Collaborative Remembering: When Can Remembering With Others Be Beneficial?

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Abstract

Experimental memory research has traditionally focused on the individual, and viewed social influence as a source of error or inhibition. However, in everyday life, remembering is often a social activity, and theories from philosophy and psychology predict benefits of shared remembering. In a series of studies, both experimental and more qualitative, we attempted to bridge this gap by examining the effects of collaboration on memory in a variety of situations and in a variety of groups. We discuss our results in terms of a functional view of collaborative remembering, and consider when and in what ways remembering with others might help or hinder memory.

Keywords: memory; transactive memory; collaborative recall; cognitive psychology; couples

Cognitive experimental research has typically characterised social influences on memory as negative, as inherently disruptive or distorting. For instance, in the collaborative recall paradigm, the recall output of groups remembering jointly ("collaborative groups") is compared with the pooled non-redundant recall output of the same number of people remembering alone ("nominal groups"). Experiments in this tradition have reliably demonstrated that individuals remembering in a group remember less than they would have alone: collaborative groups recall less than nominal groups (*collaborative inhibition*; Weldon & Bellinger, 1997). This finding has been explained by the *retrieval strategy disruption hypothesis* (Basden, Basden, & Henry, 2001), where remembering with others disrupts each individual from using their own, optimal retrieval strategies during recall.

However, there is reason to think that collaborative inhibition might not be the whole story on collaborative recall. First, these findings contrast with theoretical work predicting benefits of shared remembering. For instance, Wegner (1987) suggested that groups develop *transactive memory systems*, consisting of the memory systems of individual in the group, and communication between them. Wegner (1995) suggested that such systems for sharing the encoding, storage and retrieval of information "develop and become capable of memory feats far beyond those that might be accomplished by any individual" (p. 1). Second, the body of research on collaborative recall does not capture the ways that remembering is shared in everyday life and often has limited ecological validity (see also Barnier, Sutton, Harris, & Wilson, 2008; Tollefsen, 2006). For example, most research has focused on groups of strangers remembering relatively simple stimuli. Shared remembering in these groups may be very different from the "cognitive interdependence" Wegner, Giuliano, and Hertel (1985) described for intimate couples.

We were interested in examining shared remembering for the kinds of groups and materials where benefits might be expected. To do this, we adopted the robust methodology of the collaborative recall paradigm, but we extended prior experimental work in three ways: (1) we focused on long-term married couples; (2) we conducted detailed, in-depth analysis on the way they remembered individually and collaboratively; and (3) we focused on a range of materials, from simple word lists to richer, autobiographical material. We were interested in both the processes and outcomes of collaborative recall in these couples.

We conducted in-depth interviews with 12 older couples, collecting both qualitative and quantitative data. Participants were aged between 63 and 90 years, and had been married for between 26 and 60 years. Participants were recruited through a local Probus or/Rotary club. We conducted the study over two sessions. In the first session, we conducted concurrent individual interviews with the interviewer's gender matched to the participant's. In the second session, two weeks later, both interviewers (male and female) conducted a joint, collaborative interview with the couple.

We conducted the same three tasks in both sessions: (1) a word list recall task, where participants recalled a list of 12 words (4 words from 3 categories); (2) an autobiographical list recall task, where participants recalled the names of all the members of their Probus or Rotary club; and (3) a semi-structured interview, where participants described in detail events from their shared and unshared past, and their remembering practices. We aimed to compare pooled individual performance ("nominal group recall") with joint, collaborative recall performance across these different tasks, to look for evidence of collaborative inhibition vs. facilitation on word list recall, autobiographical list recall, and on the qualitative autobiographical interview. We also aimed to identify particular aspects of each couple's interaction that might result in collaborative inhibition vs. facilitation.

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In the word list task, couples recalled an average of 9.50 words (SD = 1.08) as a nominal group and 8.92 words (SD = 2.11) as a collaborative group. There was no significant difference between these means, $t(11) = 0.81$, $p = .437$. However, individual couples showed different patterns of inhibition and facilitation. To account for these differences, we coded whether each couple used a coordinated strategy during collaborative recall. Strategies were idiosyncratic to each couple. Four couples used the categories to organise and cue each other's recall. One couple assigned the wife to recall the first half of the list and the husband to recall the second half. In 1 couple, where the man had a memory impairment, his wife waited on each occasion for him to recall until blocked before she recalled items. And in 1 couple, the man made actions for each item at encoding that were then reproduced to aid and cue his wife's recall during collaboration. Overall, 7 couples used a coordinated strategy and 5 did not. A 2 (strategy vs. no strategy) x (2) (recall occasion: nominal vs. collaborative) mixed models ANOVA on items recalled yielded only an interaction, $F(1,10) = 10.24$, $p = .01$, $\eta_p^2 = .51$. Follow up tests suggested that couples who used a strategy recalled more during collaborative recall than nominal recall ("collaborative facilitation"), $t(6) = 2.12$, $p = .08$, and couples who did not use a strategy recalled more during nominal than collaborative recall ("collaborative inhibition"), $t(4) = 2.22$, $p = .09$.

