

# **Embodied Ways of Knowing: Mapping the Territory.**

## **A discussion paper**

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### **INTRODUCTION**

Despite the challenge of feminist epistemology, the Western analytic tradition resists the notion that knowledge could in any sense be 'embodied'. However, references to embodied cognition, embodied knowledge or embodied knowing are widespread and can be found in fields as diverse as anthropology, business studies, cognitive neuroscience and religious studies. That list is far from complete and at the time of writing, Academia.edu lists nearly 165,000 papers that mention the phrase 'embodied knowing' alone. While it would be impossible to review more than a fraction of the literature, there is considerable value in identifying where there appears to be common ground. Having read a representative sample of the literature, I believe I have identified several common themes or patterns which might guide us towards mapping the territory of these embodied ways of knowing (EWK).

I begin this discussion document with a brief sketch of the territory. I then offer the outlines of a map of this landscape, suggesting four initial dimensions of our current models of EWK. The second part considers some of the specific ways in which EWK have been understood. I begin by defining tacit and explicit knowing, which is a fundamental distinction in this area. I then consider how different disciplines have modelled or applied notions of EWK. The thinkers I discuss are typically interdisciplinary, but I have grouped them in a way that I hope facilitates clarity. This is intended to be no more than a very brief outline of the key feature of each thinker's work. To attempt to summarise Merleau-Ponty's work in a paragraph or two is, of course, impossible but the metaphor of a map is my guide: I am setting out the most significant points of reference and attempting to identify some broad relationships between them. The third part introduces my 'cognitive iceberg' model, which attempts to integrate some of the main models of EWK I have outlined. I close with a short conclusion, which serves to briefly summarise what I have attempted to do. I provide two additional documents to clarify this discussion: *Mapping the Dimensions of Embodied Ways of Knowing* (Table 1) and an attempt to set out these relationships in graphic form (Fig. 4 *Map of EWK*).

It is difficult to differentiate between embodied cognition, embodied knowledge(s) and embodied knowing partly because such "subjugated ways of knowing" (Foucault, 1980: pp. 81, 84) evade conventional analysis. The notion of 'body memory' (Fuchs, 2012) may complicate matters even further, but I follow Fuchs here in treating it as broadly equivalent to "an embodied and implicit knowing how" (Fuchs, 2017; 333).

Existing definitions are not always useful: *The Oxford Companion to the Mind* describes cognition as "The use or handling of knowledge" (Gregory, 1987: 149), but leaves moot the question of what 'knowledge' means. If cognition is "the process of using or handling knowledge" (ibid.), then cognition is something *other* than knowing itself. However Maturana treats cognition and knowledge as equivalent, and usefully identifies "adequate conduct" as a measure of whether someone knows something or not (1987; 66). In practice the majority of what are described as EWK seem to involve embodied cognition; i.e. the application of knowledge in a specific context. Embodied cognition, then, is fundamental to most EWK<sup>1</sup>. However, embodied cognition research covers a much wider ground and clearly some aspects of embodied cognition extend beyond EWK<sup>2</sup>. I will use the term embodied ways of knowing (EWK) when discussing embodied knowing, embodied knowledge(s), embodied pedagogy (Wilcox, 2009) and relevant aspects of embodied cognition.

In classical epistemology 'knowing' typically means something like warranted true belief. That simple conception is under considerable debate, and few contemporary epistemologists accept it (Ichikawa and Steup, 2018). However, the mainstream focus remains on propositional knowledge which is quite different from what emerges through EWK. In time I hope we can develop an embodied epistemology, but I shall not explore that in any detail here. For the purposes of this discussion, I take it as given that EWK are different from those addressed by conventional epistemology.

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1 My Phd thesis differentiated between embodied cognition and embodied knowing on the basis of a fundamental distinction in phenomenology between the the objective, physical body (*Körper*) and the lived body (*Leib*) (Embree et al., 1997: 66). I proposed there that the objective body engages in embodied cognition, while the phenomenal body can experience an embodied knowing. I am not currently convinced that this distinction is useful.

2 For example, research suggests that emotions are important in cognition.

Phenomenology is the source of the notion of embodiment, so arguably it provides the frame for understanding EWK. I have chosen not to apply that frame too strictly, as I believe it could unhelpfully limit the range of research to be considered. For example, although Bourdieu is influenced by phenomenology, he is also critical of it (1977 and 1990).

## **MAPPING THE DIMENSIONS OF EMBODIED WAYS OF KNOWING**

I have identified several key distinctions between different models of EWK and these offer points of reference for mapping them. I have so far identified four dimensions of EWK. There may well be more, but this provides a useful start to the mapping process.

