

Embodied Remembering

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Introduction: the diversity of embodied remembering

Experiences of embodied remembering are familiar and diverse. We settle bodily into familiar chairs or find our way easily round familiar rooms. We inhabit our own kitchens or cars or workspaces effectively and comfortably, and feel disrupted when our habitual and accustomed objects or technologies change or break or are not available. Hearing a particular song can viscerally bring back either one conversation long ago, or just the urge to dance. Some people explicitly use their bodies to record, store, or cue memories. Others can move skilfully, without stopping to think, in complex and changing environments thanks to the cumulative expertise accrued in their history of fighting fires, or dancing, or playing hockey. The forms of memory involved in these cases may be distinct, operating at different timescales and levels, and by way of different mechanisms and media, but they often cooperate in the many contexts of our practices of remembering.

We share Maxine Sheets-Johnstone's suspicion that labels like 'embodied' and 'embodiment' sometimes function as 'lexical band-aids' to cover residual theoretical gaps or wounds (2009a: 375) – after all, what else could cognition and remembering be, if not embodied? But we use the terms to mark the mundane but fascinating range of everyday experiences which the terms naturally cover. Though it is true that writers use 'embodied memory' in very different ways, this is not necessarily a sign of endemic confusion. Given the dramatic variety of the relevant phenomena, embodied memory is appropriately of interest in both basic and applied studies of many distinctive topics – dance and sport, trauma and therapy, emotion and expertise, to mention just a few. It is a topic which rightly spans not only the range of the cognitive sciences, but also social science and the humanities. Two-way benefits could flow between theory and practice: academic discussions of 'embodied cognition', which can sometimes be curiously abstract or anecdotal, could fruitfully engage with and in turn contribute to rich bodies of lore and expertise among practitioners of bodily skills and well-developed research traditions in fields like sports science, music psychology, and dance cognition.

Human beings are unusual in the variety of ways we relate to our history. Past events can be explicitly and consciously recollected, or can have more implicit influences on body, mind, and action. As well as the many respects in which the cumulative effects of the past drive our biology and our behaviour, we also have the peculiar capacity to think *about* our histories. We can remember cooking a particular dish on a specific occasion for just that group of friends, though of course such memories are fallible. I remember cooking that meal *because* I did so, and this past experience is itself also the *object* of my thought. But we can also remember *how* to cook, as we show simply by doing so. In the latter case, accumulated experiences are actively embodied in actions. I need not explicitly recollect any specific past events, or even recognize that I am remembering, unless my smooth coping is disrupted. As Edward Casey puts it, such memory is intrinsic to the body: 'because it re-enacts the past, it need not represent it' (1987: 147, 178).

Across different theoretical traditions, more implicit or habitual forms of body memory are thus distinguished from ‘personal’ or ‘episodic’ or ‘autobiographical’ remembering (Sutton, Harris, & Barnier 2010). Below we explore the differences between these forms of memory: without committing to any view on whether they are parts of distinct memory ‘systems’, we suggest that by initially distinguishing them we can address intriguing questions about the many ways in which they interact. Any discussion of our topic has to be able to deal with the variety of these phenomena. It would be misleading to restrict an account of embodied remembering either to the realm of meaning and conceptualization, or in contrast to embodied skills and habits alone.

The idea that explicit personal recall, when I remember particular past events, is a close ally of remembering how to perform bodily actions was stated powerfully by Bartlett (1932: 201-2).

Suppose I am making a stroke in a quick game, such as tennis or cricket ... When I make the stroke I do not, as a matter of fact, produce something absolutely new, and I never merely repeat something old. The stroke is literally manufactured out of the living visual and postural ‘schemata’ of the moment and their interrelations. I may say, I may think that I reproduce exactly a series of text-book movements, but demonstrably I do not; just as, under other circumstances, I may say and think that I reproduce exactly some isolated event which I want to remember, and again demonstrably I do not.

