



Commentary

Mind the gap: Generations of questions in the early science of collaborative recall[☆]

Amanda J. Barnier*, Celia B. Harris, Adam R. Congleton

Australian Research Council Centre of Excellence in Cognition and its Disorders, Department of Cognitive Science, Macquarie University, Sydney, Australia

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At many stops on the London Underground you will read or hear the phrase “mind the gap”. It is an iconic expression that instantly reminds you of London. In early 2013, the widow of actor Oswald Laurence – who 40 years earlier recorded a “mind the gap” announcement that played throughout the capital for many years – approached staff of the London Underground to ask for a copy of his announcement. She said that following her husband’s death she would go to Embankment Station, where his message still played, to hear him again and to remember, at least until his version of the message was phased out (“Mind the Gap”, 2013). In our everyday lives, it is crucial that we keep remembering successfully and keep our memories alive, especially as we age. Memories serve not only to guide our day-to-day actions and plans for the future, but they teach us and teach others, tell us who we are and who we are not, and connect us to our most intimate remembering and life partners: our spouses, children, families, friends, neighbours, colleagues and others (Harris, Keil, Sutton, Barnier, & McIlwain, 2011; Williams, Conway, & Cohen, 2008).

In their article, “The Applied Value of Collaborative Memory Research in Aging: Behavioral and Neural Considerations”, Blumen, Rajaram, and Henkel (2013) remind us that our ability to recall past events and important information declines as we age. Older adults find this characteristic feature of cognitive aging of great concern and even a source of distress. They argue that the methods and findings of collaborative recall research – especially potential benefits of remembering with others – could be used to develop “successful interventions to compensate for age-related memory decline” (p. 4). They first explain the standard, and very robust,

costs of remembering in a group as measured by the collaborative recall paradigm (for review, see Harris, Paterson, & Kemp, 2008; Rajaram & Pereira-Pasarin, 2010). Next, they describe some productivity and accuracy benefits of remembering with others, which emerge following collaboration and perhaps are due to re-exposure and/or cross-cuing. They highlight that people generally believe that collaboration is helpful and often prefer to remember with others than alone. Blumen et al. sum up the state of play when they write: “initial findings are promising for the development of cognitive interventions that involve collaboration to improve memory in aging” even though “benefits of collaborative recall on later individual recall remain relatively unexplored in older adults” (p. 14). Finally, Blumen et al. propose a research agenda to bridge the gap between current research and viable treatment. They recommend research with more ecologically valid versions of the collaborative recall paradigm, collaborative recall with older adults living in retirement or nursing homes as well as older adults diagnosed with Mild Cognitive Impairment, and neuroimaging collaborative recall.

1. Mind the gap: Generations of questions

We absolutely agree that there is strong potential for the science of collaborative recall to address issues of memory and aging. We too have pursued the compensatory benefits of “social scaffolding” in memory and wondered about its broader protective benefits (e.g., Barnier, 2010; Barnier, Sutton, Harris, & Wilson, 2008; Harris et al., 2011; Sutton, Harris, Keil, & Barnier, 2010). But we question whether our field is yet in a position to genuinely bridge the gap between the laboratory and the nursing home; between the typically young, healthy, and unacquainted participants of standard collaborative recall experiments and the much older, often cognitively compromised, yet experience-rich men and women living in “applied” settings.

In a different literature, Woody and McConkey (2003; see also McConkey, 2008) distinguished between first, second, and third generations of research questions, and argued that “as a field of

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* Corresponding author. Tel.: +61 298504861.

E-mail address: amanda.barnier@mq.edu.au (A.J. Barnier).

inquiry matures, the nature of the cutting-edge questions in it changes, with the new questions embedding and reframing the older generation of questions” (p. 310). A field should move beyond its first generation questions, and Blumen et al. (2013) sketch a useful roadmap for this pursuit. However, we need to be sure that we have full answers to all our early generation questions, on which later questions and translation to treatment will depend (Strauman & Merrill, 2004). Research on collaborative recall, and the broader field of social memory, is relatively young within cognitive experimental psychology. We might date it, for instance, to Weldon and Bellinger’s (1997) and Basden, Basden, Bryner, and Thomas’ (1997) influential experiments, or to Wegner’s (1987) transformative theory of transactive memory. Citation analyses, however, suggest that uptake up of this work only accelerated from the mid-2000s and beyond. So the science of collaborative recall is young compared to other subfields of memory and cognitive psychology.

