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Recently I received an iPhone as a birthday gift and I am compelled to write about it. Obviously I am not the only person who owns one, nor am I the first person to write about its possible role in cognitive processing. In his foreword to Andy Clark's (2008) book *Supersizing the Mind*, David Chalmers (2008) wrote that his iPhone had taken over some of the central functions of his brain: replacing part of his memory, harbouring his desires, helping him to calculate, argue, plan and daydream. Chalmers (2008) used his relationship with his iPhone as an example of the 'Extended Mind' thesis, the idea that 'when parts of the environment are coupled to the brain in the right way, they become parts of the mind' (p. x). In his words: 'parts of it have become parts of me' (p. x). My co-editor and collaborator, John Sutton, has applied Clark and Chalmers' thesis to the case of memory, arguing that human memory extends beyond the mind of an individual to incorporate external resources, such that we rely on objects and people to 'scaffold' our individual memories (Sutton, 2008; see also Barnier et al., 2008). Motivated by this view, in an ongoing research programme, John and I are exploring the relationships among individual memory, individual memory in small groups and small-group collective memory (Barnier et al., 2008).

As a cognitive psychologist who has become increasingly immersed in these philosophical views and analyses (thanks to my collaboration with John), it is not surprising that I too have come to think of my iPhone as part of me, especially with respect to memory. But it goes further. I believe the iPhone is compensating for impairments in my current capacity to 'process and use information' – to use Drayson and Clark's (in press) words. As a full-time academic and mother of two small children – a five-year-old son just starting school and an 18-month-old daughter yet to sleep through the night – I am chronically sleep deprived. Perhaps as a result of one or more of these circumstances, in the past year I have experienced memory difficulties: forgetting words, forgetting appointments, forgetting my wallet, forgetting my children, etc. To compensate, I now rely on – and have altered my memory practices to best integrate with – a range of iPhone applications ('apps') that: keep track of my appointments; collect, organize and remind me of tasks at work and home; warn me of family and friends' birthdays or to pay bills; remember my menu plan for the week and the groceries I need to buy; record events that happen each day; and even tell me what I should be doing at any moment of the day. My use of these apps also reflects my attempts to implement David Allen's (2001) 'Getting Things Done' (GTD) methodology, a wildly popular productivity system from the field of management consulting.¹ Allen (2001: 3) promises both work-life

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productivity benefits and psychological benefits when people capture all the things they need to get done in a 'logical and trusted system outside of your head and off your mind'. These apps don't 'remember' in exactly the same way that I naturally do. When they built their apps, the developers were thinking of what might work for most people rather than just me specifically, so the programs encourage or force me to remember in slightly different, perhaps more compartmentalized ways. But together, my iPhone and I currently are more successful than just me alone.

Drayson and Clark (in press) similarly argue for the value of external compensatory aids – extended mind – in patients with brain impairments. They describe Carolyn Baum's work with Alzheimer's sufferers at the Washington University School of Medicine in St Louis, Missouri. Although many of her patients have substantial brain impairment, as measured by extremely poor performance on standard neuropsychological tests, they still live successfully and independently in the community (for similar findings, see Morris et al., 2004; Pike et al., 2007). Visits to these patients' homes reveals why. Their homes are 'wonderfully calibrated to scaffold these biological brains . . . stuffed full of cognitive props, tools and aids' (Drayson and Clark, in press).

In our own work on transactive memory and collaborative recall, the 'external coupling' that is scaffolding memory is not so much between people and their material world or technology, but between people and their partners. In a recent study, Celia Harris and our team interviewed 12 long-term married couples, first apart and then together (Harris et al., 2010a). Couples were 60–89 years old (average, 68 years) and had been married 26–60 years (average, 41 years). At the first interview they individually recalled: a word list they learned, a list of names of the members of their social club and shared and unshared autobiographical memories from their marriage. At the second interview two weeks later, they collaboratively recalled the word list, the names and the memories. When together, our long-term couples recalled information that both of the individuals earlier claimed to have forgotten. For instance, here one couple recalls their honeymoon 40 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 just one example of 'cross-cuing', where our couples collaborated to recall events from their past in a dynamic, interactive manner; where the speaker role rapidly shifted back and forth as the couple jointly constructed their narrative. Sometimes this cross-cuing during the collaborative interview led to more specific, detailed and emotionally richer memories compared to the earlier individual interviews. Other times, as in this example, cross-cuing led the couple to remember new details that both individuals earlier claimed to have forgotten (Harris et al., 2010a).

This social scaffolding of memory – remembering together information lost to the individuals alone – was particularly striking in the case of an elderly man who suffered severe memory impairment following brain damage. Alone his memory performance was terrible. But remembering with his wife of 46 years, it was startlingly better. Over the years, she developed an explicit strategy of waiting until he finished recalling before adding her own memories, so as not to disrupt his memory. Other couples adopted other strategies that worked for them. For instance, when learning the word list, one husband made actions for each word, which he later reproduced during collaboration with his wife to aid her recall (Harris et al., 2010a; for similar findings, see Dixon, 1996).