In his radical constructivism, Bartlett suggests that the unique contextual processes of retrieval sculpt not just the form or expression of a memory, but its very content. Just as the dynamic, on-the-fly embodied production of another successful backhand in tennis brings about a shot that may be familiar in type but is ‘absolutely new’ in detail, so in remembering events my changing beliefs, interests, and motivations select and filter out materials to construct versions of the past (Saito 2000; Middleton & Brown 2005; Winter 2012). Like Bartlett, we treat remembering as itself an embodied skill. In dynamic self-organizing psychobiological systems like us, embodiment brings transformation.

A fuller treatment of our topic would include a section on the history of embodied remembering, showing that embodiment is a surprisingly pervasive theme, from the longer timeframes studied in cognitive archaeology (Donald 1991; Jones 2007; Sutton 2008), through the intense attention offered to bodily aspects of memory and self by Descartes and Locke (Reiss 1996; Sutton 1998), to the key theoretical works of Nietzsche, Freud, the pragmatists James and Dewey, and the major phenomenologists Bergson (1991) and Merleau-Ponty (1962). But we can pick up one historical thread here by noting that some of Locke’s remarks on memory, place, and embodied context were cited by Godden and Baddeley (1975) in one of the most striking experimental studies of embodied memory in modern cognitive psychology: divers who learned material underwater (in open water sites near Oban in Scotland) had better memory when tested underwater, while material learned on dry land was recalled better on dry land. If the context-dependence of memory, as they argued, is ‘robust enough to affect normal behaviour and performance away from the laboratory’, then the location, state, and nature of our bodies both at the time of the original experience and at the time of later retrieval drive what and how we remember. Mainstream psychologists have long been systematically studying the context-dependence of memory (Tulving & Thomson 1971; Smith & Vela 2001). This paved the way for a concerted movement, arising in the 1980s and 1990s from within the cognitive sciences, to study practical aspects of everyday memory in the wild (Neisser 1978, 1997). Updating both

Bartlett's constructivism and his vision of a social and cultural psychology of memory, cognitive theorists drew on connectionism and on Vygotskian developmental psychology, and at the same time found experimental and institutional space for the rapid expansion of work on autobiographical memory and self in real-world contexts (Conway 2005; Sutton 2009a; Fivush 2011). These strands of the recent history of the sciences of memory are perhaps sometimes neglected by writers on embodied cognition in general, in their urgency to paint the new paradigm as a radical new break from the bad old days of rigid cognitivist individualism (Glenberg 1997; Brockmeier 2010; Glenberg, Witt, & Metcalfe 2013). Some areas of memory science do certainly retain neurocentric tendencies, treating body and world either as merely external influences on the true internal memory processes, or as just the objects of memory: but pluralist alternatives have long been available by which to thematize the multiple resources of everyday ecologies of memory (Engel 1999; Conway & Pleydell-Pearce 2000; Siegel 2001; Welzer & Markowitsch 2005). We illustrate this by examining autobiographical memory and habitual or skill memory in turn: in each case, we suggest not only that the forms of remembering involved are in various respects 'embodied', but also that there are intricate relationships between them.

Embodied autobiographical memory

Recent psychological studies of autobiographical remembering emphasize that tracking the past is not necessarily its key function. Remembering also plays important and heavily context-sensitive roles in maintaining and renegotiating self-narratives, in promoting social relations, and in directing future action (Bluck et al 2005): recent work especially stresses the future-oriented role of memory in guiding simulations of possible future events (Schacter & Addis 2007; Boyer 2009). Personal narratives, social interactions, and future planning are often expressed and embodied in rich social and material settings. So autobiographical recall is embodied in that it is often *for* action and communication (Glenberg 1997; Middleton & Brown 2005), even though the specific past experiences I now remember may be long gone and may have left little or no trace on my current environment.

