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Non-Episodic Autobiographical Memory Details Reflect Attempts to Tell a Good Story

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25   **Abstract**

26   A persistent finding in the autobiographical memory (AM) literature is that older adults report

27more non-episodic (or generalised/semantic) information than young adults. Since studies are usually

28focused on memory for episodic (or specific) autobiographical events, the reason for the age

29difference in non-episodic AM remains under-studied. This experiment investigated whether the

30higher rate of non-episodic AM in older adults reflects (a) a difference incommunicative preferences,

31or (b) cognitive decline, by way of either an inhibition deficit or as a means of compensating for a

32deficit in episodic AM. A sample of 54 young (N=28, age range 18-46) and older (N=26, age

33range=62-86) participants retrieved the same AM twice, under two different sets of instructions: to

34tell a good story for their autobiography, or to provide a detailed police witness statement. Both

35groups reported more general details when they were aiming to tell a good story. In addition, older

36adults also reported fewer specific details when the aim was to tell a good story. In a separate ranking

37task, young and older adults differed in their perceptions of what makes a good story; young adults

38ranked 'detail', 'grammar', and 'full descriptions' more highly than older adults, whereas older

39ranked 'linking ideas' and 'explaining not just describing' more highly than young adults.   The

40results suggest that age-related differences in non-episodic AM might be explained by communicative

41preferences rather than cognitive decline.

42   Keywords: Autobiographical memory; episodic memory; personal semantics

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44   **Public significance statement**

45   This study found that both young and older adults described their personal memories

46differently depending on the aim of their communication. The difference was greater in older adults,

47who valued a less detailed and more explanatory style of storytelling than young adults. The results

48suggest that some of the features of older adults' narratives that have previously been assumed to

49reflect cognitive decline may instead reflect the intention to tell a good story, highlighting the

50inherently social nature of autobiographical memory retrieval.

51   **Non-episodic autobiographical memory details reflect attempts to tell a good story**

52   Non-episodic autobiographical memory (AM) refers to remembered information that is not
53specific to a single, unique autobiographical event. This includes general semantic knowledge (e.g.,
54*Paris is the capital of France*), autobiographical facts (e.g., *John is my brother*), and information
55about repeated events (e.g., *We went to the beach many times in the summer*) or extended time periods
56(e.g., *I spent the holidays abroad*; see Renoult, Davidson, Palombo, Moscovitch, & Levine, 2012).
57This contrasts with episodic AM, which refers to information pertaining to a specific event that
58happened only once, and lasting a day or less (e.g., *Last summer John and I spent the day on a beach
59in France*; Holland, Ridout, Walford & Geraghty, 2012; Levine et al., 2002; Piolino, Desgranges,
60Benali & Eustache, 2002; Viard, Piolino, Desgranges, et al., 2007). In this paper we investigate a
61recurring finding in the autobiographical memory (AM) literature that remains so far unexplained:
62older adults' tendency to report more non-episodic memory details, relative to young adults (Addis,
63Wong, & Schacter, 2008; Aizpurua & Koutstaal, 2015; Beaman, Pushkar, Etezadi, Bye, & Conway,
642007; Devitt, Tippett, Schacter, & Addis, 2016; Levine, Svoboda, Hay, Winocur, & Moscovitch,
652002; Madore, Gaesser, & Schacter, 2014; Mair, Poirier, & Conway, 2017; Mair, Poirier, & Conway,
662021; Piolino, Desgranges, Clarys, et al., 2006). This study aims to distinguish between two broad
67potential explanations for this age difference: that non-episodic details are a marker of cognitive
68decline in older adults, or that they reflect a shift in communicative preferences that biases older
69adults towards telling an entertaining story.

70   Most AM tasks are principally concerned with recall of episodic AMs. In a typical procedure,
71participants describe their memories verbally, and their reports are later scored by the experimenter. If
72the scoring procedure involves tallying the number of individual details that were recalled, older
73adults usually score higher on non-episodic details – those that are *not* specific to the event in question
74(e.g., Aizpurua & Koutstaal, 2015; Levine et al., 2002; Mair et al., 2017, 2021). If the scoring
75procedure involves rating the memory on a scale ranging from non-episodic to episodic, older adults
76usually score closer to the non-episodic end of the scale (e.g., Beaman et al., 2007; Piolino et al.,
772006; Mair et al., 2021).

78A sign of cognitive decline

79   One explanation for these findings is that older adults use non-episodic AM to compensate for

80a deficit in episodic AM. Consistent with this hypothesis, a number of studies have shown a deficit in

81episodic AM in older adults alongside a larger number ofnon-episodic details compared to young

82adults (e.g., Levine et al., 2002). However, the same surplus of non-episodic details has been observed

83in other studies in the absence of a deficit in episodic details (e.g., Aizpurua & Koutstaal, 2015; Mair

84et al., 2017), and one study of memory changes across the lifespan found that the increase in non-

85episodic memory began in middle age, before there was a deficit in episodic memory to compensate

86for (Habermas, Diel, & Welzer, 2013). Moreover, a reanalysis of five existing AM datasets found that

87episodic and non-episodic details were inversely correlated within individual narratives in only three

88of them (Devitt, Addis, & Schacter, 2017), and there is also evidence that correlations between the

89number of episodic and non-episodic details recalled varies across AM tasks within the same sample

90of participants (see Table 4 of Mair et al., 2021). Thus, if retrieval of non-episodic details is one way

91to compensate for a reduction in episodic recall, it does not appear to be a strategy that is adopted

92consistently.

