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Autobiographical Memory and Flexible Remembering: Gender Differences

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***Abstract*—**In this study, we examined gender differences in: (1) a flexible remembering task, that asked for episodic memory decisions at an item-specific versus category-based level, and (2) the retrieval specificity of autobiographical memory during free recall. Differences favouring women were found on both measures. Furthermore, a significant association was observed, across gender groups, between level of specificity in the autobiographical memory interview and sensitivity to gist on the flexible remembering task. These results suggest that similar cognitive processes may partially contribute to both the ability for specific autobiographical recall and the capacity for inhibition of gist-information on the flexible remembering task.

***Keywords*—**autobiographical memory, flexible remembering, gender, specificity.

I. Introduction

AUTOBIOGRAPHICAL memory (AM) involves the retention and retrieval of experiences from one`s personal past. Although AM typically is construed as predominantly falling within the domain of episodic memory, it encompasses not only specific (episodic) memories, but also more general autobiographical knowledge (e.g., [1]–[3]), that is largely semantic in nature. Similar to other forms of memory recall (e.g., [4]–[6]), retrieval from AM may occur at any of several levels of specificity: event-specific details and images, complete memories for particular events, and also conceptual knowledge concerning broader life-time periods, life themes, or even one´s entire life story. Some authors (e.g., [7]) proposed distinguishing between an episodic subcomponent of AM that involves specific personal events that are situated in a particular time and place, versus a semantic subcomponent relating to the retention of general knowledge of one's personal past, such as the names of one's acquaintances, personal addresses, or generic events (see also [8]–[10]). Likewise, other authors (e.g., [11], [12]) distinguish between lifetime periods (prolonged periods of time, e.g., when I was at school), general events or categoric (generic) memory (e.g., every arguement with my dad), and event specific memory (e.g., the time my dad threw a fit when I told him my grades). Event-specific memory differs from life-time period representations and general events in that it mainly consists of more specific sensory-perceptual aspects of events, often including visual imagery rather than abstract, conceptual representations of past experiences ([10]).

Findings from neuroimaging and neuropsychological investigations also provide support for a possible functional neuroanatomical distinction between episodic and semantic memory in AM (e.g., [13]; for reviews, see [14], [3]). For instance, individuals affected by amnestic mild cognitive impairment ([15]), and patients with unilateral temporal lobe damage ([16]) show reduced recall of specific episodic information for personal events, whereas recall of general facts about the autobiographical events is intact.

The predisposition to retrieve more or less specific autobiographical memories has been found to systematically vary as a function of a number of individual and group characteristics. For example, a tendency to describe comparatively more general or "over-general" memories has been observed in individuals with emotional disorders ([10]), such as major depression (e.g., [17]–[18]) and suicidal patients (e.g., [19]), and in individuals with schizophrenia (e.g., [20]). A tendency toward more general AM has also been observed in healthy adults as a function of age, with older adults tending to show more general AM than younger adults ([21]–[22]). Additionally, a recent study demonstrated that the specificity of remote AM during unprompted or unsupported recall can be diminished following a gist- or categorically-based retrieval orientation manipulation; healthy adults recalled more specific autobiographical memories after providing detailed characterizations of unrelated photographs than after describing photographs at a broad categorical level ([23]; see also [24]).

The existence of differences between men and women in a variety of cognitive domains has been well documented (e.g., [25]–[26]). A common finding in previous studies is that women perform better than men on episodic memory tasks that require verbal processing, whereas men outperfom women on visuospatial processing ([27]–[28]). Thus studies have found a small but significant advantage for women on general episodic memory ([27]; for a review, see [29]). This seems to be also the case for semantic memory tasks that involve remembering items that are verbal in nature, with women performing at a higher level than men in semantic fluency and knowledge tasks (e.g., [30]–[31]; but see [32], for not significant gender differences using similar semantic tasks).