In the autobiographical list task, couples recalled an average of 26.90 club members (SD = 16.05) as a nominal group and 26.80 club members (SD = 12.83) as a collaborative group. There was no significant difference between these means, $t(9) = 0.04$, $p = .973$. However, individual couples showed different patterns of inhibition and facilitation. To account for these differences, we developed a coding system based on previous research. This process yielded 10 variables: (1) proportion of turns that were successful cuing attempts; (2) proportion of turns that were unsuccessful cuing attempts; (3) proportion of turns that included new, countable information in response to a cue; (4) proportion of turns that included new, non-countable information in response to a cue; (5) number of mentions of expertise; (6) number of strategy disagreements (7) proportion of turns that were repetitions; (8); proportion of turns that were acknowledgements; (9) number of corrections; (10) number of elaborations.

A Principal Components Analysis on these variables yielded a 3 factor solution. Factor 1 included strategy disagreements, the nomination of an expert, corrections, and (negatively) the proportion of failed cues ($\alpha = .72$). Factor 2 included the proportion of successful cues, new countable information and new uncountable information produced in response to cues, and repetitions ($\alpha = .74$). Factor 3 included acknowledgements and elaborations (α not applicable for 2 items only). Items loaded strongly on their respective factors. We conducted a linear regression, using the 3 factors to predict the difference between collaborative and nominal recall. This analysis indicated that the model that included all 3 factors significantly predicted the difference between collaborative and nominal recall: Factor 1, $\beta = -.49$, $t(9) = 3.69$, $p = .01$, Factor 2, $\beta = .70$, $t(9) = 5.27$, $p < .01$, and Factor 3, $\beta = -.39$, $t(9) = 2.93$, $p = .03$. This 3 factor model (compared to models excluding any factor) explained the most variance in recall scores, $R^2 = .839$, $F(3, 6) = 16.65$, $p < .01$.

We conceptualised Factor 1 – expert, strategy disagreements and corrections – as a "group diminishing" factor. The presence of these features of an interaction did not allow the group to collaborate in an interactive way or to cue each other effectively. Factor 1 had a negative relationship with recall output, so this group diminishing factor predicted worse collaborative recall performance. We conceptualised Factor 2 – cuing, new countable and uncountable information produced in response to cues, and repetitions – as a "group enhancing" factor. The presence of these features of an interaction indicated that the couple was interacting dynamically to perform the recall task and explicitly utilising each others' knowledge. Factor 2 had a positive relationship with recall output, so this group enhancing factor predicted better collaborative recall performance. We speculated that Factor 3 – acknowledgements and elaborations – might be a "gap filling" factor, indicating the utterances that did not contribute to the recall task at hand, and this factor predicted worse collaborative recall performance.

To illustrate the way that these interaction factors influenced the dynamic of collaborative recall – producing either facilitation or inhibition – we present now excerpts from the collaborative recall transcripts. Couple 1 adopted an interactive style, where they dynamically constructed the list of names and frequently switched speaker back-and-forth.

M: John Edwards, his wife Helen. Ah, we've got Paul and Judy Shea. We have Jack and ah..
F: June
M: June ah… [Yarrington, Fred and Zoe Simmons]
F: [Yarrington, Fred and Zoe Simmons]
M: Ah we have…
F: Jeffrey and Shirley [Faulkenmeier]
M: [Shirley Faulkenmeier]. Um, we have ah…
F: Tony
M: Tony
F: and Enid…Hill…
M: Hill…we have um…
F: OK, who is that fellow…oh, Peter and…Peter that was there the other day…
M: Oh, Peter um..
F: Judy! Peter and Judy.
M: Horsley.
F: Yeah.
M: There's Peter the pilot. Umm…
F: Peter and Mary. I don't know their surname.
M: He's a retired Qantas pilot.

F: And ok, that fellow whose son used to work with you…
M: Oh, ah, [Bruce]
F: [Bruce]
M: Curtis.
F: And I don't know his wife.