93   An inhibition deficit in older adults (Hasher & Zacks, 1988) is another mechanism by which

94cognitive decline could cause a surplus of non-episodic AM. Studies on the timing of both AM

95retrieval and episodic future thoughts have shown that non-episodic autobiographical knowledge is

96usually accessed first, and is followed by retrieval of event-specific knowledge (D'Argembeau &

97Mathy, 2011; Haque & Conway, 2001), and a recent study found that when participants were asked to

98verbalise their retrieval attempts they sometimes tried to access memories by generating related

99semantic knowledge (Mace, Staley, and Sopocci, 2021). Retrieval of non-episodic information

100therefore appears to facilitate access to episodic information, and while young adults may inhibit the

101reporting of this non-episodic information under normal test conditions, older adults may struggle to

102do so. Apparent support for this hypothesis comes from studies in which older adults fail to modify

103their memories in response to changes in task instructions. For example, one study presented young

104and older adults with photographs and asked them either to describe their thoughts, or to generate

105 episodic AMs. Both groups produced narratives rich in non-episodic details in the 'thoughts'

106 condition, and while young adults reported fewer non-episodic details in the episodic AM condition,

107 older adults did not (Strikwerda-Brown, Williams, Lévesque, Brambati, & Sheldon, 2021). In another

108 study, participants were first taught the distinction between episodic and non-episodic memories, and

109 then tested under different task instructions requiring retrieval of either episodic or non-episodic

110 memories (Ford, Rubin, & Giovanello, 2014). In young adults, instructions to retrieve non-episodic

111 memories increased the proportion of non-episodic (relative to episodic) memories that were

112 retrieved. In contrast, older adults retrieved a higher proportion of non-episodic memories overall, and

113 the proportion was not affected by task instruction. In the same study, however, executive function –

114 including inhibition – did not differ between groups and was not correlated with the proportion of

115 non-episodic AMs. Thus, although older adults appear to be less flexible in response to task

116 instructions, evidence that this inflexibility is caused by either an inhibition deficit or more general

117 executive dysfunction is lacking. Moreover, both studies required the participants themselves to

118 understand and respond to the distinction between episodic and non-episodic AM – a distinction that

119 is neither intuitive nor particularly meaningful among laypeople.

120 **Communicative preference**

121   The finding of elevated non-episodic autobiographical information among older adults is

122 echoed by a separate literature on the narrative analysis of young and older adults' speech, which

123 shows that older adults' narratives contain more "off-topic" speech than younger adults' narratives

124 (Arbuckle & Gold, 1993; James, Burke, Austin, & Hulme, 1998; Trunk & Abrams, 2009). Off-topic

125 speech is defined as speech that is not relevant to the topic under discussion, or not necessary to

126 answer a particular question, and is therefore broadly equivalent to non-episodic AM (see Trunk &

127 Abrams, 2009, p.331, for examples of off-topic speech). Accordingly, an inhibition deficit has also

128 been proposed as an explanation for older adults' off-topic speech (Arbuckle & Gold, 1993).

129   However, in contrast to viewing non-episodic details as a negative or unwanted feature of AM

130 narratives, an alternative possibility is that the inclusion of this information serves some

131communicative purpose. Several studies have suggested that in older age the goals of communication

132shift towards emphasising personal narratives, reminiscence, and the establishment of one's own

133identity (Boden & Bielby, 1986; Giles & Coupland, 1991; Habermas et al., 2013; James et al., 1998).

134Older adults are more likely than young adults to relate information in their narratives to the

135overarching sense of self (Pasupathi & Mansour, 2006), to interpret and integrate events into their life

136story (Habermas et al., 2013), and to refer to themselves as the speaker, and to refer to the listener, in

137their narratives (Allison, Brimacombe, Hunter & Kadlec, 2006). There is also evidence that when

138retelling stories, young adults favour a more literal style whereas older adults favour a more

139interpretative style (Adams, Labouvie-Vief, Hobart, & Dorosz, 1990; Adams, Smith, Nyquist, &

140Perlmutter, 1997). Previous studies have attempted to link older adults' off-topic speech to

141communicative preferences, with mixed results. For example, one study found that older adults'

142autobiographical narratives contained more off-topic speech than young adults' autobiographical

143narratives, but were also rated as more interesting, more informative, and better stories by an

144independent sample of young and older raters (James et al., 1998). In the same study, the same older

145adults did not produce more off-topic speech than young adults when describing pictures, leading the

146authors to suggest the presence of these details in autobiographical narratives reflected

147communicative preferences. On the other hand, two more recent studies found that the amount of off-

148topic speech in older adults' narratives was not related to ratings of story quality (Baron & Bluck,

1492009; Trunk & Abrams, 2009), and that older adults' communicative preferences did not predict the

150amount of off-topic speech in their narratives (Trunk & Abrams, 2009). Thus, although ageing is

151associated with changes in communicative style, there is little evidence that these changes are

152intentional, or that they are the cause of age-related differences in off-topic speech. However, the

153definition of off-topic speech is broader than non-episodic AM details, and it is possible the latter

154could more clearly represent changes in communicative preferences.