### **(A) ‘Knowing’, ‘knowledge’ or memory’?**

Some writers use the term ‘embodied knowledge’ and others ‘embodied knowing’. These terms are not usually distinguished, but it may be useful to do so. One might argue that the former implies something stable while the latter suggests a process. Whereas ‘knowledge’ suggests something one might use, ‘knowing’ implies a state of subjective awareness, an understanding or way of being-in-the-world. As Bourdieu puts it, “[w]hat is ‘learned by the body’ is not something that one has, like knowledge that can be brandished, but something that one is” (Bourdieu, 1990: 73). In his discussion of embodied knowledge Tanaka, drawing on Merleau-Ponty, defines it as “a type of knowledge in which the *body* knows how to act” (2013: 48. Author’s emphasis). Tanaka emphasises the *performative* aspect rather than the cognitive aspect: “It is a kind of intelligence that dwells within the body in action” (ibid.: 51). This EWK includes knowing how to walk, ride a bike, orient oneself and move through space and engage in nonverbal behaviors (ibid.: 52).

Other writers understand embodied knowledge in a more cognitive way; a knowledge that can be *consciously* applied to objective aspects of the world. Berenson, a 20th century art historian, appears to have been able to identify forged works of art using an EWK (Hoving, 1996). Berenson is not unique and ‘fakebusters’ like him were unable to specify how they knew a particular item was a copy, but would simply say that their “stomach felt wrong”, they “had a curious ringing” in the ears, were “struck by a momentary depression” or “felt woozy and off balance” (Hoving, 1996; 19-20). Such examples could be interpreted through a Cartesian frame,

with the body as an instrument communicating information to the mind. However, I think we can understand this type of EWK within a post-Cartesian paradigm, perhaps using my cognitive iceberg model (fig. 1).

The kinds of embodied knowing described by Sachs Norris and Barbour are somewhat subjective and personal. Such knowing may lead to practical action, but is of a different kind from the objective EWK applied by a cyclist, a machine operator (Zuboff, 1988) or that which informs an art historian that a painting is a fake (Hoving, 1996). There are at least four different EWK here:

- i. pre-reflexive, tacit embodied knowledge of how to act effectively (e.g. riding a bike or operating a machine) and perhaps with great skill, as described by Tanaka, Merleau-Ponty, Zuboff and others;
- ii. pre-reflexive, tacit embodied knowledge of how to act that impacts on our way of being in the world. Habitus is a useful term here. We might also call this embodied cultural knowledge held by and communicated through ritual, formal dance etc.
- iii. embodied knowledge about the world that is available to conscious awareness via embodied experience (e.g. the felt sense (Gendlin) or sensing that a painting is a fake (Hoving));
- iv. constructed, personal (and possibly 'subjective') embodied knowing (Sachs Norris and Barbour).

(i), (ii) and (iii) are all forms of 'embodied knowledge'. In each case it is knowledge that is used to engage with given and specific aspects of the world: The art historian correctly *knows that* the painting is a fake; the cyclist *knows how* to ride. However, the notion of body memory may be useful to tease out the distinction between the first two and (iii). If we take body memory to refer explicitly to an embodied *know how* (Fuchs, 2017), it fits (i) and (ii) perfectly. It also excludes the kind of embodied knowledge in (iii): A felt sense is not a body memory. I use 'embodied knowing' to designate (iv): These EWK are more personal; Barbour has a *knowing* that is "constructed ... experienced and lived" (2004; 234).

Not all models of EWK neatly fit into one of these four types. Assuming for a moment that this approach is useful, we may need more types of EWK; we may also need to tease out the different types in any given model.

## **(B) The pre-reflective dimension**

EWK are typically tacit (i.e. pre-reflective), but in many cases can be accessed by conscious awareness. Different thinkers and models vary in their estimation of the degree to which the average individual can consciously access their EWK under everyday conditions.

- Lowest level: Outside conscious awareness. The knowing of the habitual body (Merleau-Ponty, 1962), e.g. how to ride a bike; habitus (Bourdieu); embodied conceptual metaphors (Lakoff & Johnson).
- Mid-range: This is broad and includes EWK that are in principle accessible to conscious awareness but in everyday mental states are not. The work of Gendlin and Zuboff offer typical examples.
- Upper level: EWK at this level is easy to access and is quite often in our everyday consciousness. Barbour's personal EWK serves as a good example (2004).

Exactly where each level starts and finishes is somewhat vague, so the degree of conscious access across this range is best understood as a spectrum.

## **(C) Degree that embodied knowing is context specific**

For most theorists EWK are context dependent and draw on the wider environment. I tentatively identify these as EWK that involve enfolded cognitive extension. These EWK may involve, inter alia, social contexts, objects, the ordering of space, and the other-than-human world (see, inter alia, Merleau-Ponty, Gendlin, Ingold, Varela et al.). Some of those who emphasise the context specific nature of EWK suggest, more or less strongly, that this challenges Western ideas about the duality of the self and the world (e.g. Abram, 1996). I am not going to discuss the philosophical dimensions of this question here, but note those theorists who highlight this aspect in table 1.

## **(D) Gestural and/or metaphorical?**

Numerous approaches suggest that EWK are grounded in or expressed through metaphor. Several theories emphasize the role of the individual body in EWK and focus on stance, movement and gesture. The gestural, metaphorical and the enfolded cognitive extension approaches emphasize different aspects of EWK and are not mutually exclusive.