Episodic and semantic memory systems form the

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declarative memory system, and there is evidence for equivalence in the underlying organization and structure of declarative memory for men and women across much of the adult lifepan ([31]). Moreover, gender differences in cognitive performance are neither minimized nor increased over time, as indicated by findings from longitudinal studies where differences between men and women were stable over a 10-year period ([30]).

Gender differences are well supported in the autobiographical memory literature. Compared to men, women´s recall is more accurate ([33]–[34]) and, when not specifically prompted, their narratives are longer than men´s ([35]). Women have also been shown to date events in their lives more accurately ([36]). More importantly, there are significant gender related differences in autobiographical recollection specificity, with a comparatively increased tendency toward more general AM in men than in women (e.g., [37]–[39]; for a review on gender differences in AM, see [40]).

Although there is previous evidence for an episodic memory advantage for females for objects and pictures (e.g., [27]), this has been somewhat less frequently examined, compared with other sorts of stimuli, such as words or text or faces. In the flexible remembering task we employed here, participants are first shown pictures of common objects under incidental encoding conditions, and then required to flexibly and adaptively move between making conceptually-based versus more detailed item-specific recognition decisions, in response to changing task instructions. Gender related differences in the flexible remembering task have not been examined before, but the findings considered above lead us to expect that men might be less able than women to inhibit semantic or conceptual information on this measure of recent episodic memory.

In this study we did expect significant differences between men and women in AM specificity, with men tending to retrieve comparatively more general autobiographical events than women. Moreover, we hypothesized that the tendency to describe more versus less specific experiences from AM would be associated with individual differences in the flexible remembering task, specially on measures involving aspects of semantic/conceptual processing. Thus the main aim of this study was to examine the relation between AM retrieval specificity and the performance of men versus women on the flexible remembering task.

II. METHOD

Participants

The investigation described here was a part of a more extended research project. Participants were 36 younger adults recruited through posted flyers at the University of Minnesota and 36 older adults recruited, through e-mail and posted notices, from a Retirees Volunteer Center and Lifelong Learning Institute. All participants reported being native speakers of English and having normal or corrected-to-normal vision, color vision, and hearing, and were compensated $10/hr for taking part in the study.

As can be seen from Table 1, on average, men (N = 17) had approximately one more year of formal education than did women (N = 55), [$t(70) = -2.09$]. Men also tended to be older, although this difference was not significant [$t(70) = -.98$]. Men and women achieved very similar scores on the WAIS-R ([41]) Vocabulary Test [$t(70) = -.12$]. Both men and women rated their subjective state of health as close to excellent: On a 7-point scale ranging from 1 (very poor) to 7 (excellent), men, mean = 6.29 (*SD* = .59), women, mean = 6.32 (*SD* = .73).

TABLE I
DEMOGRAPHIC CHARACTERISTICS AND VOCABULARY SCORE (FROM WAIS-III) OF MEN AND WOMEN

	Men		Women	
	M	*SD*	*M*	*SD*
Age	52.63	25.38	44.50	24.58
Years of education	16.49	2.29	15.45	1.84
Vocabulary score	51.18	5.79	50.98	6.21

All participants were screened for depression and anxiety using the Brief Symptom Inventory (BSI; [42]), and for several medical conditions that could affect their cognitive performance: open heart or bypass surgery, uncontrolled high blood pressure, Parkinson's or nervous system disease, stroke or Transient Ischemic Attack, loss of consciousness lasting more than 5 minutes, diabetes, mental or emotional problems for which they were admitted to the hospital, and alcohol or drug abuse. Any participant reporting one or more of these conditions and/or obtaining a score of 11 or higher on the depression-related and/or anxiety-related items in the BSI was excluded. In addition, the Mini-Mental State Exam ([43]) was used as a screening for cognitive state of older adults, and only individuals who scored 27/30 or higher were included (*M* = 29.17, *SD* = 1.09)[1].

Materials

Autobiographical Interview (developed from [21]). Participants were asked to choose a specific event from each one of three different life periods: the last ten years (but not the last year), the last year (but not last week), and the last week (but not the day before). *Specific* was defined as a memory of an event that happened at a particular time and place and lasted no longer than 1 day. When needed, a list of some typical events (e.g., seeing someone famous in-person) was administered to help with memory retrieval. The Appendix provides the written instructions that were administered.