As well as being a conduit for sharing and renegotiating experience, the body can also be a cue or trigger for personal memory experiences, where this can occur either deliberately or unintentionally. The involuntary activation of a particular memory by way of sensory triggers is most commonly associated with smells and tastes, as classically in Proust (Berntsen 2009). But even Proust's narrator is just as powerfully drawn back into explicit recollection by way of the body's familiarity with certain places – rooms, the location of furniture, the angle of the sunlight, the orientation of the body on the bed (see Casey 1987: 169-178). The mnemonic significance of objects, places and environments operates by way of temperature or interoceptive bodily sensations such as hunger, as well as through encounters with specific remembered landmarks and locations. There can be different relations between familiarity and recollection. The pre-reflective sense of embodied intimacy with a setting may co-exist or merge both with culturally-anchored schemata that suggest what usually happens here according to the social frameworks of memory, and with the more precise evocation of particular located personal experiences (Halbwachs 1925/ 1992; de Certeau 1984; Habermas & Paha 2002; Hill 2011). More deliberate bodily anchors for personal memory include using the body to store information or evocative cues temporarily, as in writing a phone number on one's palm, or indelibly, as in the 'system' of tattoos and other traces laboriously and fallibly constructed by Leonard in *Memento* (Sutton 2009b). For those without Leonard's amnesic difficulties, bodily movements such as gestures can be an effective complement to other forms of thinking, remembering, and communicating, often stabilizing or anchoring complex

concepts so as to facilitate communication or reconsideration (Hutchins 2005, 2010; Streeck, Goodwin, & LeBaron 2012; Bietti & Galiana Castello 2013).

Further claims about the body's influence on autobiographical recall come from cognitive psychological research on the importance of sensory and motor functions in memory. One tradition examines enhanced memory for actions performed by the subject herself, compared to actions observed being performed by others (Zimmer et al 2001). Other experimental research addresses embodiment in the form of facial expression and body posture, as discussed in the chapter by Dijkstra and Zwaan (this volume). Future work might extend these methods to examine the mnemonic significance of those culturally specific postures by which social norms are and distinctions are incorporated (Connerton 1989: 73-74).

In addition to these ways in which bodily processes influence autobiographical memory, we can also make sense of the stronger idea that the body just is, or perhaps is the vehicle of, such explicit recall. In developing their systematic causal theory of declarative memory, C.B. Martin and Max Deutscher (1966) began by outlining a striking case in which remembering a particular event is actually constituted by certain bodily movements. Consider, they asked us, the case where some swimming is an example of remembering and not, as is usual, an example of remembering how. Suppose that someone has never dog-paddled. He is not good at visualization and has never learned any words which would describe swimming. His method of representing the one time at which he saw a man dog-paddle is his actually doing the dog-paddle stroke. We can imagine him trying to remember the curious action that the man went through in the water. He cannot describe it, and cannot form any picture of it. He cannot bring it back. He gets into the water, experimenting a little until suddenly he gets it right and exclaims, "Aha, that's it!". (1966: 161-2).

Here the body is the very vehicle of episodic memory. Indeed, the recall of personally-experienced events even in more typical contexts often has a kinesthetic component. As I am telling you about a difficult conversation at work, or recollecting my pleasurable walk in the park the other day, specific movement tendencies may arise, in addition to other sensory-perceptual, spatial, and emotional detail (Rubin 2006). I may actually move my head and eyes, or partly reinstate a pattern of gestures in remembering the embodied alignment of that earlier conversation; or I may merely retouch or alight briefly again on the specific combination of physical warmth and affective comfort I felt during that summer stroll. When those who play music or sport pick up a household tool and quietly enact a momentary shadow performance, or simply run a fragment of air guitar or a backhand down the line, they are sometimes just remembering how to play. But on other occasions, perhaps especially in joyous re-enactment of pleasurable performance, or when something hasn't been quite right, they are also remembering a particular incident or episode: in the latter case, merging that embodied autobiographical memory with an equally specific form of operative motor imagination, they can work in a more or less goal-directed fashion towards a refashioning of embodied style.