Table 1 sets out these four dimensions in tabular form whereas my 'Map of EWK' (fig. 4) provides a more graphic representation of the two primary dimensions, (A) and (B). One could also consider how EWK theories are applied: Is the model more interested in EWK that engages with the animate (humans and/or nature) or the inanimate world of technology and machines?

## **Tacit and Explicit Knowing**

Although Polanyi never explicitly wrote about EWK, tacit knowledge refers to the same phenomena. However, Tanaka points out that *contra* Merleau-Ponty, Polanyi "did not consider the body as the *subject* but as the *instrument* in knowing" (Tanaka, 2013: 51). Polanyi concluded that "we know more than we can tell" (Polanyi, 1966: 4), referring to a tacit knowledge which is experiential and cannot be made explicit (Polanyi, 1958). This distinction between explicit and tacit knowledge is fundamental to the work of several researchers (inter alia, Polanyi; Nonaka & Takeuchi). Explicit knowledge is variously called propositional knowledge, "embrained knowledge" (Quintas & Ray et al., 2001: 27), "knowledge that" (Ryle, 1949) and "knowledge about" (James, 1950). It is usually abstract and can be expressed formally in "words and numbers, scientific formulae, codified procedures or universal principles" (Quintas & Jones, 2002: 47).

Nonaka & Takeuchi describe tacit knowledge as:

not easily visible and expressible. Tacit knowledge is personal, context-specific and hard to formalize and communicate ... Subjective insights, intuitions and hunches fall into this category ... [it] includes cognitive and technical elements (Nonaka & Takeuchi, 1995: 56 and 75).

Tacit knowledge is fundamentally practical, situated and emotionally charged. Skills held as tacit knowledge are taught through observation, imitation, and practice (Nonaka, 1994: 19). Quintas & Ray et al. note that "[t]he mere transfer of information will often make little sense, if it is abstracted from associated emotions and specific contexts in which shared experiences are embedded" (Quintas & Ray et al. 2001: 47-48).

## **Phenomenology**

Phenomenology has a great deal to offer our discussion and

Merleau-Ponty provides “the original textual source of embodied knowledge” (Tanaka, 2013: 49). Phenomenology is an influential and extensive field, and I shall refer to a few thinkers I take to be central to mapping EWK.

Merleau-Ponty was fascinated by our '*being-in-the-world*' - the way our consciousness is incarnate *in the world*. Our awareness does not emerge from a disembodied mind located somewhere outside the physical, but is part of an *active relationship* between embodied humans and the world:

The properties of the object and the intentions of the subject ... are not only intermingled; they also constitute a new whole (Merleau-Ponty, 1963: 13).

Merleau-Ponty concluded that the process by which we come to understand the world emerges from a unity between subjects and objects that is the direct result of our embodiment. As he puts it, “[m]y body is the fabric into which all objects are woven” (1962: 273). Though his primary concern was with perception as an embodied process, he understood our entire being-in-the-world in the same way and concluded that the process by which we come to understand the world emerges from a unity between subjects and objects that is the direct result of our embodiment. When I ride my bicycle, I do not think through each movement. This is especially apparent when I turn a corner: If I were to try to think through each subtle movement as I adjust my balance and turn the handle bars in just the right way, I would certainly fall off. When I ride skillfully, my habitual body responds in a fluid way to the constantly changing environment. Thus “[m]ovement is not thought about movement and bodily space is not a space thought of or represented” (1962; 159). Knowing how to ride a bike is tacit, embodied, practical and in all ways different from the propositional knowledge we can talk about. As Merleau-Ponty puts it, this is a “knowledge in the hands, which is forthcoming only when bodily effort is made, and cannot be formulated in detachment from that effort” (1962: 144).

Abram applies Merleau-Ponty's work to develop an environmental philosophy which understands the body as “a sort of open circuit that completes itself only in things, in others, in the encompassing earth” (Abram, 1996: 62). Drawing on Merleau-Ponty's insight that perception is participatory, Abram explores how the immediate environment influences our thinking (ibid.).

Sheets-Johnstone offers a sophisticated study of EWK and I can only provide a very general overview here. Sheets Johnstone argues for the primacy of *movement* over perception, pointing out that perception is underpinned by movement, which is “the originating ground of our sense-makings” (2011; 139). She claims that “[k]nowledge is enfolded in movement”, because “... from a dynamic systems perspective, cognition is structured in activity, in movement” (ibid.;198). In fact “moving is a way of knowing” and “thinking in movement is foundational to the lives of animate forms” (ibid.; xvii). “Thinking in movement is a way of being in the world, of wondering or exploring the world, taking it up moment by moment and living it directly in movement” (2009; 35). Thinking with movement includes a wide range of abilities that includes both the “everyday ‘I cans’” and complex activities like “performing surgical procedures” or “sculpting a piece of wood” (ibid.; 256). This is not simply “know-how, a lesser form of knowledge” (author’s emphasises), because these abilities are “saturated in cognitive and affective acuities” (ibid.; 256).