Retrieval support was manipulated by successively increasing structure in three conditions: recall, general probe, and specific probe ([21]). In the recall condition, participants simply spoke about the event, recalling it freely and without any interruption from the examiner. Participants continued remembering the event until it was evident that they had reached a natural ending point. When necessary (e.g., when the participant was not recalling a specific event or the recollection was extremely brief), a general probe was used to

clarify instructions regarding the specificity needed or to encourage greater recall of details (e.g., "Is that everything you can remember about it?"). Data from the recall phase and the general probe were combined.

Specific probing was administered after all three events were described under the recall and general probe conditions. That is, after the three events had been recalled, the examiner returned to the first event and administered specific probing for each event. This procedure, in which the specific probing was postponed until after all three events had been recalled, prevented the specific probe questions for the earlier recalled events from contaminating the participant's recall of subsequent memories. Specific probes consisted of a structured interview (adapted from [21]). The questions were organized into five separate categories: time (year, month/season, date, day, and time of day), time integration (incidents occurring before and after the critical event, and duration of the event), place (country, state/province, city, street, address, building, room within building, and location within room), event (happenings, weather, other people and their behavior, clothing), other sensory information (visual images, objects, colors, tastes, smells, sounds, physical sensations/ temperature, and body position), and emotions/thoughts (expression of emotions, feelings and thoughts/implications at the time of the event). Each item was addressed with a standardized question, with appropriate modifications made according to the particular event concerned. Examiners were trained to elicit as much information as possible.

Flexible Remembering Task ([44]). The stimuli were colored photographs or detailed line drawings of common objects and animals. There were a total of 240 object-exemplar pairs (plus practice items); 120 items (1 each from 120 pairs) were presented at study. The test consisted of 360 items, including 120 items from each of three item types: previously presented items (same exemplars), categorically related items (different exemplars), and entirely new (unrelated) items. Items of each type and the type of recognition-test instruction (item-specific or category-based) occurred in pseudorandom order, with equivalent numbers of each item and test type within each sixth of the test. For any one participant, the type of test instruction was held constant for a given exemplar pair (e.g., whistle-1 and whistle-2 would both be tested either using item-specific or category-based probes). The items presented at study versus at test, and the type of test instruction to which they were assigned, were counterbalanced across participants, and any given item was tested only once per participant. Brief breaks were given after each third of the test. Stimuli were presented on a personal computer with a color monitor.

Procedure

Participants were tested individually in a 90 min session (rest breaks were given when needed), and gave their written consent to participate in the experiment. Participants selected their own preferred times to be tested. As mentioned earlier, the investigation described here was a part of a more extended research project, but only measures analyzed in this investigation will be described in detail below.

The flexible remembering task was presented in two separate phases. First, in the encoding phase, participants performed a size-judgment task, in which they indicated whether the real-world referent of the object shown was larger than a 1-foot square box (an example box was provided). The items were presented for 2 sec. This incidental encoding task was followed by a brief filler task not involving pictures. Second, for the episodic recognition test, participants were informed about the two types of recognition decisions that they would be asked to make, and were told that the type of decision required would be indicated by an instruction cue stating either "Identical" or "Conceptual," presented immediately before, and concurrently with, the presentation of each item. Examples of identical and conceptually related items were provided. The recognition test was self-paced. All responses were indicated using designated keys on the computer keyboard. Then, all the participants were interviewed by one of two trained researchers (both females) with the Autobiographical Interview.

III. Results

Gender-related differences in Autobiographical Memory

In the following sections, "internal details" refers to the recall or recollection of specific autobiographical information whereas "external details" refers to the production of general (non-event specific) information. Additionally, memory 1 refers to the recall of an event from the last ten years (excluding last year), memory 2 is an event from the last year (excluding last week), and memory 3 is an event from the last week (excluding the day before). For the analyses involving the AM interview, the scores of one woman were excluded because of extreme values.

