



Reaping what they sow: Benefits of remembering together in intimate couples



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ABSTRACT

Recent research suggests that remembering with a long-term partner may scaffold successful memory. To test whether collaboration reduces the episodic deficit shown by older adults, we created a social version of Addis, Musicaro, Pan, and Schacter's (2010) episodic memory paradigm. As predicted, in Experiment 1 20 long-married, older adult couples generated more "internal" – on topic, episodic – details when they remembered together versus alone, but the same amount of "external" – off-topic, semantic – details. In Experiment 2 this memory benefit did not extend to 20 young adult couples who generated high levels of internal details together or alone. Notably, however, young adults' self-reported relationship intimacy was related to their episodic recall across conditions. We discuss these findings in terms of possible benefits of collaboration in the face of ageing and cognitive decline as well as the development over time of "transactive memory systems" in intimate relationships.

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Remembering with others may have a range of costs and benefits. Although the costs of social memory have been well documented (for review, Harris, Paterson, & Kemp, 2008; Rajaram, 2011), attention has turned increasingly to potential benefits of collaborative remembering (Barnier, Sutton, Harris, & Wilson, 2008; Harris, Keil, Sutton, Barnier, & McIlwain, 2011). In fact, philosophers have argued that we can actively distribute cognition or "mix our minds" with external objects and people to "scaffold" our individual memories (Chalmers, 2008; Clark, 2008; Sutton, 2008). In cognitive psychology, Wegner (1987) made a similar case, arguing for the existence of "transactive memory systems". He proposed that individuals in long-term groups develop ways to share encoding, storage, and retrieval of information such that the group recalls more than the sum of individuals alone.

Consistent with the benefits predicted by transactive memory theory, Harris et al. (2011) found evidence for "social scaffolding" of memory (Sutton, 2008; Sutton, Harris, Keil, & Barnier, 2010) in a collaborative recall study of long-married, older adult couples. Some couples remembered far better with their spouse, co-constructing rich autobiographical memories and overturning the usual finding of 'collaborative inhibition' for list recall (Basden, Basden, Bryner,

& Thomas, 1997; Harris, Paterson, & Kemp, 2008; Rajaram, 2011; Rajaram & Pereira-Pasarin, 2010; see also Harris, Barnier, & Sutton, 2012, 2013). Thus, remembering with others might promote successful remembering, and might be especially valuable as we age (Barnier, 2010; Harris, Barnier, & Sutton, 2014). Indeed, collaborative recall has been proposed as a potential intervention to support memory abilities of older adults in care facilities (Blumen, Rajaram, & Henkel, 2013; see also Barnier, Harris, & Congleton, 2013).

To test potential benefits of collaboration for older adults, we adapted Addis, Musicaro, Pan, and Schacter's (2010) episodic recombination paradigm. This task indexes one aspect of age related memory decline: the ability to recall detailed autobiographical memories, which some older adults find increasingly difficult (Zacks & Hasher, 2006). In the first part of their experiment, Addis et al. (2010) asked older and young adults to generate specific autobiographical events from the past five years and to provide 'cues' for each one. During Session 2, one week later, Addis et al. (2010) re-presented the original cues and asked participants to recall the related past events in detail out loud for three minutes.¹

¹ Addis et al. (2010) also recombined participants' cues into novel combinations, and asked participants to imagine possible future events in response to these recombined cues. We did not adopt this aspect of the paradigm, and focused on recall of past events only.

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Addis et al. (2010) recorded, transcribed, and coded participants' memories using a detailed scheme adapted from Levine's Autobiographical Memory Interview (Levine, Svoboda, Hay, Winocur, & Moscovitch, 2002) to identify the amount of internal (or episodic) detail versus the amount of external (or semantic) detail in each narrative. Critically, older adults produced fewer episodic (internal) details for recalled and imagined events than young adults, but more semantic (external) details. Addis et al. (2010) argued that consistent with other work on memory and ageing (Craik & Salthouse, 2000; Zacks & Hasher, 2006), older adults showed an "episodic deficit" compared to young adults.

In our first experiment, we examined whether collaborating with a spouse or partner might reduce this episodic deficit for older adults. To do this, we adapted Addis et al.'s episodic memory paradigm for collaboration. In Session 1, we asked members of long-married, older adult couples to generate (individually) specific, autobiographical events they experienced with their partner in the last five years, and to provide cues for each one. One week later, in Session 2, we re-presented the original cues for some of their Session 1 memories and asked participants to recall each event in detail. In Session 2 half of the older couples recalled alone and half recalled together. We predicted that collaborating couples would generate more internal details than those who did not collaborate.