### **Cognitive neuroscience<sup>3</sup>**

‘Second-generation’ cognitive neuroscience “begins with the realization that the body ... grounds and shapes human cognition” (Rohrer, 2006: 21-22) and provides “a wealth of converging evidence from various empirical disciplines that shows how our conceptual systems ... are grounded in patterns of bodily activity” (Johnson, 1999: 85). This approach, emboldened by the success of an embodied strategy in advancing artificial intelligence research<sup>4</sup>, can be usefully described as an embodied cognitive science. For more on embodied cognitive science, see Gibbs (2006) and Niedenthal, et al. (2005). I note that these conclusions are not accepted across cognitive neuroscience and the debate is ongoing (Robbins and Aydede, 2009).

### ***Enactivism***

Varela et al. build on Merleau-Ponty's work to develop a model of cognition as "embodied action", a process they call "enactive" (Varela et al., 1991: xx)<sup>5</sup>. They concur that cognition is embodied and factor in the wider "biological, psychological, and cultural context" (ibid.: 173). By emphasizing action they highlight that cognition is an aspect of the sensory body (ibid.: xx) and that

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3 I include two philosophers (Clark and Preston) in this section who, though not cognitive neuroscientists, base their theories largely on work within the field.

4 See, for example the work of Rodney Brooks, 1999

5 Also see Maturana & Varela, 1998.



“knower and known, mind and world, stand in relation to each other through mutual specification or dependent coorigination” (ibid.: 150). The enactive approach to cognition “is based on situated, embodied agents” (Varela, 2001: 215) and explicitly rejects representationalism, bypassing the “logical geography of inner versus outer” by understanding cognition as embedded in a total “biological/ psychological, and cultural context” (Varela et al., 1991: 172-173). They conclude that “organism and environment enfold into each other and unfold from one another in the fundamental circularity that is life itself” (ibid.: 217). Varela's article, 'Steps to a Science of Inter-being' (1999), provides a useful introduction to the enactivist model.

Johnson's pursuit of the enactivist approach leads him to conclude that the way we conceptualize and reason depends on “the kinds of bodies we have, the kinds of environments we inhabit, and the symbolic systems we inherit, which are themselves grounded in our embodiment” (Johnson, 1987: 99) In short, reason is embodied (ibid.:100) and grounded in an environment that includes “our history, culture, language, institutions, theories, and so forth” (ibid.: 207).

Johnson joined cognitive linguistics researcher Lakoff to develop a theory of language and reasoning based on embodied metaphors (Johnson, 1989; Lakoff & Johnson, 1999). They claim that we reason using metaphorical concepts that are based on our embodied experiences. The way we use the metaphor 'more is up' provides a simple example: Because in health we stand up and sickness brings us down physically, we tend to think metaphorically of 'more' as being 'up' ('price rises') and less as down ('stocks plummeting'). These conceptual metaphors are learnt, and can be expressed in grammar, gesture, art or ritual. Lakoff and Johnson conclude that “[b]ecause our ideas are framed in terms of our unconscious embodied conceptual systems, truth and knowledge depend on embodied understanding” (ibid.: 555).

### ***Embodied Situated Cognition***

Theories concluding that cognition extends beyond the physical body have spawned a new approach in cognitive science called Embodied Situated Cognition (ESC). ESC is an interdisciplinary field that has “produced numerous advances” in many field including psychology, philosophy of mind and social interaction theory (Almeida e Costa and Rocha, 2005). ESC entails a “dynamic coupling between intelligent agent and environment” (ibid.). On this

model embodiment means “the body-in-space, the body as it interacts with the physical and social environment” and they conclude that it “is not just that the body shapes the embodied mind, but that the experiences of the body-in-the-world also shape the embodied mind” (Rohrer, 2006: 5).

Clark is one of the foremost philosophers of ESC. He concludes that “extra-bodily resources constitute important parts of extended computational and cognitive processes” and in some cases this “seepage of the mind into the world” challenges Western notions of self. Clark concludes that what we normally accept as ‘mental processes’ extend beyond the ‘skin bag’ into the local environment (Clark, 1977: 214). This process, which Clark calls “robust cognitive extension” only occurs in special cases where “the relationship between user and artifact is about as close and intimate as that between the spider and the web” (ibid.: 218). However, “beliefs, knowledge, and perhaps other mental states” sometimes depend on “aspects of the local environment” creating “hybrid entities” made up of “brains, bodies, and a wide variety of external structures and processes” (ibid.: 218).

Preston’s work (2003) is also of interest. Preston focuses on the role of specific places in embodied cognition, claiming that that “part of the feeling of attachment to place is quite literally an attachment of a portion of our cognitive architecture to the lands we inhabit” (2003: xv). Basso’s ethnographic work on the importance of place for the Western Apache explores related ideas (1996).

## **Ethnography**

Ingold draws on ethnographic research to come to conclusions that echo those from cognitive neuroscience:

For the Ojibwa, knowledge is grounded in experience, understood as a coupling of the movement of one's awareness to the movement of aspects of the world. Experience, in this sense, does not mediate between mind and nature, since these are not separated in the first place (Ingold, 2000: 11).