Across all three memories, the correlation between internal and external details was positive, $r(69) = .29$, $p = .016$; considering each memory separately, the internal-with-external detail correlations for memory 1, 2, and 3, respectively were .27 ($p = .024$), .10 ($p = .37$), and .09 ($p = .47$).

Participants recalled on average (across periods) 30.88 details ($SD = 7.84$). There were no differences between men ($M = 30.43$; $SD = 7.45$) and women ($M = 32.38$; $SD = 9.17$) across memories in the total number of details recalled. However, both the effect of Type of Detail, $F(1, 69) = 659.26$, $p < .0001$, $\eta_p^2 = .91$, and of Memory, $F(2, 138) = 17.60$, $p < .0001$, $\eta_p^2 = .20$, were significant. Participants recalled more internal ($M = 47.37$; $SD = 1.29$) than external details ($M = 14.39$; $SD = 0.96$), and more information from memory 1 ($M = 34.27$; $SD = 1.29$) than from memory 2 ($M = 31.70$; $SD = 1.30$), and from memory 2 than from memory 3 ($M = 26.67$; $SD = 0.98$). Differences were statistically significant between memory 1 and 3, $t(70) = 6.63$, $p > .001$, and between memory 2 and 3, $t(70) = 3.60$, $p > .001$, but not between memory 1 and 2, $t(70) = 1.94$.

Although the main effects of Gender, $F < 1$, and of the interaction between Gender and Type of Detail, $F(1, 69) = 2.81$, $p = .098$, $\eta_p^2 = .39$ were not significant, gender-related

differences in AM specificity were in the predicted direction. It was observed that men on average recalled significantly more external details than did women [18.08 vs. 13.35, t (69) = -2.07], with no differences in internal details [46.67 vs. 47.52, t (69) = .27] (see Figure 1). The interaction between Memory and Type of Detail was not significant, $F < 1$. Finally, the interaction between Gender, Memory, and Type of Detail was not significant, $F < 1$.

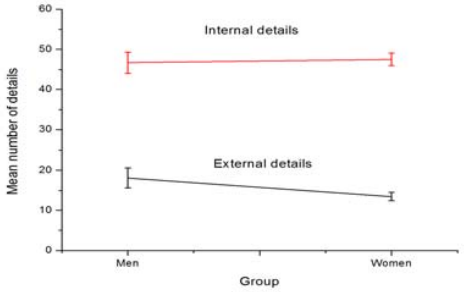

Fig. 1 Mean number of internal and external details in men and women. Error bars show standard errors of the mean.

Effects of the Retrieval Support manipulation were significant, $F(1, 69) = 26.06$, $p < .0001$, $\eta_p^2 = .27$, with participants recalling more details under specific probe than under free recall instructions (17.94 vs. 13.46), both in men (18.52 vs. 13.85) and women (17.37 vs. 13.06) (see Table 2). The Gender x Retrieval Support interaction was not significant, $F < 1$. Retrieval Support significantly interacted with Type of Detail, $F(1, 69) = 146.23$, $p < .0001$, $\eta_p^2 = .68$, and revealed that under specific probes participants recalled more internal information [29.33 vs. 17.71; t (70) = -9.54], and less external information [6.57 vs. 9.21; t (70) = 3.06] than in the free recall condition. The Retrieval Support x Type of Detail x Memory interaction was not significant, $F < 1$.

To recapitulate, across memories, although there were no gender differences in the total number of details recalled, on average men produced significantly more external details than did women, with no differences in the amount of internal details. Requesting specific details did not produce any change in general (across memories) between men and women. However, additional prompting eliminated the tendency for men adults to generate more non specific details.