If our first generation question is “what happens when people remember in groups and why”, then as Blumen et al. (2013) amply show, we have a pretty clear answer. Nevertheless, the “remembering cases” accounted for so far in our science are quite narrow (Barnier et al., 2008). Whereas the majority of experiments involve young students in experimenter-created groups remembering relatively simple material, in everyday life, young or old, we remember with many different people, under many different circumstances, and for many different reasons. As Blumen et al. note, we need a great deal more ecologically valid, basic research, which manipulates and measures the nature of the memory tasks, types of remembering groups, interactions within those groups, and the goals of the groups (see also Barnier, 2012; Barnier et al., 2008; Harris, Barnier, & Sutton, 2012, 2013; Harris et al., 2011; Sutton et al., 2010).

Moving beyond first generation questions, a second generation question might be: “having found such robust collaborative inhibition when groups remember together, can we ever find collaborative facilitation?” That is, under what circumstances do collaborating groups do as well as or even better than nominal groups? There are only a handful of relevant published results here. Meade, Nokes, and Morrow (2009) found that groups of expert pilots recalled aviation-themed scenarios better when they collaborated than when alone. Novice pilots and undergraduate students showed the standard collaborative inhibition effect. Similarly, Harris et al. (2011) found that some long married, elderly couples remembered word lists, the names of members of their social club, and holidays they had taken since marriage much better when they collaborated with their spouse than when alone. These findings illustrate the value of more complete first generation research; that is, finding benefits of remembering together may be more likely “in the wild” than in controlled laboratory groups (Barnier, 2010; Barnier et al., 2008). But it is not easy research to do, which might explain why it is less common. For instance, it can be challenging to recruit large enough numbers of “real world” groups (e.g., couples, parents and their children, siblings, friends, work colleagues, and sports teammates; see Barnier et al., 2008). And it can be challenging to choose (and later code, score, and interpret) memory tasks that are relevant to participants, tap their shared history and knowledge, and motivate the use and success of joint collaborative strategies by members of the group.

These second generation questions and findings, even if incomplete, point to a slew of third generation questions. As noted above, Harris et al. (2011) found that some long married, very elderly couples showed collaborative facilitation. But not all couples. And not even the same couples across all memory tasks. Strong individual differences as well as strong task differences were at work. Blumen et al. (2013) miss this crucial point when they argue that the “presence of collaborative facilitation and the absence of collaborative inhibition in this study could be due to the fact

that older adults were tested in their home” (p. 18). Testing in a familiar setting no doubt helped these couples, and is consistent with a broader, “extended,” or “distributed” view of remembering (Barnier, 2010; Barnier et al., 2008; Michaelian & Sutton, 2013; Sutton et al., 2010), but it was what these couples did during collaboration that explained their memory success. Harris et al. recorded, then transcribed, carefully coded, and factor analysed elements of the collaboration; an integration of quantitative and qualitative methods that is relatively unusual in this field but demanded by its complex questions (for a similar approach, see Meade et al., 2009). They found that 84% of the variance in the amount of information couples recalled was explained by how they recalled together: how much they cued one another, reinforced one another, and avoided undermining and disagreeing with one another. Importantly, some couples were much better at this than others. Such variation within group data normally would be considered “noise”, but here it reflected subtle influences and processes of intimacy, sensitivity, and decades of shared history (Harris et al.). Some people, some groups, under some conditions are more successful collaborators. These findings suggest that in later generation work we need to build on the extremely robust and valuable, but arguably blunt, instrument of standard collaborative recall experiments to enrich our picture of the processes and consequences of collaboration in everyday life. This work remains almost entirely to be done but is crucial if we are to capture and harness in treatment the elements of successful collaboration.

2. Bridging the gap to treatment: “A mindful enterprise of translational research”

Blumen et al. (2013) argue strongly that the natural, social activity of remembering with others, if guided by new, targeted research, can be translated into collaborative interventions for age-related memory decline. In principle, we agree. But what exactly should a collaborative memory treatment look like? To answer this – to bridge the gap from basic science to effective treatment – we need complete answers to all three generations of research questions. These answers will inform the pragmatics of the translation process. Who will be trained or treated? What will the memory tasks be? What will count as success? These answers also will inform fundamental issues for successful translation: What are the active ingredients of the treatment? Exactly when, how, for whom, and why, will they work?

