likely to be seen from a first-person visual perspective, and more likely to be shared with other people. By contrast, ECMs showed faded phenomenological qualities. In particular, ECMs were perceived as more psychologically distant from the participants' current self and they were less likely to be shared with others. Hence the phenomenology of SDMs may reflect their central role for the current self and identity more than memories of early experiences.

In interpreting these data it would be relevant to consider some potential aspects that might influence the phenomenological characteristics of the memories, such as the age at the time of the event in the memory and the age of the memory itself. These two facets might be conceptually different. The time in which the mnestic trace was formed may be particularly important for phenomenological features, which is a factor independent from the recency of the memory itself. For example, memories of consequential earlier life events may be more vivid and affectively intense than more recent memories. Recent memories, however, may also be vivid and emotional because their intensity might not have faded yet. The results of the current study seem to support this latter hypothesis; the effect of memory recency appears stronger than other factors, such as the time in which memory was formed. Memory age, however, was not controlled in the current experimental design (e.g., asking the participants to recall memories from the same number of years ago). In future research it would be interesting to examine this issue further, perhaps with older adults and more than one memory for each memory type.

The self-defining memories typically referred to more-recent events. In fact, SDMs were more likely to be dated in late adolescence and early adulthood than during childhood. According to Conway and colleagues (Conway, 2005; Conway & Haque, 1999; Conway & Holmes, 2004; Conway & Pleydell-Pearce, 2000; Rathbone, Moulin, & Conway, 2008), many memories from this period form an enduring relation with the self, becoming self-defining experiences and preserving self-coherence through time. On the other hand, in the current sample early memories were typically of events that occurred around the age of 5 years and their distribution was consistent with the *childhood amnesia phenomenon* (Bruce et al., 2005; Hayne & Jack, 2011; Nelson & Fivush, 2004; Rubin, 2000), such that memories from the first 5 years of life are less likely to be recollected.

The two types of memories also differed with respect to latency and duration of the memory narrative: SDMs had longer latencies and duration times than ECMs. This observed difference may be a function of the richness of the memories and the complexity of the reconstructive process. In particular, with regard to latency, the data suggest that it might be more difficult to retrieve SDMs. This is somewhat counterintuitive, since meaningful autobiographical material should be more accessible. The longer latency may be related to the self-defining nature of the task itself. Telling a "self-defining story" is not as easy as it sounds. The task may be particularly difficult for young adults as they might need time to consolidate and integrate self-relevant information. Participants may also find it difficult to choose between different SDMs.

The age differences found in the current study suggest that autobiographical memories may consolidate across young adulthood. Of note, even though the two groups in the present study were fairly close together in age (20s vs 30s), significant differences in both phenomenology and ease of retrieval were apparent. Indeed, significant differences between age groups emerged from the reported data. With respect to phenomenology, participants in their 30s rated both types of memories as more vivid, coherent, and accessible. This group also retrieved memories that were significantly older, which might

have contributed to more vividness, coherence, and accessibility through repeated rehearsals and retrievals. The 30s group therefore might have reported more well-consolidated memories. Other interesting differences between the two groups were found on their self-defining memory. Participants in their 20s had longer latency times for the self-defining memory compared to participants in their 30s, which might reflect more difficulty in retrieving and choosing a SDM. Moreover, they also reported a younger age at the time of self-defining event. Taken together, these results suggest that younger participants may need more time to choose and comprehend the importance of their self-defining experiences. In fact, as remarked by Linton (1986), the period of memory consolidation may be quite extended. Individuals need time to construct coherent *self-narratives* about their own life experiences, to integrate discrete personal events, and provide links between past and present (McAdams, 2001; McAdams et al., 2006; McAdams & Olson, 2010). The present data suggest that the period of identity consolidation for young adults extends into the 30s and might potentially be attributed to the extension of emerging adulthood.

The present research suggests a number of possibilities for future research. First, we used the MEQ to measure phenomenology of two commonly requested types of autobiographical memories. This allowed us to compare present results with previous findings obtained using the same instrument (Sutin & Robins, 2007). However, it would be of particular interest to consider other specific meaningful memories, for example those related to achievement and intimacy motivational themes. Moreover, collecting several SDMs for each participant might be helpful to address the matter of "accessibility": Participants would not be forced to choose a single most important memory. This recollection method could also allow investigation of both the emerging content and the thematic continuity between memories within participants. Different methodological approaches can be used to examine self-centred memories; for example, retrieving memories in the context of previously defined "self-images" (e.g., Rathbone et al., 2008).

Second, we used non-clinical participants, but memory phenomenology is particularly important in the clinical domain. Many clinical disorders (e.g., depression) are marked by memory deficits and distortions. As such, the study of memory phenomenology could address many interesting issues in the clinical domain. Further insights should be obtained by expanding the SDM task and MEQ to compare sub-clinical, clinical, and psychiatric samples.

Third, future research could look at a number of different kinds of memory prompts to determine whether memory instructions have any effect on phenomenology. In the present study we used two different memory prompts which might have introduced bias that contributed to differences across the two memories. It is unlikely that this difference introduced substantial bias for two reasons. First, previous research has shown that the structure of phenomenology is the same for these two memory prompts and both have theoretically meaningful correlates (Sutin & Robins, 2007). Second, the expected similarities and differences between the phenomenology of the two memories emerged in the current study. Nonetheless, it would be worthwhile to examine to what extent the memory prompt has an effect on phenomenology.

Finally, it is of note that the basic intercorrelations among the phenomenological dimensions matched Sutin and Robins' (2007) findings from English-speaking samples fairly well. This replication suggests that the phenomenological experience of personally meaningful memories might not be culture-specific. That is, some aspects of the phenomenological experience may be universal. Larger samples across more cultures are needed to test this possibility.

In sum, the present study sheds light on the central role that SDMs may have for reaching personal goals and on building a coherent sense of identity: The subjective experience of SDMs reflects an individual's central concerns and conflicts grounding these memories. The differences that emerged in phenomenology across the early and recent memories are meaningful, and are what would be expected based on previous research. Moreover, age difference findings are truly promising. Phenomenological characteristics, however, are just one aspect of SDMs and autobiographical memories. Future research should consider other important dimensions of memory, including specificity, meaning making, event content, and emotion (Blagov & Singer, 2004) that are linked to memory phenomenology.

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