These phenomena are returning us to consideration of more habitual forms of embodied remembering. We suggest that both when remembering our past alone, and when talking together about shared experiences, there can be an iterative, mutually-reinforcing play between personal memory and embodied habits or skills. The familiar actions involved in cooking or dancing, or in enjoying a conversation with old friends, are as Bartlett noted neither precise and mechanical repetitions, nor wholly unprecedented novelties. Cooking utensils which embody collective family memories, for example, also often elicit, more or

less explicitly, specific personal and interpersonal memories: not just about what we used to do or would always do, but sometimes about particular family stories (Sutton & Hernandez 2007; Shore 2009).

Before scoring his second goal in the 1986 World-Cup quarter-final against England, Diego Maradona ran through the defence, with his centre-forward Jorge Valdano keeping pace alongside. As Valdano later told it, after the game Maradona apologised for not passing, even though at first he intended to: 'Maradona explained that, as he neared the England goal, he remembered being in a similar situation against Peter Shilton seven years earlier at Wembley. In 1979 he had missed but, thinking about it now, he realised where he'd made his mistake. Maradona concluded that he didn't need Valdano after all and could score by himself' (Winner 2011: 23). Obviously Maradona's success here relies on exquisitely-honed bodily and technical skills. But he was also set apart from other players by effective decision-making at unimaginable speed: here his choice draws directly on a specific past experience. Such precise use of episodic memory to dictate or sculpt present action is striking because it demonstrates the openness of our motor processes to fast, effortless top-down influence, and the conversion of personal memory into usable online form to feed bodily skill in real time. Such interanimation of skill or habit memory with personal memory is not always easy to notice: but, we suggest, it is a widespread feature of the practice of everyday life.

Embodied skill memory

In textbooks on memory in psychology and cognitive neuroscience, the topics discussed under the term 'procedural memory' (memory for the performance of particular actions) sometimes focus primarily on lower-level phenomena of conditioning and associative learning (Eichenbaum & Cohen 2001). This allows for coverage of the neuroanatomy of habit learning, and of the rapidly-developing study of molecular mechanisms. Though dynamic, network-oriented neuroscience is increasingly devoted to examining interactions between distinct brain systems, it can sometimes be hard to see how these phenomena of procedural memory scale up to the kinds of habits and skills involved in embodied, culturally-embedded human routines, performances, and rituals. Yet on initial description at least, embodied habits and skills do seem to share certain features with basic bodily responses to repeated experience. Consequently they too can appear to differ dramatically from other more explicit forms of memory: this is underlined by the apparent neural dissociation, such that some people with dense amnesia for specific events in their own history seem nonetheless to be able to learn new skills (Squire 2004; but compare Stanley & Krakauer 2013). Because the forms of memory seem so different, some have suggested that procedural memory is not a form of 'memory' at all (Moyal-Sharrock 2009), and others have argued that 'memory' does not qualify as a coherent natural kind for scientific investigation (Michaelian 2011). While we take the more ecumenical view that the various ways in which history animates body and mind are interconnected, more embodied forms of memory do have features that sharply mark them as distinctive.

If I remember how to cook, ride a bike, or play a cover drive in cricket, I have engaged in practice and training: these embodied memories derive from many repeated experiences rather than one. There is no single, specific past event which causes my current activity, as there is in episodic memory, nor do I need be aware at all of any previous performances or of the historical source of my knowhow (indeed, it is often crucial that I am not aware of anything beyond the present context) (Sutton 2007). In his phenomenological study, Edward Casey offers a working definition of 'habitual body memory': it is 'an active immanence of