1. Experiment 1

1.1. Method

1.1.1. Participants

We tested 40 older adults (20 female, 20 male), aged 60–88 years ($M = 76.58$, $SD = 7.18$) who were members of 20 heterosexual couples married for 20–65 years ($M = 50.90$, $SD = 9.24$). We recruited them from local Sydney branches of Probus Australia (a social club for retired/semi-retired business or professional people). All were fluent in English and only one self-reported memory problems. We tested couples in their homes and paid them \$15 per person per session for their participation.

1.1.2. Materials and procedure

We tested couples in two one-hour sessions. In Session 1, we asked participants individually to retrieve memories of 10 specific events (i.e., specific in time and place and lasting no longer than one day) experienced with their spouse/partner in the last five years. If participants had difficulty recalling, we prompted them with Addis et al.'s (2010) list of memory cues (adapted for an Australian sample and likely to involve both spouses/partners). For each event we asked participants to briefly describe and date it, to provide three kinds of event 'cues' (i.e., the name of a person other than their spouse/partner; the location of the event; and an object featured in the event), and to give a title for the event. Finally, we asked participants to rate each event for vividness, emotionality, and personal significance on 5-point Likert scales (1 = *not at all detailed/emotional/personally significant*, 5 = *extremely detailed/emotional/personally significant*).

Using the event details generated during Session 1, we created individually tailored slide sets for Session 2, each containing seven event slides (one practice slide and six scored event slides). The first line of each event slide had the instruction "Recall a past event that involves:". The next three lines contained the person, place and object details from one of the 10 events elicited by participants in Session 1, followed by the title of the corresponding memory in parentheses to help them recognise which memory the details came from.

For couples who would recall alone in Session 2, we created separate slide sets for each participant (e.g., seven of the husband's

events for the husband, seven of the wife's events for the wife). For couples who would recall together in Session 2, we created combined slide sets for each couple (e.g., three of a husband's events combined with three of his wife's events plus a practice event from one partner, counterbalanced). For couples who recalled together, we alternated presentation of events from each spouse, and counterbalanced which spouse's event was presented first.

In Session 2, approximately one week after Session 1 (M days = 9.40, $SD = 5.44$), we presented the seven event slides and asked participants to recall in detail the associated events from Session 1. Critically, whereas 10 couples recalled individually in separate rooms, 10 recalled together in the same room and collaborated to remember as many details as possible. For those who recalled alone, for each event slide we first gave them one minute to think about the event and then gave them three minutes to describe the event in as much detail as possible. For those who recalled together, for each event slide we first gave them one minute to ensure they were both thinking of the same event and then gave them three minutes to collaborate to describe the event in as much detail as possible.

Finally, we asked all participants to individually complete the 21-item Depression Anxiety Stress Scale (DASS-21; Lovibond & Lovibond, 1995). For each subscale, participants rated how much each of seven statements applied to them over the past week (e.g., "I found it hard to wind down") using a 4-point severity/frequency scale (0 = *did not apply to me at all*, 3 = *applied to me very much or most of the time*). We created subscale scores by summing answers for the seven relevant items.

1.1.3. Transcribing, segmenting, coding and scoring memories

To calculate the number of internal and external details recalled for each event in Session 2, we followed Addis et al.'s (2010) scoring procedures (based on Levine et al., 2002). First, we transcribed audio recordings of Session 2 (individual or collaborative) word for word. Second, we segmented transcripts into discrete details (i.e., a unique occurrence, observation, or thought). Consistent with Addis et al. (2010), we only segmented and coded the first three minutes of each event (although some individuals/couples spoke longer). Third, for each scored event (six per participant for those who recalled alone and six per couple for those who recalled together), two trained coders (one not involved in testing) separately identified the central event of each memory. In cases where participants described more than one event or the event was vague, coders defined the central event by selecting one that occurred within a relatively short timeframe (i.e., a couple of hours). When there was more than one event that fit the criteria, coders selected the event with the most detail (by counting the number of segments) as the central event.

Fourth, the coders categorised each discrete detail as internal or external. Internal details included those directly related to the central event, specific in time and place, and reflecting episodic re-experiencing. They included five mutually exclusive categories of: (1) event (e.g., happenings or the unfolding of the story); (2) place (e.g., the location of the event); (3) time (e.g., when the event occurred); (4) perceptual (e.g., any sensory information); and (5) emotion/thought (e.g., participant's feelings and thoughts at the time of the event). External details included seven categories. From Addis et al. (2010) we included: (1) semantic detail (e.g., factual information or extended events that did not require recollection of a specific time and place and any detail not directly related to the central event); (2) repetitions (e.g., any repetitions of speech); and (3) other (e.g., thoughts about elicitation). We also created four new external categories to code processes of collaboration for those who remembered together (e.g., cross-cueing and prompting; based on Harris et al., 2011). These process variables included: (4) cues and probes (questions directed to one's partner to elicit

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