155**The current investigation**

156   The present study aimed to examine whether the number of non-episodic details included in

157older adults' narratives is under intentional control. We manipulated retrieval goals in a within-

158subjects design by asking participants to retrieve the same AM twice, under two different imagined

159scenarios – writing for an autobiography, and giving a police witness statement. These scenarios were

160selected as familiar examples in which the purpose of sharing the details of a memory differs

161considerably. In recounting a memory for a police witness statement, the purpose is to recall as much

162specific detail as possible, regardless of whether it makes a good story. In contrast, when writing for

163an autobiography, the purpose is to tell a good story. Importantly, understanding the purpose of

164communication in each of these scenarios does not require participants to understand the difference

165between episodic and non-episodic AM details. We were interested in whether these different

166communicative aims would give rise to differences in the composition of details in retrieved

167memories, and in particular, whether the number of non-episodic AM details would differ between

168scenarios. If older adults' retrieval of more non-episodic information reflects communicative

169preferences, they should report a greater number of non-episodic details when retrieving an AM for an

170autobiography, compared to when retrieving an AM for a police witness statement. On the other hand,

171if retrieval of non-episodic details reflects cognitive decline, then the composition of older adults'

172memories should not vary according to the task instructions. If older adults fail to inhibit irrelevant

173details, they should do so in both retrieval conditions. Alternatively, if older adults use non-episodic

174AM details to compensate for a deficit in episodic retrieval, then we would expect to find the same

175degree of compensation in both retrieval conditions, alongside a deficit in specific memory details.

176   **Method**

177**Transparency and openness**

178   We report how we determined our sample size and describe all exclusions, manipulations, and

179measures that were collected. De-identified data are available on our project page on the Open

180Science Framework website (https://osf.io/pk5qn/). Data were analysed usingR Version 4.2.3. The

181design and analysis of this study were not preregistered.

182**Participants**

183   Thirty-six young adults (29 female, 7 male; aged 18-46, M=23.69, SD=6.62) and 30 older

184adults (21 female, 9 male; aged 55-86, M=70.17, SD=5.53) were recruited to take part in this study.

185Eight young adults and four older adults were subsequently excluded. Of these, one older adult's

186reported age was below the level specified in the inclusion criteria, and because testing was online this

187only became known on receipt of the participant's complete response. Three young and two older

188adults only provided one memory, two young adults described two different memories, two young

189adults did not describe a specific event, one young adult wrote each memory from a different

190perspective. One older adult did not write anything at all. In the final sample there were 28 young

191adults (24 female, 4 male; aged 18-46, M=23.00, SD=6.15) and 26 older adults (19 female, 7 male;

192aged 62-86, M=70.46, SD=5.03). The final sample size was similar to that used in previous studies

193using a similar design (Adams et al., 1997; Dutemple & Sheldon, 2022; Ford et al., 2014). According

194to a G*Power sensitivity analysis (G*Power version 3.1.9.2; Faul, Erdfelder, Lang, & Buchner, 2007)

195the sample should be sufficient to detect a between-groups main effect size of f=.34, a within-groups

196effect size of f=.19, and a within-between interaction of size f=.19. This calculation was based on

19780% power at an alpha level of .05, with the assumed correlation between repeated measures set

198at .50. Young adults were undergraduate students at the University of Hertfordshire, UK, who

199participated for course credit. Older adults were recruited from a panel of people who had previously

200expressed an interest in participating in memory research, and were not compensated for participation.

201The panel was originally recruited through a combination of local lifelong learning groups (University

202of the Third Age) and a local newspaper advertisement. In the older adult group, 71% were educated

203to at least degree level and 25% were educated to postgraduate level. All participants were fluent

204English speakers. No other demographic data were collected.

205**Design**

206   This study used a 2 (age group: young vs. older) x 2 (retrieval condition: witness statement

207vs. entertainment) mixed design, with repeated measures on the second factor. The order of the

208retrieval conditions was randomised. Retrieval condition was manipulated by asking participants to

209imagine they were recalling a memory as part of a police witness statement (witness statement

210condition), or for a chapter in their autobiography (entertainment condition). The outcome variable

211was the number of details reported in each condition, of which two categories of detail were counted

212separately: non-episodic details and episodic details.