This EWK is grounded in a relational notion of personhood where the self inheres “in the unfolding of the relations set up by virtue of its positioning in an environment” (ibid.: 11). Body and mind are thus simply different ways of describing the same process, “namely the environmentally situated activity of the human organism-person” (ibid.: 171). This mode of being-in-the-world engenders an EWK that

is grounded in “practical application” and “based in feeling, consisting in the skills, sensitivities and orientations that have developed through long experience of conducting one's life in a particular environment” (ibid.: 25). There are elements of EWK types i, ii and iii in Ingold’s work.

Csordas defines 'somatic modes of attention' as "culturally elaborated ways of attending to and with one's body in surroundings that include the embodied presence of others" (Csordas, 1993: 138). Because we are "always already in the world", we cannot attend to a bodily sensation without simultaneously attending "to the intersubjective milieu that gives rise to that sensation" and thus the sensation "can tell us something about the world and others who surround us" (ibid.: 138-39).

Davidman suggest that we use "alternative sources of knowledge, such as our own emotions and feeling states ... to understand and convey the experiences of those we meet in the field" (Davidman, 2002: 20). McGuire's work provides an excellent example of how this works in practice. McGuire describes an interview she made while researching attitudes of farm women in rural Ireland. Both McGuire and the interviewee were mothers, and McGuire was nursing her child as they spoke. McGuire describes how she related to the other woman through feeling "the sheer physicality of our mutual understanding. We understood each other, not only cognitively or emotionally, but also with our bodies ... I remember this moment now with my body/mind, not just mentally" (McGuire, 2002: 204). McGuire explains that their shared experience of nursing provided a "shared physical experience", which drew on her own "body/mind experience" (ibid.: 205).

I note in passing Syme’s ethnography of Scottish/Irish Gaelic speaking cultures, which explores traditional "knowings" that are grounded in "bodily" knowledges (Syme, 1997: 206).

Both Todres (2007) and Harris (2008) used Gendlin’s Focusing approach to access EWK in their ethnographic practice. Todres writes of an "interembodied experience" that emerges between the interviewer and the participant that provides an "embodied understanding" of their interaction (Todres 2007: 39). Harris presents a “teachable technique for accessing embodied knowing in an interview context” (2020, in press).

These examples all exemplify type (iii) EWK.

## **Dance Education**

Barbour considers EWK in the context of women's solo contemporary dance (Barbour, 2004). Barbour develops the feminist epistemology of Belenky et al. (1986) to theorise a strategy she identifies as an EWK, whereby:

“a person views all knowledge as contextual and embodied. The person experiences him/herself as creator of and as embodying knowledge, valuing her/his own experiential ways of knowing and reconciling these with other strategies for knowing as s/he lives out her/his life” (Barbour, 2004: 234).

Barbour is one of the few theorists I consider here who operate within a feminist frame of reference and that, I think, makes her work distinctive. There are key points of variance from many other descriptions of EWK. For Barbour, embodied knowledge is constructed: It is an intentional “attempt to integrate intuitively important knowledge with knowledge learned from others” (ibid.: 234). This is a strategy developed to help people “to recreate themselves throughout their lifetime” (ibid.: 236) and has a political edge: It is an EWK that could enable an individual to “creatively adapt personal beliefs and behaviours in order to resolve the tensions inherent in living in a Western context” (ibid.: 235). Barbour offers the definitive type (iv) EWK.

Hahn's ethnography, *Sensational Knowledge*, takes a quite different perspective; the process of learning traditional Japanese dance (2007). This form of embodied knowledge is not taught through explicit instructions but through a “body-to-body transfer” via the senses (79). While Japanese dance is an embodied ‘know how’, it also has a powerful effect on the performers' subjectivity. Learning to dance can enhance the performers' presence and enables them to “grow as individuals and members of a community” (171). I tentatively suggest this is a type (ii) EWK.

In the traditional Japanese dance Hahn describes, dancers learn to embody a wide range of different characters; “a warrior, monkey, lower-class character ... or bold, demonic witch” (162). Hahn suggests that this “empowers women through the transformative, shared, embodied experience of multiple identities” (ibid.) We might usefully ask how this relates to the more personally constructed EWK described by Barbour, above.

## **Sociology**

Several sociologists suggest that a form of embodied tacit knowledge underpins social interactions. Games are a good example of how this might work. The rules of the game, strategies and complex physical movements combine in ways that mean a footballer often has no time to think thorough how to play: They must feel the game 'in their bones'. The principles of the game are embodied, and the full meaning can only be expressed in actions. Bourdieu, Foucault and Mauss all discuss aspects of these “techniques of the body” (Mauss, 1973). These are examples of type (i) EWK.

Although Foucault does not explicitly explore EWK in depth, the concept runs through his work. Given Foucault's belief that power and knowledge “[d]irectly imply one another” (Foucault, 1977: 27), the process by which power inscribes itself onto the body (Foucault, 1980) can be described as a type (ii) EWK.