TABLE II
MEAN INTERNAL AND EXTERNAL DETAILS IN FREE RECALL AND SPECIFIC PROBE ACROSS ALL MEMORIES, AND FOR MEMORY 1, 2 AND 3 SEPARATELY, IN MEN AND WOMEN (SDS IN PARENTHESES)

	Internal details	
	Men	Women
Across Memories		
Free Recall	17.46 (5.58)	17.95 (6.27)
Specific Probe	29.21 (8.01)	29.45 (9.22)
Total	46.67 (10.53)	47.52 (11.47)
Memory 1	50.94 (14.70)	50.41 (14.65)
Free Recall	17.94 (9.02)	19.98 (9.25)
Specific Probe	33 (10.22)	30.43 (11.65)
Memory 2	46.44 (13.93)	49.22 (17.26)
Free Recall	17.06 (7.46)	17.63 (8.32)
Specific Probe	29.38 (11.58)	31.59 (13.28)
Memory 3	42.63 (13.65)	44.83 (14.49)
Free Recall	17.38 (11.03)	16.24 (8.02)
Specific Probe	25.25 (8.65)	26.33 (10.68)
	External details	
	Men	Women
Across Memories		
Free Recall	10.25 (7.16)	8.17 (6.46)
Specific Probe	7.83 (5.12)	5.30 (3.73)
Total	18.08 (9.93)	13.73 (7.47)
Memory 1	21.94 (15.11)	16.70 (11.73)
Free Recall	12.50 (9.46)	10.69 (11.22)
Specific Probe	9.44 (9.51)	6.02 (5.65)
Memory 2	19.50 (13.48)	13.41 (12.44)
Free Recall	10.94 (80.41)	8.20 (10.76)
Specific Probe	8.56 (9.40)	5.20 (5.79)
Memory 3	12.81 (9.30)	10.28 (6.92)
Free Recall	7.31 (7.16)	5.61 (5.49)
Specific Probe	5.50 (4.58)	4.67 (3.89)

Gender-related differences in the Flexible Remembering task

Men and women were equally accurate in the size-judgment encoding task ($M_{men} = .91$, $SD_{men} = .03$; $M_{women} = .91$, $SD_{women} = .04$). On the recognition test, there were not gender-related differences in the ability to retrieve verbatim information regarding the studied items to enable rejection of categorically related objects (Brainerd & Reyna, 2002), as shown by similar recollection rejection (V) in men ($M = .43$, $SD = .20$) and in women ($M = .48$, $SD = .19$), $F < 1$. The estimated probability that distractors would elicit retrieval of gist traces (G) was higher in men ($M = .90$, $SD = 1.23$) than in women ($M = .48$, $SD = .70$), $F(1, 69) = 4.06$, but this difference was only marginally significant ($p = .082$). Note that scores for one woman were treated as an outlier and were not included in any of the analyses involving V or G in the flexible remembering task.

To compute analyses for measures of sensitivity (A') and corresponding measures of response bias ($B_{D''}$) Signal Detection Theory was used (see [45], for details.) Table 3 provides hits, false alarms, measures of sensitivity and response criteria, separately for men and women and for the two types of test instructions.

TABLE III
MEAN PROPORTIONS OF HITS AND FALSE ALARMS, AND MEAN SCORES OF SENSITIVITY AND RESPONSE CRITERIA, IN THE FLEXIBLE REMEMBERING TASK (SDS IN PARENTHESES)

	Identical		Conceptual	
	Men	Women	Men	Women
Hits-Same[a]	.70 (.12)	.70 (.13)	.88 (.13)	.89 (.08)
Hits-Diff [b]	-	-	.84 (.10)	.84 (.09)

FA-Diff [c]	.25 (.11)	.19 (.11)	-	-
FA-New [d]	.05 (.05)	.05 (.06)	.22 (.16)	.23 (.15)
$A'_{\text{-fine}}$	.78 (.11)	.82 (.07)	.56 (.08)	.58 (.06)
$B''_{D\text{-}fine}$	.09 (.25)	.25 (.34)	-.78 (.27)	-.82 (.15)
$A'_{\text{-gist}}$	.72 (.06)	.66 (.09)	.88 (.05)	.87 (.06)
$B''_{D\text{-}gist}$	.91 (.10)	.87 (.13)	-.11 (.46)	-.14 (.44)