213**Materials & Procedure**

214   The study was approved by the University of Hertfordshire Health, Science, Engineering, and

215Technology Ethics Committee with Delegated Authority (HSET ECDA; title: Effects of specific goals

216on memory descriptions, protocol number: LMS/SF/UH/03273), and was administered online using

217Qualtrics survey software (Qualtrics, Provo, UT). Data were collected in 2018-2019. After giving

218written informed consent, participants were required to fill in a form asking for demographic details,

219and were then presented with a single page of task instructions. Participants were asked to think of a

220specific (one-off) event from their personal past that fulfilled three criteria: (1) it lasted a day or less,

221(2) it occurred within the past year, and (3) they were willing to write about it in detail. On the initial

222instruction page, participants were informed that they would be asked to write about the same

223memory twice under different imagined scenarios, but they were not told what those scenarios were.

224The two imagined scenarios were then presented on separate pages, and the order of presentation was

225randomised. In the *witness statement* condition, participants were asked to imagine that during the

226event a crime had taken place, and although they had not seen the crime, their memory might contain

227information that could help the police. They were asked to describe everything that they could

228remember, even if it seemed insignificant, and to focus on the facts of what happened. In the

229*entertainment* condition, participants were asked to imagine that they were a celebrity who had just

230secured a book deal with a prominent publisher. They were asked to write what they remembered as

231though it would be included in their autobiography, which was tipped to be a best-seller whose release

232was eagerly awaited by fans. In this condition they were told to focus on telling a good story to

233entertain their fans. On both pages it was reiterated that the written narratives should both describe the

234same event. The full instructions for each condition are presented in the Online Supplement. An

235unlimited free-text box was presented immediately below the scenario text on each page, and

236participants were required to type their story into the box. There was no time limit. When they had

237completed the first narrative and had advanced to the second, it was not possible to return to the

238previous page to read or edit the text. Thus, participants who wrote the witness statement first were

239not aware that the second task would be to write for an autobiography, and those that completed the

240autobiography first were not aware that the second task would be to write for a witness statement.

241   After writing both narratives, the final page of the questionnaire asked participants to rank a

242series of characteristics of a good story. Ten characteristics were displayed in a single list, with the

243order randomised across participants. Each characteristic was presented beside a text box, and

244participants were asked to rank the order of importance of each characteristic by typing the rank

245number into the corresponding box (1 = most important, 10 = least important). The ten characteristics

246are listed in Table 2 in the results section.

247

248**Narrative coding**

249   The number of non-episodic and episodic details in each narrative were coded by the first

250author. A specific detail was defined as a standalone idea that described an aspect of the particular

251event in question (i.e., the one-off event that lasted a day or less, which the participant had chosen to

252describe). According to this coding scheme, the utterance, "I took the train to London at 10.30am"

253contains three specific ideas: (1) taking the train, (2) going to London, and (3) leaving at 10.30am, and

254thus would be counted as three episodic details. Any episodic details pertaining to a different, non-

255target event were excluded from the analysis. Episodic details in this study were therefore equivalent

256to the category of "internal" details in the widely used Autobiographical Interview (Levine et al.,

2572002).

258   A non-episodic detail was defined as a memory detail that was not specific to the event in

259question, and was not specific to any other event. Non-episodic details were those that described

260decontextualised information that was not linked to a specific time and place, including personal

261information about routines and repeated events (e.g., "I usually take the train in the morning", "I took

262the train every time I went to London") and factual information including autobiographical knowledge

263(e.g., "I live near the train station") and general knowledge (e.g., "The train to London takes two

264hours"). General details also included information about time periods extending beyond a single day

265(e.g., "I was working in London at that time").[1]

266   A subset (n=11, approximately 10%) of the transcripts were second-coded by an independent

267rater who was blind to the study's hypotheses. The independent rater was provided with raw

268transcripts and asked both to divide the text into individual details, and to categorise those details

269following the scheme described above. The aim of this analysis was to determine how reliably

270narratives higher in each type of detail could be distinguished from narratives lower in each type of

271detail. Reliability was calculated separately for episodic and non-episodic details. The results showed

272that inter-rater agreement was high for both types (non episodic: Cronbach's α = .94; episodic:

273Cronbach's α = .96; see OSF page (https://osf.io/pk5qn/) for details).

274   **Results**

275   Episodic and non-episodic details were analysed separately. Episodic details were

276approximately normally distributed, but non-episodic details were heavily right-skewed. The analyses

277below are based on data from all 54 participants, however the Online Supplement contains an

278exploration of potential outliers and the effect of their removal on the pattern of results. Outliers were

279predominantly in the non-episodic detail category, and were all at the top end of the distribution. The

280cases were not random, but instead represented an exaggerated pattern consistent with the pattern in

281the remainder of the dataset when the outliers were removed. Removal of the outliers had little impact

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1   [1] The narratives also included a third type of detail, in which the participant mused on the topic,

2interpreted or summarised a section of the narrative for the reader, or conveyed current thoughts about the

3content of the narrative. These details were excluded from the analysis because we considered them to be non-

4memory details. Narratives also occasionally included episodic details about events other than the one in

5question (i.e., external event details in the Autobiographical Interview scoring protocol; Levine et al., 2002),

6which were excluded from analysis due to their very small numbers.