Bourdieu describes a type (ii) EWK called *habitus* (after Mauss, 1973). Habitus is a set of dispositions that the body learns and can use given the right social context. Because our social relationships create habitus, it is bound up with relations of power: How a class or group stand and move provides a social understanding of who they are. Our behaviour is not determined by this system, but it rather provides a practical sense that inclines us towards one behaviour rather than another. It is a way of being-in-the-world rather than a considered reflection, and so operates outside conscious awareness. The beliefs that order our behaviour are not states of mind but rather “states of body”, “instilled by the childhood learning that treats the body as a living memory pad” (Bourdieu, 1990: 68-69).

Burkitt claims that “[a]ll knowledge is embodied and situated, created within that fundamental unity between subjects and objects which is the product of having an active body” (Burkitt, 1999: 74). His key insight is that the development of cultural artefacts enabled new ways of thinking through extended cognition (ibid.: 26). This EWK is not confined to the body within the skin, but is inseparable from the social and material contexts in which it takes place (ibid.: 3). Burkitt concludes that “mind is itself immanent in the ecosystem, as a sensitivity to everything with which it is related, and as an ability to orient itself within those relations” (ibid.: 69). Although Burkitt notes “the meaningful relationship of humans to the nonhuman world”, (ibid.: 72), his work remains focused on

“artifacts, quasi-objects and mediating tools” (ibid.: 73). There are aspects of both type (i) and (ii) EWK in Burkitt’s work.

Wilcox has a very practical approach to EWK, using them in science education and social change (2009). Her approach is explicitly political: “through integrating embodied ways of knowing into our work, we have honed our critique of the Eurocentric and male-dominated system of knowledge production in the Western academy” (105). Wilcox considers three interconnected approaches to embodied pedagogy; lived experiences, performance and bodily intelligence. The results can be transformative: “students spoke passionately about their leap from academic theories of race and white privilege to an embodied understanding of how white Americans unconsciously perform privilege and whiteness” (116). Wilcox’s analysis is primarily concerned with type (i) EWK, but elements of type (ii) are also apparent.

### **Religious studies**

Sachs Norris draws on a wide range of theoretical perspectives to demonstrate that “[t]ranscendent experience, in any culture, is learned through the body” and EWK are “central to religious experience”. She draws on psychology, anthropology and neurobiology to explore the polysemic modes of “cognition of the body” which encompasses kinesthetic, sensory and emotional perception. There are echoes of Merleau Ponty and Bourdieu when she says that “[t]aking a position with the body affects the worshipper” (Sachs Norris, 2003).

Bell claims that ritual is a “bodily strategy that produces an incarnate means of knowing” (Bell, 1992: 163) while Grimes makes the provocative suggestion that ritual is a EWK designed to move consciousness from the head to the body (Grimes, 1995). Asad applies Mauss's notion of the habitus to problematize the distinction between religious ritual and more general bodily practices. Asad concludes that the role of ritual is not to express a symbolic meaning but to influence habitus, thereby helping to create distinct subjectivities (Asad, 1993: 131). Crossley makes a similar argument that rituals “are a form of embodied practical reason” (Crossley, 2004: 31). Drawing primarily on the work Mauss, Merleau-Ponty and Bourdieu, he concludes that rituals are “body techniques”, that is to say “forms of practical and pre-reflective knowledge and understanding” (ibid.; 37). As such they can “effect social transformations” through transforming our “subjective and intersubjective states” (ibid.; 40).

Elements of both type (ii) and type (iv) EWK are apparent in the work of all these theorists.

### **Organisation studies**

Zuboff (1988) illustrates how embodied knowledge functions in the workplace. Paper mill workers traditionally relied on their type (i) embodied knowledge to operate the machines. Until comparatively recently the operators would work alongside the machine, sensing how it behaved as they adjusted the controls. But after computerization they began to work from a remote keyboard and monitor. Many found this challenging as they had to learn how the system operated at a theoretical level instead of understanding it in tacit, embodied way. The operators had traditionally relied on a “knowing by habit and association” that they referred to as a kind of ‘folk medicine’. This was “knowledge that you don’t even know you have until it is suddenly displayed in the ability to take a decisive action and make something work” (Zuboff, 1988; 71). This required a profound shift: The operator can no longer rely on their embodied knowledge, but has to understand the data and the theory behind it.

### **Psychotherapy<sup>6</sup>**

An appreciation of EWK are apparent in humanistic and psychodynamic psychotherapy, but they are not often theorised. However several practitioners have articulated how EWK can facilitate therapy.