Note: [a] designating "whistle-1" as old when "whistle-1" was studied; [b] designating both "whistle-1" and "whistle-2" as old when any whistle was studied; [c] designating "whistle-2" as old when actually "whistle-1" was studied; [d] designating as old an umbrella when no umbrellas were studied. $A'_{\text{-fine}}$ and $B''_{D\text{-}fine}$ compare "old" responses to same vs. different exemplars, and $A'_{\text{-gist}}$ and $B''_{D\text{-}gist}$ compare "old" responses to different vs. new exemplars.

Hits. There were not significant differences between men and women in the proportion of hits either for the identical or for the conceptual test-probes, *F*s < 1. Thus there were no gender-related differences in correct category-based recognition nor for item-specific recognition for studied (same) items.

False alarms. False alarms were assessed for different exemplars on the identical test-instruction trials, and for unrelated items for both identical and conceptual test-instruction trials. We found that false alarms to different exemplars on identical test-instruction trials were more frequent in men compared to women, suggesting impairments in item-specific differentiation and greater reliance on gist-based information in men [$F(1, 68) = 3.39$ for the effect of gender]. However, this difference was only marginally significant ($p = .07$).

A′ scores. There were no gender-related differences in gist sensitivity on conceptual-test probes, suggesting that men were as accurate as women in conditions where gist-information should be used (i.e., to designate as old both same and different exemplars, and calling new only the unrelated items). Under identical retrieval instructions, no significant differences were found when discriminating between same and different items, $F(1, 68) = 2.58$. However, men were more sensitive than were women to gist-information, $F(1, 68) = 5.54$. Thus men were less accurate than women when sensitivity to gist-information was detrimental to performance (because the task required the inhibition of the tendency to respond on the basis of gist information if the current instructional cue involved item-specific recognition decisions.)

B''_D scores. Participants adopted much stricter criteria under identical- than conceptual-test instructions, both in differentiating same and different exemplars (.20 vs. -.81), $F(1, 68) = 674.08$, and in discriminating different from unrelated items (.88 vs. -.13), $F(1, 68) = 435.62$. There were no differences between men and women in the response criteria adopted when discriminating between different and unrelated exemplars either under the conceptual- or the identical-test probes, *F*s < 1. However, women were more conservative than were men adults on the identical-test probes when discriminating between same and different exemplars, $F(1, 68) = 3.24$, $p = .07$, indicating that men adults were numerically (but only modestly) more liberal under conditions where gist should not be used.

Correlations between autobiographical memory and measures from the flexible remembering task.

Correlations between the AM scores and the flexible remembering measures were analyzed. In particular, we examined the correlation of the internal score and the external score across all memories with three different measures from the flexible remembering task under identical (item-specific) retrieval instructions: A'-Fine (sensitivity to the differentiation between same and different exemplars), A'-Gist (sensitivity to the differentiation between different exemplars and novel unrelated items), and false alarms to different exemplars. We found that internal scores across memories correlated negatively with A'-Gist, $r(70) = -.25$. That is, the greater the A'-Gist on the item-specific probes (reflecting inappropriate sensitivity to gist compared to unrelated items, when gist or category information should not be used), the lower the ability to retrieve specific autobiographical information, and vice versa.

IV. DISCUSSION

Autobiographical memories act to reinforce a sense of self-concept (e.g., [46]), have a social function (including eliciting and showing empathy; [47]–[48]), and also serve a directive function for a wide range of behaviors ([49]). Past research has emphasized the functional significance of remembering and recounting specific life episodes. In fact, open-ended social problems exist for which general scripts (provided by semantic memory) are not available, and for which specific information reflecting past experiences may be more useful in guiding behaviour (e.g., [50]–[51]). For example, specific AMs contribute to successful social problem-solving in older and younger adults [50] .