7

282on the findings. All data and analysis scripts are available on our project page on the Open Science

283Framework website (https://osf.io/pk5qn/). Summary data are presented in Figure 1, below.

284Non-episodic details

285   Non-episodic details followed a Poisson distribution, but the data were severely

286overdispersed. A negative binomial regression was carried out to test the effects of age group (young

287vs. older) and condition (entertainment vs. witness statement) and their interaction. Witness statement

288narratives contained significantly fewer non-episodic memory details than entertainment narratives

289(IRR = -1.34, 95% CIs = -1.74, -0.94, p<.0001) , and young adults' narratives contained significantly

290fewer non-episodic details than older adults' narratives (IRR = -0.67, 95% CIs = -1.19, -0.15, p=.04).

291There was no age*condition interaction (IRR = -0.04, 95% CIs = -0.64, +0.57, p=.92).

292   Additional Bayesian analysis was carried out to assess the strength of the evidence for these

293effects. Bayes Factors were computed using the BayesFactor package in R (BayesFactor version

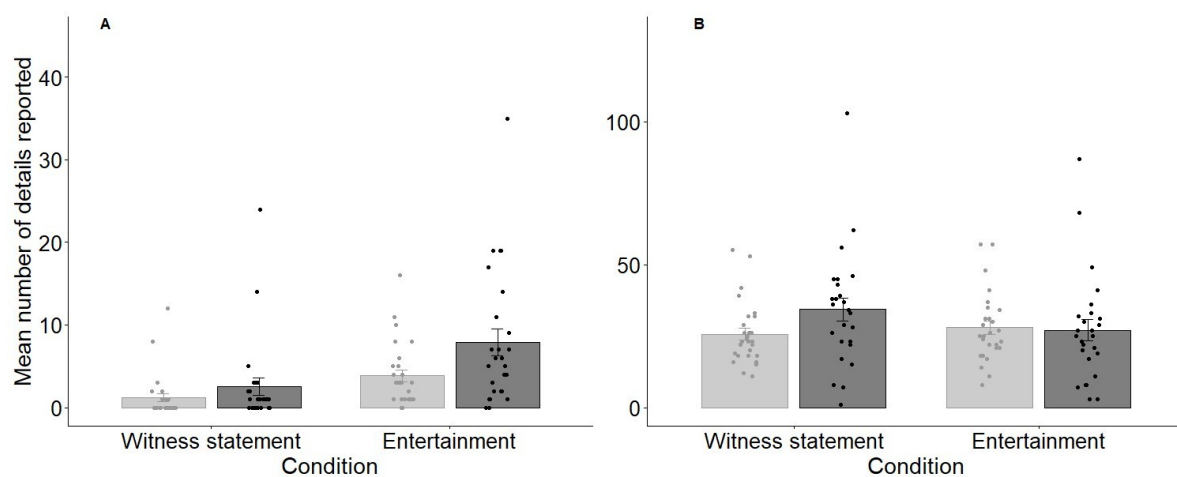2940.9.12-4.5; Morey et al., 2023) and interpreted in line with Rouder et al. (2017). Table 1 shows Bayes

Fig. 1. Number of non-episodic (panel A) and episodic (panel B) AM details reported by young (light grey) and older (dark grey) adults in each of the two retrieval conditions. Note that the scale of the y axis differs between figures.

295Factors for models containing age group, condition, and an age*condition interaction, relative to a

296null model containing only participant ID as a random factor. Evidence was weak for model 1, which

297included only a main effect of age, but very strong for model 2, which included only a main effect of

298condition. The data were 147,000 times more likely under model 2 compared to the null, and the ratio

299of Bayes Factors in models 1 and 2 showed that the data were 100,000 times more likely under model

3002 compared to model 1. Although the strongest evidence was for model 4, which included both main

301effects of age and condition and an age*condition interaction, comparison of model 4 (with the

302interaction) and model 3 (without the interaction) yielded a ratio of 1.67:1, and the ratio of model 3

303(age group + condition) to model 2 (condition only) was 1:1.14, indicating only weak evidence for the

304interaction and the main effect of age, respectively.

305   Across the sample of 54 participants, 44 reported more non-episodic details in the

306entertainment narratives than the witness statement narratives, eight participants reported the same

307number of non-episodic details in both narratives, and only two participants reported more non-

308episodic details in the witness statement narratives than the entertainment narratives.