Research conducted by Rogers and Gendlin identified the felt sense, "a special kind of internal bodily awareness ... a body-sense of meaning" (Gendlin, 1981: 10). The conscious mind does not usually articulate a felt sense immediately, and indeed, may never do so. Gendlin echoes Polanyi when he writes that “your body knows much that you don’t know” (ibid.: 39). However, anyone can learn to access and verbalise the type (iii) EWK of the felt sense using Experiential Focusing (ibid.). Although Gendlin describes the felt sense as a "bodily sensed knowledge" (ibid.: 25), his philosophical approach requires "a new conception of the living body" as a *process* by which "the body means or implies" (Gendlin 1997: 19) and which extends beyond the skin. For Gendlin 'the body' "is a vastly larger system" (ibid.: 26) such that the felt sense *is* the entire situation. There is a clear parallel with Csordas's 'somatic modes of attention' and the felt sense parallels what Csordas calls "bodily

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<sup>6</sup> This is the longest discussion simply because it is my own discipline: I work as a psychotherapist in private practice.

sensation" (Csordas, 1993: 138).

Shaw provides a useful overview of EWK in therapy, noting that "the embodied phenomena that we experience as psychotherapists are a means of acquiring knowledge about the therapeutic encounter" (Shaw, 2003; 43). Shaw frames this in various ways, but of most relevance here is the notion of the therapist's body as a tool to receive information from the client; the body as a receiver, like using radar or reading a barometer (ibid.; 92 - 94). Some Dance Movement therapists describe a similar process. Payne describes the therapist's body "as a barometer enabling recognition and understanding of the patient's experience" (Payne, 1992; 8). Koch and Fischman acknowledge that this process draws on the therapist's felt sense (Koch and Fischman, 2011). Sensing into this kind of type (iii) embodied knowledge is not uncommon for humanistic therapists, notably perhaps those trained in Focusing Oriented Therapy. It is notable that all these therapists are using the same type of EWK as the art historians described by Hoving above.

Dance movement therapy is based on the principle that movement is the primary language of the body and is intimately related to emotion and thinking. Thus "the body reflects our way of being as humans" (Halprin, 2002; 17). Halprin opines that the body is "like a treasure chest ... full of our life experiences, contained in a deep and accurate way" (ibid: 110). Halprin presents a dance/art therapy approach to working with these EWK (ibid: 146). It is difficult to tease apart different types of EWK in Halprin's work: It is sometimes clearly type (ii), but is often (iii) or even type (iv).

Shaw opines that the "all the phenomena which therapist's experience in their bodies emanate from their own embodied experience" (2003; 46). However, Totton, an influential body psychotherapist, has a much less bounded view. He identifies something more relational, with therapist and client engaged in a kind of dance wherein embodied phenomena are mutually co-arising (2018; 38). Totton draws extensively on the cognitive neuroscience discussed above, notably the enactive theory of Varela and colleagues (ibid., 12). Totton describes a "reciprocal entwining of two subjectivities" where there is a "a complex, nonlinear interaction between therapist and client which forms a system of own, irreducible to a series of linear interactions" (ibid., 40).



Cognitive Behavioural Therapy (CBT) emerges from a very different theoretical basis to the humanistic approaches outlined above. However, there are foundational elements of CBT that *may* rest on EWK. 'Core beliefs' (also know as 'schemas') are our basic templates for understanding the world (Kennerley et al. 2017). We use schemas to organise our existing knowledge and as a framework for making sense of new experiences. It not clear to what extent schemas are a type (ii) EWK, but perhaps we can compare an individual's collection of schemas to their habitus.

Before moving on from the field of psychotherapy, we might consider the veracity of EWK. In most contexts I take it as a given that EWK facilitate adequate conduct. But a therapeutic context suggests that some EWK may not be resourceful: An adult who was abused as a child may carry a type (ii) embodied belief that 'grown ups aren't safe' which was protective for them at one time but is now problematic.