To focus on just one of these issues, there is still a wide gap between what researchers count as success in a collaborative recall experiment (e.g., number of words accurately recalled by groups or individuals) and what older adults might count both as memory success and as helpful to their remembering in everyday life. Would it be more words recalled from a list; more grocery items recalled in the store; more or richer recall of events shared in the past with their spouse? What kinds of benefits might we expect from a collaborative memory intervention? What kinds of benefits are important to older adults as they age or as they start to experience disease-related decline? What do they need help with?

This highlights distinctions between compensation and protection, and between specific and general benefits. Would a collaborative intervention, say involving recall of a shopping list, *compensate* only for declining memory for that particular shopping list or *compensate* for declining memory more broadly? That is, might we expect collaborative memory interventions (based on our current science) to generalise so that a couple working together, where one or perhaps both are impaired, can more successfully remember memories not targeted by the treatment? If collaboration depends on group strategies, intimacy, and shared history, which a couple can reliably invoke across numerous remembering

situations, then yes we should expect the compensatory benefits of collaboration to generalise across different kinds of memories (Barnier et al., 2008; Harris et al., 2011; Sutton et al., 2010; Wegner, 1987). Would we also expect a collaborative intervention to protect older adults not only from future decline in their ability to recall the kinds of memories targeted by treatment, but future decline in their ability to recall other kinds of memories, as well as cognitive decline more generally? Again, we think these are plausible hypotheses, but such predictions need to be explicit in both the design of collaborative interventions and their evaluation. Also, we need to acknowledge and capture, as we move from laboratory to applied settings, the notion of remembering as occurring within rich and complex systems of support. For instance, the collaborative remembering that occurs between older couples is likely to be embedded within broader systems of memory support provided by other family and social relationships and by material and technological resources (Harris, Barnier, & Sutton, in press).

Finally, we need to recognise that there is work in other fields that can inform the science and application of collaborative recall (see also Dixon, 2011). For instance, “reminiscence therapy” – developed by clinical neuropsychologists for use with dementia patients – involves the facilitated discussion of past experiences in groups of patients, often combined with the use of memory aids like photographs and music (see Woods, Spector, Jones, Orrell, & Davies, 2005 for review). This therapeutic approach has a host of cognitive and psychosocial benefits (e.g., Pinquart & Forstmeier, 2012). Importantly, its group – or collaborative – aspect is crucial to its success (Haslam et al., 2010). So it is not that researchers and practitioners have ignored the possibilities of collaboration for memory and aging, but that its translation is not straightforward. For example, nominal group comparisons are a canonical feature of collaborative recall experiments (Harris et al., 2008; Weldon & Bellinger, 1997). Yet some memory and aging researchers question the value of a comparison between, say, three people working together and three people working alone (whose answers are pooled): “the practical relevance of nominal group recall is minimal, despite its significance as a standard for assessing the effects of collaboration. ... For everyday memory, the more important finding is that collaborative recall almost always produces more hits than either individual would generate alone” (Ross, Spencer, Blatz, & Restorick, 2008, p. 91; but see Harris et al., 2011). So work that crosses literatures and methodologies will be crucial as we aim to bring findings from the laboratory into the living room and the nursing home.

3. Conclusions

In a primer on the process of translating basic science into treatment, Strauman and Merrill (2004) called for a “mindful enterprise of translational research”. Blumen et al. (2013) offer a thoughtful roadmap for the field of collaborative recall. They identify a number of gaps between memory in the laboratory and memory “in the wild,” and we have identified more. Is our science mature enough to develop applications? It will be when we have asked and answered our early generation questions, and when we are sure that we are continuing to ask the right questions. For instance, Blumen et al. suggest we ask neuroscience questions about collaborative recall, and in one way this absolutely makes sense. The breakdown of memory is a neural event and we need to partner with researchers who are mapping this breakdown (and can tell us about the need for compensation) and who are mapping trajectories of decline. But possibilities for memory compensation and/or protection will not be understood or predicted by analysing brains alone. And what might neuroimaging of collaboration itself tell us? As the authors note, traditional neuroimaging paradigms might mean we have

to make collaborative recall not very collaborative at all, or only collaborative in the weakest and most artificial of senses. Different questions mean different equations for ecological validity and applied relevance. Our task is to work out which questions will best fill the gap between what we know today and what we need to know to put our science to work.

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