Table 1
Bayesian models for non-episodic and episodic details

	Non-episodic		Episodic	
	BF	Error %	BF	Error %
Model 1: age group + ID (random)	1.47	10.41	1.52	1.69
Model 2: condition + ID (random)	147858	1.79	0.36	0.92
Model 3: age group + condition + ID (random)	168630	2.92	0.59	2.10
Model 4: age group + condition + age group*condition + ID (random)	281780	2.22	2.67	2.32

309

310Episodic details

311   Episodic details were analysed in a 2 (age group: young vs. older) * 2 (retrieval condition:

312witness statement vs. entertainment) ANOVA. There was no main effect of retrieval condition on the

313number of episodic details contained in the narratives ($F(1,52)=2.44$, $p=.12$, $\eta_p^2=.05$), and there was

314no main effect of age group ($F(1,52)=.93$, $p=.34$, $\eta_p^2=.02$). However, there was a significant

315interaction between condition and age group ($F(1,52)=9.04$, $p=.004$, $\eta_p^2=.15$). This interaction was

316explored with simple main effects analyses with Bonferroni corrections for multiple comparisons;

317older adults reported more episodic details in the witness statement condition than in the

318entertainment condition ($F(1,25)=7.48$, $p=.02$, $\eta_p^2=.23$) but there was no difference in young adults

319(F(1,27)=1.59, p=.44, η_p^2=.06). In both conditions there was no difference in the number of episodic

320details reported by young and older adults (witness statement: F(1,52)=3.95, p=.10, η_p^2=.07;

321autobiography: F(1,52)=.05, p=1.00, η_p^2=.001).

322   Bayes Factors were computed in the same way as for non-episodic details. As shown in Table

3231, the best evidence was for model 4, which included both main effects of age and condition and an

324age*condition interaction. However, evidence for all four models was weak relative to the null model,

325which contained only the participant ID as a random factor.

326**Correlation between general and specific details**

327   We next examined the relationship between non-episodic and episodic retrieval in each

328condition. Due to the significant main effect of age in non-episodic retrieval, and interactions between

329age and condition in non-episodic and episodic retrieval, the correlations were computed for each age

330group separately to avoid age confounding the estimate. The results showed no relationship between

331episodic and non-episodic retrieval in the young adult group (entertainment: r=-.14, p=.49; witness

332statement: r=.06, p=.75), but in the older adult group there were negative correlations between

333episodic and non-episodic retrieval in both conditions (entertainment: r=-.49, p=.01; witness

334statement: r=-.43, p=.03).

335**Characteristics of a good story**

336   We next analysed the rankings of the ten characteristics of a good story. A Kruskal-Wallis

337test showed that young adults ranked detail (H=4.50, p=.03) and full descriptions (H=5.59, p=.02)

338more highly than older adults, and older adults ranked linked ideas (H=7.24, p=.01) and explanations

339not just descriptions (H=7.82, p=.01) more highly than young adults. There were no between-group

340differences in rankings of the importance of focus (H<.01, p=1.00), reflection (H=.04, p=.85),

341grammar (H=3.76, p=.052), entertainment (H=2.74, p=.10), structure (H<.01, p=.99) or authenticity

342(H=.43, p=.51). The mean ranked importance of each characteristic is presented in *Table 2*, in order of

343young adults' rankings and with between-group differences highlighted in bold; note that lower scores

344indicate characteristics considered to be more important.

345

346

Table 2

Young and older adults' mean rankings of ten characteristics of a good story

Short name	Description	Mean rank (SD)	
		Young adults	Older adults
Entertainment	Story is entertaining	3.96 (3.03)	2.88 (2.86)
Focus	Story is focused (stays on target throughout)	4.89 (2.97)	4.75 (1.78)
Reflection	Narrator reflects on events that took place (e.g., shares their thoughts and feelings)	5.11 (2.34)	5.04 (2.74)
Full descriptions	**People, places, etc. are described in full**	**5.30 (2.96)**	**7.29 (2.58)**
Detail	**Story contains lots of detail**	**5.33 (2.91)**	**7.25 (2.75)**
Structure	Structure is coherent (the story is told in order – beginning, middle, and end)	5.56 (2.79)	5.54 (2.81)
Grammar	Grammar is used correctly	5.63 (3.28)	7.42 (2.24)
Linked ideas	**Ideas within the story are clearly linked**	**5.81 (2.65)**	**3.92 (1.87)**
Explained Not Just Described	**Events are explained, not just described ("why", not just "what")**	**6.63 (2.04)**	**4.67 (2.37)**
Authenticity	Story has authenticity (narrator is telling the truth about the events that occurred)	6.78 (3.00)	6.25 (2.92)

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349   **Discussion**

350   This study examined whether young and older adults modified the detail composition of their

351 AM narratives in response to different communicative goals. The results showed that, when aiming to

352 tell a good story that would be appropriate in an autobiography, both young and older adults modified

353 their narratives to include more non-episodic details than when describing the same story for a police

354 witness statement. In the police witness statement, the instruction was simply to give as much detail

355 as possible. Thus, the results showed that the number of non-episodic details that were reported was

356 directly related to the intention to tell a good story. This effect was similar for both young and older

357 adults, and consistent with previous studies showing that older adults can successfully adapt their

358 narrative output in response to different communicative goals. In one such study, young and older

359 adults retold previously-learned stories for a listener who was either the experimenter or a young

360 child. The results showed that both young and older adults simplified the stories for young children,

361 but older adults did so to a greater extent than young adults (Adams, Smith, Pasupathi, & Vitolo,