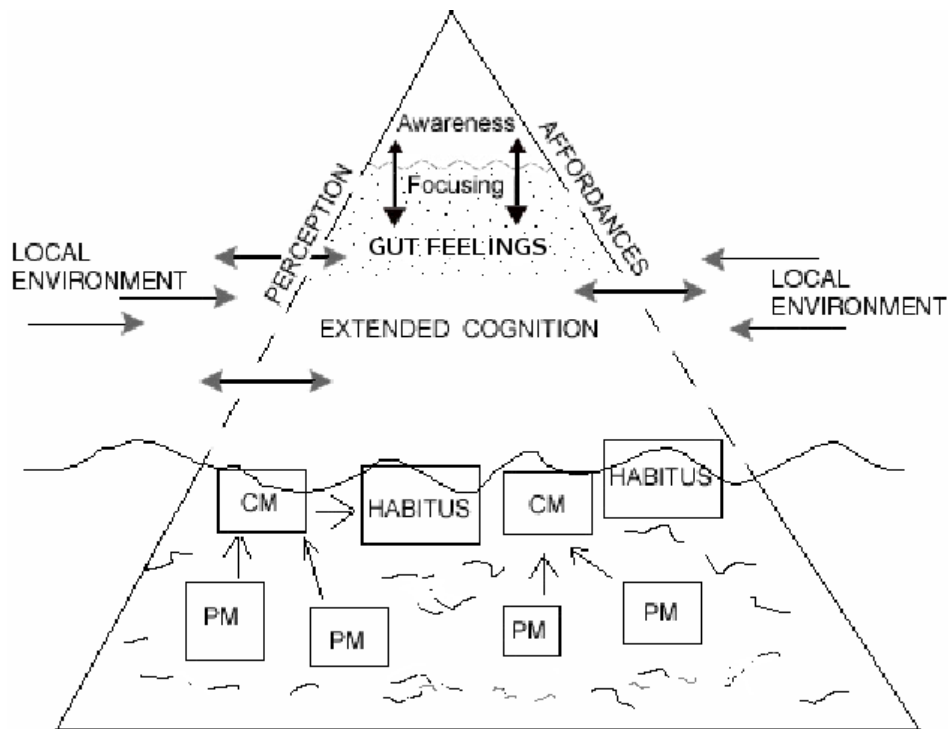
### **The Cognitive Iceberg**

My 'cognitive iceberg' diagram is an attempt to integrate some of the main models of EWK outlined above. I explain this approach in detail elsewhere (Harris, 2008) and offer a summary here. The whole 'iceberg' triangle represents the bodymind, with everyday conscious awareness - estimated to be only 5% of our total cognitive process (Lakoff and Johnson, 1999: 13) - represented at the iceberg tip. This top level of awareness is typically focused on personal concerns and tends to heighten our impression of a subject/object distinction. The dotted area just below the apex designates 'gut feelings' or felt senses. The vertical arrows illustrate the way in which Experiential Focusing (Gendlin, 1981) can allow us to access felt senses. Further down the triangle awareness widens out into a zone we might call enfolded extended cognition. In this region the relationship between self and other becomes somewhat blurred, as shown in the graphic by the gaps appearing in the sides of the triangle. It is difficult to represent the complex intertwining described by, inter alia, Merleau-Ponty, Varela and Ingold: The diagram implies a more conventional separation between the local environment and body than I intend.

The physical body is engaged in a dynamic relationship with the local environment through extended cognition, perception and what Gibson calls "affordances" (Gibson, 1979). As 95 percent of embodied thought occurs below our consciousness (Thrift, 2000: 36), most of this processing, which is the source of EWK, rarely

enters everyday awareness.

The area below the lower wavy line represents the "cognitive unconscious" (Lakoff and Johnson, 1999: 10). This contains the Primary Metaphors (PM) that underpin Complex Metaphors (CM), and sets of interrelated Complex Metaphors (ibid.) which I interpret here as habitus seen from a different perspective.



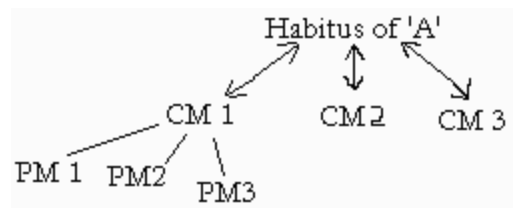
**Fig 1: The Cognitive Iceberg**

A distinct boundary marks off the cognitive unconscious because it is normally inaccessible to intentional influence or conscious awareness. However, this line is wavy, because under certain circumstances - in ritual for example (Asad, 1993) - our extended cognition can access and influence at least some of what lies below the line.

### **Metaphor and Habitus**

In Lakoff and Johnson's model, Primary Metaphors are the basic units of embodied understanding (Lakoff and Johnson, 1999: 56). Primary Metaphors build into the Complex Metaphors that help construct our conceptual systems, and "affect how we think and what we care about" (ibid: 60). We can explain how Bourdieu's habitus functions in terms of Primary and Complex Metaphors, as

shown in fig. 2.



**Fig. 2: Embodied Metaphor and Habitus**

Primary Metaphors (PM) underpin Complex Metaphors (CM), and sets of interrelated Complex Metaphors can be understood as habitus seen from a different perspective. The stoic 'stiff upper lip' serves as a good example: 'Stiff Is Strong' is a Primary Metaphor that becomes Complex in the context of the emotional feeling of distress where the upper lip trembles. In a social context, the stiff upper lip, seen as an aspect of habitus, exemplifies a class bound moral imperative. A slightly adapted version of figure 2 is integrated into the cognitive unconscious on my cognitive iceberg diagram (fig. 1). Complex Metaphors could also be usefully compared to the schemas used in CBT.

## **CONCLUSION**

When I first encountered EWK, I thought that they were odd exceptions to the norm of propositional knowledge. Before long I realised that perhaps the opposite was true: EWK are the foundation of all knowing. I found myself in a vast and largely uncharted territory with no map and a rudimentary compass. Many years later, I believe I have begun to identify some common features in this extraordinary landscape. Having reviewed a representative sample of the considerable literature on EWK, I have identified four dimensions that are present in almost every theoretical model. These four provide the initial points of reference for mapping the territory of EWK. None of this is intended to be definitive. The literature on EWK is vast and I although I have tried to consider a representative sample, I expect to have missed at least some important texts. I therefore invite and encourage your critical engagement. My hope is that this document will serve as a provocation to discussion; that others will engage with this initial attempt, identify the flaws and help refine this rough sketch map of EWK.

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