Despite growing evidence that there are gender related differences in not only emotional (e.g., [52]–[53]) and episodic memory (for a review, see [29]), but also in the level of specificity in AM (e.g., [37]–[39]; for a review, see [40]), to date little attention has been paid to possible associations between retrieval specificity in AM and the performance of men and women in other cognitive domains. To begin to address this gap, the present research investigated the relation between AM retrieval specificity during an autobiographical recall interview and the performance of men and women on a flexible remembering task, a measure that required adaptive modulation of reliance on item-specific versus conceptual or gist-based information in relation to recent episodic memory.

First, in the AM interview, men retrieved more external (non-specific) information than did women, whereas no differences were found in the amount of internal (specific) details. Thus, previous findings showing a female advantage in autobiographical retrieval specificity (e.g., [37]–[39], [54]) were replicated in the current study. Additionally, men and

women recalled the same overall amount of information when recalling experiences from their personal past (but see [35]).

Second, on the flexible remembering task, men showed higher sensitivity to gist-information than women under identical retrieval instructions. Thus, men were more responsive to gist-information when sensitivity to gist-information was not appropriate. The flexible remembering task required the inhibition of the tendency to respond on the basis of gist information if the current instructional cue involved item-specific recognition decisions, thus this greater sensitivity to category or conceptual information observed in men was not beneficial under the identical recognition condition. A parallel finding was shown in the analyses of *G* where, compared with women, men similarly showed an increased estimated probability that distractors would elicit retrieval of gist traces. These results may be especially informative because superior verbal abilities in women should not necessarily help them in the item-specific memory probe condition, which is where the gender difference emerges. This suggests that women's enhanced episodic memory may not derive from increased reliance on their greater verbal capacities during encoding (see [55]). In addition, these findings are consistent with previous studies reporting evidence for an episodic memory advantage for females for objects and pictures (e.g., [27]), stimuli that have been somewhat less frequently examined, compared with words or faces.

Finally, and more importantly, we observed that, for both gender-groups, the specificity of autobiographical retrieval (i.e., the predisposition to produce internal details) was associated with individual differences in the flexible remembering task. In particular, the higher the level of inappropriate sensitivity to gist when this category information should not be used, the lower the ability to retrieve specific autobiographical information, and vice versa. In other words, the level of inappropriate sensitivity to gist-based information on the flexible remembering task predicted the tendency to generate external semantic (non specific) details on the AM task, that is, to describe general knowledge or facts, ongoing events, and extended states of being (cf. [21]). These results suggest that, across gender groups, similar cognitive processes may partially contribute to both the ability for specific autobiographical recall and inhibition of gist-information on the flexible remembering task. In this investigation, due to the fact that data collected for other research questions were used, the sample was not balanced regarding participants´ gender. In addition, future work will seek to examine more fully possible gender related differences in episodic memory using a wider array of visual materials--including visual materials without pre-existing semantic information or names--and to further examine the relation between specificity across recent episodic memory and autobiographical memory recall.

Appendix

Instructions for the Autobiographical Memory task

I am going to ask you to tell me about an event from each of these time periods of your life: last ten years (anytime but the last year), last year (anytime but the last week), and last week (anytime but yesterday). You can choose any events you wish. I will ask you to describe the events, and then I will ask you some questions about them. The event must be one that you were personally involved in, and you must have a recollection of being personally involved. Do not pick events that you heard about from others. They must be events from a specific time and place. For example, describing a three-week vacation would not be sufficient. However, a specific incident that happened in one day during your vacation would be good. I want you to provide as much detail as you can about the event. Our interest is not so much in which events you choose, but rather how you describe them. So do not feel pressured to pick any particular event. I want you to know that I will be asking you to give some details for these events later, so be sure to only choose events that you feel comfortable discussing in detail. To help with scoring, I will be audio-taping your responses. Otherwise, your responses will be kept completely confidential and your tape will be assigned a participant number and stored in a secure place.

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NOTES

[1] Two men and three women were excluded because they did not meet one or more of the screening criteria. Another two men and three women completed only the first of the three experimental sessions and thus were replaced.