Couple 1 scored the highest on Factor 2, demonstrating successful cuing, production of new information, and frequent use of repetitions. They scored negatively on Factors 1 and 3. Couple 1 also demonstrated the strongest collaborative facilitation for this task.

Couple 12 adopted two distinct and conflicting strategies when completing this task. The man attempted to recall the names alphabetically, which suited him because he was accustomed to seeing the members list. His wife attempted to recall the names by picturing the faces of people in the room at the meetings. Here is an excerpt from their interaction:

F: The Lanes, the Alexanders.
M: Oh start again, Alexander, Daryl Alexander, Rosa Avalos.
F: Oh you're going to go alphabetically, oh dear. (laughing)
M: Carlo Bongagoni, Malcolm Bush.
F: I have to go around the room.
M: You're really going to help me aren't you? (laughing)
F: (laughing) Well you're lost, you're up to B, C.
M: C, is there any C's, Alison Clarke, yes, D's, John Darragh, E's, oh sorry, Frederick Bensalem, there's a B. Umm, John Darragh, umm, [what comes after D, E, F, F, G.]
F: [I have to see faces to put names to them.]
M: Peter Good, I missed him last time, Peter Good.
F: Peter Stephenson.
M: Well wait, just stay in the G's.

Couple 12 scored the highest on Factor 1, demonstrating uneven expertise and strong strategy disagreement. They scored negatively on Factor 2, indicating that they did not use cues to recall together. Couple 12 also demonstrated strong collaborative inhibition on this task.

In the autobiographical interviews, we identified many examples of the interaction variables that had predicted performance on the autobiographical list task. Studying occurrences of these variables in more naturalistic, conversational context provided particular insight into the dynamic way in which these interaction variables serve to enhance or diminish collaborative recall. Across the autobiographical interview, we could identify instances of cuing: for all couples there was at least one event that they collaborated to recall in a dynamic, interactive manner, where the memory was jointly constructed. Consider the following brief examples from Couple 11:

M: No, I asked her out that night, but she said she couldn't go.
F: No, that's right.
M: So then I started to pester her the next week.
F: You did, you turned up after my [classes.]
M: [Cooking classes.]
F: On Monday night.
M: That'd be it.
F: And took me for coffee.
M: Yes, the next Monday night.
F: And impressed me.
M: Yes.

Compare this collaborative recall to the way this same event was described in the individual interviews:

M: Ah, I used to turn up down her, she used to give, umm, what do you call it, teaching, she used to teach, umm, women in Manly how to cook. So she ran teaching classes. So I used to turn up there after, and take her out for coffee or something.

F: And then the next week he appeared at my work after the evening class had finished, taking me out for coffee, that was the beginning of the courtship.

This description of this event in the collaborative interview, compared to the individual interviews, was more specific, mentioning the day of the week, and emotionally richer and more detailed, including the descriptions of his "pestering", and of her being "impressed".

We also identified cases where this cross-cuing led the couple to remember details that both individuals explicitly stated they had forgotten. Consider the following exchange from Couple 8, who jointly discussed their honeymoon forty years before.

F: And we went to two shows, can you remember what they were called?
M: We did. One was a musical, or were they both? I don't… no…one…
F: John Hanson was in it.
M: Desert Song.
F: Desert Song, that's it, I couldn't remember what it was called, but yes, I knew John Hanson was in it.
M: Yes.

This is a particularly striking example of collaborative facilitation brought about by cross-cuing: through this interactive process, the couple as a group can recall information that both individuals had forgotten.

In summary, we studied shared remembering in established, long term married couples. Across three different tasks, we found some instances of collaborative inhibition and some instances of collaborative facilitation. Certain ways of interacting during collaborative remembering were associated with better recall

performance. Particularly, the use of shared strategies, interactive cuing styles, and repetition were associated with collaborative facilitation. Unevenly distributed expertise, strategy disagreements, and corrections were associated with collaborative inhibition, as were acknowledgements and recall of extraneous information. These results temper the robust findings of collaborative inhibition in previous literature (Basden et al., 2001; Harris, Paterson, & Kemp, 2008; Weldon & Bellinger, 1997). Collaborative inhibition is not an inevitable consequence of joint remembering. Rather, certain aspects of the interaction are associated with more successful collaboration (see also Meade, Nokes, & Morrow, 2009). However, even among our long-term married couples, collaborative inhibition was sometimes evident, indicating that prior relationship does not overcome collaborative inhibition on all tasks or in all couples. Our findings support the benefits of an efficient, shared remembering system and the use of group level rather than individual level strategies (see also Wegner, 1987), and provide insights into the broader functions of shared remembering in everyday life.

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