the past in the body that informs present bodily actions in an efficacious, orienting, and regular manner' (1987: 149; cf Casey 2000; Connerton 1989: 72; Summa, Fuchs, Koch, & Müller 2012). These are not rote mechanical processes which simply reproduce past performances: rather, such body memory operates flexibly, as the practitioner adapts and adjusts to changing circumstances, subtly modifying her responses to fit the needs of the moment. Some theorists have sought to downgrade 'habits' to more reflex-like status. For Ryle, 'mere habits' are single-track dispositions implemented automatically, unlike the flexible exercise of practical intelligence (1963: 41-50, 126-130). Others place habits within the realm of intentional action, noting the role of care and attention: no matter how effectively we have grooved our expertise as drivers, Brett points out, 'the habit of paying attention to the road is one of the necessary ingredients in being a good driver' (1981: 365-6; cf Pollard 2006). But it is hard to pin down just what kinds of attention or awareness are in play here.

Although skills, habits, and embodied movement capacities are often easy to initiate spontaneously in the right context, they are difficult to think through consciously, and to articulate verbally. Some coaches and teachers are better than others at finding instructions, metaphors, or nudges to help novice and expert practitioners, and some critics and commentators can describe flowing performance with more striking explicit descriptions. Learning by apprenticeship is a central part of human socialization, and does sometimes involve explicit description and some decomposition of tasks (Sterelny 2012; Sutton 2013). But talking well about embodied skills is, in most contexts, an entirely different skill from the first-order capacities themselves, which rely more on complex pattern-recognition and on other coordinated perceptual-motor-memory processes which no-one really understands (Sutton 2007). For this reason, practitioners and theorists alike often draw sharp lines between embodied skill memory, on the one hand, and more 'cognitive' or 'mindful' processes: Hubert Dreyfus, for example, argues that 'mindedness is the enemy of embodied coping' (2007: 353; cf Ennen 2003). Performers are all too aware that certain forms of reflection and thought can disrupt their skilful action, and often talk of relying on their body memory alone, and allowing automated responses to flow intuitively. But this does not mean that one is unconscious when actively remembering how to do something: in different contexts, various forms of kinetic or kinesthetic awareness or circumspection allow for the ongoing monitoring of skilful performance (Sheets-Johnstone 2003; Wheeler 2005: 131-143). Talk about embodied skills can be analogical and indirect, with groups of experts often evolving local responses to the challenges of languaging experience, often 'beyond the easy flow of everyday speech' (Sheets-Johnstone 2009b: 336; see Candau 2010 for the case of finding words for olfactory experience and thus sharing memory for smells). It is a mistake to treat embodied memory as so entirely intuitive as to be outside the psychological realm, for this is to reinforce dichotomies between acting and thinking, and between body and mind, which need to be thoroughly dismantled to achieve better understanding of these complex phenomena (Montero 2010; Sutton et al 2011).

Accounts of body memory can, further, address the bodily systems of interoception and affect which partly ground our deep feelings of familiarity in our world, and our awareness of self and time (Damasio 2003). They can extend the taxonomy to include situational and intercorporeal memory, covering our spatial awareness and our implicit sense of a history of embodied experiences with other people (Fuchs 2012: 13-15), and the way the body carries cultural norms and tastes, by way of incorporated techniques, practices, or ceremonies (Bourdieu 1977: 72-87; Connerton 1989: 79-88; Strathern 1996). Questions about the bodily nature of memory are under intense investigation in the cognitive anthropology of religion

and ritual behaviour, where varying levels of emotional arousal are seen, on different theories, as grounding different kinds of memory and thus dictating the required frequency of religious ritual performance (Whitehouse 2005; Czachesz 2010). Other writers focus on memory for pain and trauma, and cases in which the usual pre-reflective nature of embodied memory breaks down (Casey 1987: 154-7; Haaken 1998; Fuchs 2012: 16-18). We now briefly mention distinct two lines of research about the body and pathologies of memory.