362 2002). Similarly, Barber and Mather (2014) asked young and older adults to retell a previously-

363 learned story either in an entertaining manner, intended for a group of friends, or in a precise manner,

364 intended for a police officer or lawyer. They found that both groups, to a similar extent, modified their

365 narrative output in line with the communicative goals, although older adults were more likely to

366 include a "moral of the story" when the task was to be entertaining. On the other hand, in two studies

367 in which participants were asked to modify the way they reported personal memories in response to

368 differing task requirements, older adults were found to do so *less* successfully than young adults (Ford

369 et al., 2014; Strikwerda-Brown et al., 2021). Another study also found that older adults were less

370 likely than young adults to modify their speech output as they gradually became more familiar with

371 their communication partner (Horton & Spieler, 2007). These apparently inconsistent findings

372 concerning older adults' communicative adaptability may reflect differences between studies in the

373 type of instructions given to participants, and the extent to which participants' interpretation of the

374 instructions overlaps with the researchers' expectations.

375   In the present study, we sought to explain the greater number of non-episodic details reported

376 by older adults in typical AM studies, in which the communicative goals are somewhat implicit.

377 Although non-episodic details in this context may be considered to be off-topic by researchers

378 primarily interested in the retrieval of episodic details, older adults may report more non-episodic

379 details than young adults because they are attempting to tell a good story. One question, then, is

380 whether young adults report fewer non-episodic details in AM studies because they are less concerned

381 with telling a good story, or because they differ from older adults in their evaluation of which features

382 make a story entertaining. The results of the ranking task in the current study appear to lend some

383 support to the idea that young and older adults value different features of a story for the purpose of

384 entertainment. In the ranking task, participants were asked to rank a set of ten characteristics of a good

385 story in order of importance; older adults ranked *the linking together of ideas* and *explaining the*

386 *"why" and not just describing the "what"* more highly than young adults. In AM narratives, non-

387 episodic details often provide this kind of context for episodic event details. For example, in the

388 sentence "We had a very quiet Christmas last year *because we were in a national COVID lockdown*",

389the italicised clause is a non-episodic detail that explains why the event happened in the way that it

390did. Similarly, in the passage "Sam came to pick me up. We left early. *Sam hates to be late*", the

391italicised sentence is a non-episodic detail linking the two specific details in the previous sentence. As

392such, older adults' higher rankings for this type of contextual information are consistent with the idea

393that their retrieval of non-episodic AM details in older adults reflects their attempts to tell a good

394story. This explanation is consistent with a previous study suggesting older adults may be biased

395towards attempting to tell a good story even when the task does not require it. In that study, young and

396older adults were required to retell stories they had learned under either easy or difficult conditions,

397and both their accurate recall and the extent to which their retelling deviated from the original story

398were measured (Smith, Rebok, Smith, Hall, & Alvin, 1983). The results showed that, whereas young

399adults deviated more from the original story when it was difficult to remember the original, older

400adults deviated more from the original story for those stories they recalled the best. Additional

401analyses suggested that young adults were more concerned with accuracy, whereas older adults were

402more concerned with keeping the information flowing.

403   The findings presented here are inconsistent with the inhibition deficit account of non-

404episodic AM retrieval, which suggests that older adults fail to inhibit the reporting of non-episodic

405details. In this study, non-episodic details that were reported by older adults in the entertainment

406condition were successfully inhibited in the witness statement condition, and in the witness statement

407condition there was no difference in the number of non-episodic details reported by young and older

408adults. Of course, it could be argued that any effect of inhibition was diminished in this study

409compared to a typical laboratory study because participants produced written narratives without time

410pressure. While this argument does not explain why the age-related difference in non-episodic AM

411details *was* observed in the entertainment condition, it remains possible that during verbal retrieval

412under normal laboratory conditions an inhibition deficit also plays a role.

413   The findings are also inconsistent with the idea that the greater number of non-episodic

414details in older adults' narratives is a result of compensation for a deficit in episodic AM. Firstly, we

415did not find a deficit in episodic AM in older adults: both groups reported an equal number of

416episodic details overall, and older adults reported marginally *more* episodic details than young adults

417in the witness statement condition. Although older adults' increased non-episodic retrieval in the

418entertainment condition co-occurred with a reduction in episodic retrieval relative to the witness

419statement condition, and this might superficially resemble a compensatory effect, it is unlikely that the

420reduction in episodic retrieval reflects a deficit in episodic memory since both retrieval attempts were

421undertaken back-to-back in the same session. We did, however, observe a significant negative

422correlation between the number of episodic and non-episodic details reported by older adults, which

423could reflect individual differences in the use of non-episodic details to compensate for an episodic

424deficit (i.e., in a minority of participants for whom the number of episodic details reported in both

425conditions was very low).