Our results are consistent with Daniel Wegner's (1987; see also Wegner et al., 1985) proposal that individuals in established groups (especially couples) develop 'cognitive interdependence' in the form of 'transactive memory systems', which allows them to share encoding, storage and retrieval of information. An obvious next step for our work, and one we are taking in partnership with clinical neuropsychologists (Greg Savage) and memory and ageing researchers (David Balota, Roger Dixon) is to explore whether remembering with intimate others can compensate for decline in an individual's memory and may even help to protect memory when brain illness strikes.

But what happens when we lose our 'scaffolding'? I worry a lot about losing my iPhone. I imagine I would be grief stricken. I am attracted to the idea of having it permanently attached to my person. This trivial concern, although important to me, again brings to mind the notion of transactive memory and more serious concerns. What happens, for instance, to individual memory when one partner of a long-term couple, who have a well-established and relied-on transactive memory system, dies and leaves behind his or her partner? Drayson and Clark (in press) raise a similar concern about Alzheimer's patients who rely on their physical environment to scaffold their cognitive processing, but are then relocated into a controlled hospital setting. Such relocation, they argue, may be a 'tragic turning point', 'akin to the infliction of new brain damage upon an already compromised host' (Drayson and Clark, in press). They note that laws and social policies – what is in the best interests of the person – do not sufficiently recognize the deep connectedness of people to the things in their world, and the consequences for cognition of breaking these links (Drayson and Clark, in press).

My uses of the iPhone as an extended memory system, especially one that compensates for current limitations inside my head, is unlikely to be fully captured by cognitive explanations of memory alone. Rather, my remembering practices need to be understood at the intersection of a range of influences. These include but probably are not limited to: basic biological processes (e.g. of sleep influencing attention and memory); cognitive parameters of memory systems (working memory, long-term memory, prospective memory, etc.); technological advances (why I turn to the iPhone and not to other social or technical 'scaffolds'); management theory and practices; and social views and policies influencing mothers, families, working women. As John Sutton wrote in his recent editorial: 'remembering itself often involves the interaction or coordination of different processes operating at different timescales across different parts of complex systems' (Sutton, 2009: 300). So projects in memory studies will best be pursued at the level of phenomena or topic, rather than those of discipline, domain or tradition, since memory 'in the wild' does not usually fall singly or neatly into any one area of research (Sutton, 2009).

Cognitive and other psychologists have a great deal to contribute to such studies of memory. We have clear theories, well-developed methods and substantial data sets, which can provide a useful starting point for explorations of everyday remembering. In our own research on the relationship between autobiographical and collective memory, we have found much to adopt and adapt from the literatures on transactive memory, collaborative recall, retrieval-induced forgetting and social contagion (Barnier et al., 2008; Harris et al., 2008, 2010b; Stone et al., 2010). For instance, work on transactive memory suggests ways in which memories might be shared across individuals in some (although not necessarily all) types of groups, and work on collaborative recall and social contagion highlight useful ways to index the varying influences of collaboration. Yes, this work has limitations, especially in terms of the memory cases they so far explain, the nature of those explanations, the often pessimistic way memory is measured and the lack of focus on functions of remembering with others. But when embedded within the broader theoretical framework of distributed cognition/extended mind, we are hopeful that existing concepts and methods from cognitive psychology

can be significantly extended and applied to a whole range of social memory phenomena (Barnier et al., 2008; Harris et al., 2008).

Extending beyond our traditional domains, across the borders of memory studies, sometimes is challenging for cognitive and other psychologists because language and assumptions can be quite different and/or it is not immediately clear how we might wrestle a phenomenon into the laboratory (where some of us at least like to start!). But there is much to be gained from interdisciplinary dialogue, debate and approaches to problems of everyday remembering and we are ready to reach out. Past issues of *Memory Studies* show clear evidence of this value. For instance, Robyn Fivush (2008: Vol. 1, No. 1), a developmental psychologist, wrote of individual lives constructed in family narratives and highlighted the interrelatedness of individual, cultural and historical forces. Ineke Wessel and Michelle Moulds (2008: Vol. 1, No. 3), experimental and clinical psychologists, reflected on Connerton's (2008: Vol. 1, No. 1) cultural notions of forgetting and strived to connect them with theories and phenomena from experimental psychopathology. And in this issue, Paula Reavey reconceptualizes the debate around memory for child sexual abuse, an incredibly contentious area inside and outside psychology, in terms of agency and geography or space. Her fresh take on this topic combines insights from theories of social remembering, feminist theory and geography. In so doing, she raises challenges to current major theories of autobiographical memory and self.

As I continue reaching across and outside boundaries in my own life and work (however tentatively), I look forward to receiving manuscripts from psychologists and others doing the same, and I look forward to seeing their work in print in the pages of this journal.

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Note

1 See <http://www.davidco.com>.

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