In a phenomenological investigation of certain kinds of ‘bodily micromovements’ which she calls ‘ghost gestures’, Elizabeth Behnke (1997) analyses a range of ‘tendencies to movement’ such as ‘persisting patterns of trying, bracing, freezing’ which persist as ‘the effective presence of the past’, the inadvertent residues of embodied activities (such as digging in the garden) or specific historical patterns of comportment (such as hugging the computer). Signature patterns of movement, posture, and gesture are often coupled with particular modes of affective experience and expression: as Behnke argues, they can sometimes be opened up to kinesthetic awareness, as we counter our easy sensory-motor amnesia, and find ways of noticing and perhaps shifting our more rigid or fused bodily habits (Behnke 1997, 2008; cf Samudra 2008; Shusterman 2011; McIlwain & Sutton 2013).

More dramatic pathologies of memory arise in the amnesias and dementias: in some cases embodied remembering can here act as a partial counter to a gradual or sudden loss of explicit memory. As explicit access to particular past experiences comes under threat, and with it the possibility of incorporating distinct episodes into roughly coherent life narratives, other ways of stabilizing or inhabiting a familiar world become more salient. The fictional case of Leonard in *Memento*, as we noted, dramatizes a reliance on both habits and procedures and on systems of embodied or externalised traces (Sutton 2009b). In real cases of dementia, the relation between explicit knowledge of one’s own past and the forms of bodily familiarity with one’s world can be complicated, though remembering how to do various tasks does often persist longer. The anthropologist Janelle Taylor argues that interpersonal care and mutual recognition can rest on broader patterns of shared activities than simply talking about particular past events and experiences: conversation, for example, involves tone, voice pattern, and turn-taking corporeal sequencing as much as the exchange of information (2008: 326-8). As well as deploying compensatory social or material scaffolding to externalise access to lost information (Drayson & Clark forthcoming), people experiencing the early stages of dementia may still rely on practical, situational familiarity with environments, objects, and sequences of bodily actions in buffering themselves from the immediate effects of decline in explicit memory.

But some of the most powerful empirical and ethnographic studies of embodied skill memory have been undertaken in the context not of deficit and struggle but of extraordinary or expert capacities. In music, concert pianist Gabriela Imreh collaborated with cognitive psychologist Roger Chaffin and colleagues in long-term experimental studies of the precise stages by which she memorized Bach’s *Italian Concerto* (Chaffin, Imreh, & Crawford 2002; Geeves et al 2008). In a quite distinctive musical and theoretical register, David Sudnow documented the often agonizing process of learning improvisational jazz piano: in gradually remembering how to find ways round the keyboard and the ongoing musical piece in a flowing rather than disjointed way, Sudnow has to incorporate an open-ended but constrained repertoire of possible muscular and affective patterns of musical action (Sudnow 2001). In studying embodied remembering in contemporary dance, Catherine Stevens and colleagues have investigated the interplay of verbal and movement phrases during rehearsal and in the process of choreographic creativity (Stevens et al 2003; cf Sheets-Johnstone 2012), while David

Kirsh's team implemented mixed-method research on the memory functions of dancers' 'marking' practices, when they re-embody or rehearse various fragmentary or partial movement forms (Kirsh 2013).

Embodied memory in these contexts is firmly embedded in complex and idiosyncratic cultural settings, with unique social and historical backgrounds and norms. These cases remind us that by examining activities and practices of remembering, and in giving consideration to the role of bodily as well as neural resources, we also open up memory's public dimensions. Embodied remembering occurs in a social and material world in which objects and other people may support or transform the processes, form, and content of memory. If memory is embodied, it is also arguably situated and distributed.

In this chapter we have selectively introduced key themes from both historical and contemporary studies of the diverse forms of embodied remembering. We need to draw on philosophy of mind and action, phenomenology, psychology, cognitive neuroscience, anthropology, and performance studies if we are effectively to mesh conceptual, experimental, and ethnographic approaches to these diverse and complex phenomena. For this reason, in this short chapter we have sought to provide points of entry into these rich multidisciplinary literatures, hoping to encourage others to engage with these fascinating topics.

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