426   The absence of an age-related deficit in episodic AM is inconsistent with the findings of many

427previous studies in which such a deficit has been observed (e.g., Levine et al., 2002), though the

428magnitude of the deficit appears to depend on the way AM is measured (see Mair et al., 2021). In the

429current study, participants were free to describe any autobiographical event from the previous year,

430and could therefore select an event they remembered particularly well. They also had unlimited time

431to type their response, which likely relieved some of the retrieval pressures that are ordinarily present

432in a face-to-face testing session, such as output monitoring. As described above, however, older adults

433retrieved a greater number of episodic event details when describing their memories for a police

434witness statement, compared to the entertainment condition. Thus, when their intention was to tell a

435good story, older adults omitted some episodic details from their narratives. This finding is consistent

436with a recent study, which found that participants recalling a previously encoded story reported fewer

437precise details when they were instructed to imagine they were talking to friends, compared to when

438they were instructed to be as accurate as possible (Dutemple & Sheldon, 2022). There are at least

439three possible explanations for these missing details in the current study: (1) the older adults

440consciously omitted certain remembered details from their narratives, perhaps because they assumed

441that the information would dilute the quality of the story if, for example, it was deemed to be

442irrelevant or inconsequential; (2) the older adults did not make an exhaustive attempt to retrieve every

443available detail, perhaps because they were less concerned with ensuring their stories were as detailed

444as possible; or (3) the retrieval dynamics at the time of the attempt (e.g., output interference from the

445non-episodic AM details, or from the particular order of retrieval of the episodic AM details) caused

446the inadvertent omission of some of the available episodic details. In the rating task, older adults

447ranked *stories contain a lot of detail* and *full descriptions of people, places, etc.* as less important

448indicators of a good story than did young adults, hinting at the possibility that a less exhaustive

449attempt was made to retrieve all of the available episodic details when telling a good story in the

450entertainment condition. However, neither of the alternative explanations can be ruled out, nor can the

451possibility that a combination of these factors could account for the missing details.

452**Limitations and future directions.**

453   Age differences in non-episodic AM have been observed over at least the last 20 years (e.g.,

454see Levine et al., 2002). However, in cross-sectional designs such as in the present study it is not

455possible to determine whether differences between young and older adults' narratives are due to age-

456related changes in communication, or cohort or generational effects. One potential avenue for further

457research would therefore be to examine communicative styles across the lifespan in a longitudinal

458design. For example, one such longitudinal study has found evidence for a shift in AM from episodic

459event-based memories to more semanticised general memories with increasing age, over a period of

460nine years (Frankenberg, Knebel, Degen, et al., 2022). On the other hand, a three-year longitudinal

461study of 80-95 year olds asked to learn then retell fables found no significant changes in discourse

462processing, including recall of the fables and the ability to summarise and extract the gist (Ulatowska,

463Chapman, Highley, & Prince, 1998). A longitudinal study of non-episodic AM could help to shed

464more light on the reason for the effects typically observed in older adults, as well as the timing and

465nature of any shift in communicative preferences.

466   Another possible limitation of the current study was that retrieval attempts were collected

467online, in typed form. As data collection is increasingly carried out online, it is useful to understand

468the degree to which effects observed in face-to-face studies can be replicated online. Although the

469present study replicated the age effect in non-episodic AM observed in previous face-to-face studies

470(e.g., Aizpurua & Koutstaal, 2015; Levine et al., 2002; Mair et al., 2017, 2021), and direct

471comparisons of online and in-person testing in older adults have found no difference in cognitive test

472scores obtained (Cyr, Romero, & Galin-Corini, 2021), it remains a possibility that the present study

473would have produced different findings if conducted in person.As noted above, the online design

474allowed participants more time to think about and construct their responses than in a typical face-to-

475face testing procedure, and could have limited any impact of an inhibition deficit or compensatory

476mechanism in older adults. An in-person testing procedure could therefore explore the relative

477contributions of communicative goals, inhibition, and compensation under more difficult

478experimental circumstances (e.g., time pressure, oral recall, etc.).

479   Finally, in this study we did not collect additional demographic data such as the race,

480ethnicity, or socioeconomic status of participants. Future research might therefore examine whether

481the results reported here are replicable in demographically diverse samples.

Conclusion

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483   Both young and older adults reported more non-episodic memory details in their

484autobiographical narratives when their aim was to tell a good story, compared to when their aim was

485to report the same story in as much objective detail as possible. The results are inconsistent with the

486idea that non-episodic memory details in older adults reflect cognitive decline, and suggest instead

487that an age-related shift in communicative preferences can explain older adults' tendency to report a

488greater number of non-episodic memory details in AM tasks. Older adults also suppressed retrieval of

489available event-specific episodic details when aiming to tell a good story. Since AM retrieval is an

490inherently sociable activity, even in a typical testing environment, these findings suggest that the

491number of both non-episodic and episodic details in participants' AMs may be influenced by their

492attempts to ensure their stories are interesting. This may be particularly true for older adults, who

493rank contextualising information as an important feature of an entertaining story, whereas young

494adults favour detail and full descriptions. These findings highlight the need for AM researchers to

495better understand the relationships between the participants' retrieval goals, their interpretation of task

496instructions, and the output of AM retrieval.

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