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Title: The Embodied Mind: Cognitive Science and Human Experience

Authors: Francisco J. Varela, Evan Thompson and Eleanor Rosch

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Reviewed by: Tom McClelland (University of Warwick)

The second edition of *The Embodied Mind* supplements the original 1991 text with nearly 50 pages of new material: a foreword by leading figure in mindfulness therapy – Jon Kabat-Zinn – and extensive new introductions by each of the two surviving authors – Evan Thompson and Eleanor Rosch. This hugely provocative and influential text has certainly earned its republication, and the reader's experience will doubtless be enriched by the new supplementary material. The book is driven by the idea of a 'circulation' between human experience and the sciences of the mind. Rather than insulating our lived experience from emerging insights into the nature of the mind, the authors encourage us towards 'transformations' that bring our everyday experience into harmony with our best understanding of the mind and have far-reaching implications for how we live our lives. Furthermore, rather than insulating our scientific inquiry from our everyday lived experience, the authors encourage us to achieve experiential insights that will free us from entrenched misconceptions about the nature of the mind and its place in the world.

The book proceeds in five parts. Part I explores the two elements of the targeted circular interaction – cognitive science and human experience. Here the authors ally their project with that of Merleau-Ponty, though they contrast the phenomenological school's method of reflection upon experience with their preferred meditative method of open-ended mindful investigation. Part II argues that although cognitivism has uncovered that there is no unified self, it fails to reconcile this conclusion with our lived experience. They propose that the Buddhist tradition offers a deeper appreciation of the absence of the self through which we can learn to experience ourselves in an ego-less manner. Part III explores the question of how the mind should be understood if not in terms of a unified substantial self. The authors draw both on contemporary ideas in biology and cognitive science regarding self-organisation, emergent properties and connectionist architecture, and on related Buddhist ideas regarding karma and the Wheel of Life. Part IV further develops this new 'enactive' approach to cognitive science and clarifies their two key conceptual innovations: embodiment and enaction. They explain that the concept of embodiment is intended to highlight:

...first, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context. (p. 173)

They go on to explain that adopting an enactive approach means endorsing the claims that:

(1) perception consists in perceptually guided action and (2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided. (p. 173)

Their radical claim that the world is not pre-given but *enacted* expands their groundless conception of a mind devoid of ego into a groundless conception of a world devoid of independent objects. Part V reflects critically on the place of groundlessness in contemporary Western thought and draws further lessons from Eastern traditions. In line with their project's 'deeply ethical concerns' (p. lxvi), the authors conclude by reflecting on the ethical implications of their enactive view.

In his foreword, Kabat-Zinn reflects on the 'seminal and historic role' of *The Embodied Mind* describing the book as brave, edgy and rigorous (p. xi). This description is at least partly justified. The book is incredibly brave in its scope, encompassing a range of contemporary and historical ideas in phenomenology, analytic philosophy, existentialism, cognitive psychology, artificial intelligence, psychoanalysis, cellular biology, evolutionary theory and various schools of Buddhism. It is also edgy in its content, proposing radical reconceptions of the mind, its place in the world and of the entire methodological outlook of cognitive science. It is not, however, a text that I would describe as rigorous. Though impressive and enticing, the authors' arguments are deeply muddled in some places, and straightforwardly fallacious in others. I will pick out three representative arguments that target methodology, the self and the world respectively.

The first part of the book emphasises the importance of achieving first-person insights into the nature of one's experience. The authors propose that the reflective methods developed in the phenomenological school face severe limitations, and that their own preferred approach of open-ended mindful investigation avoids these shortcomings. A more rigorous examination, however, suggests that the gap between the two methods is not as profound as advertised. First, the authors exaggerate the extent to which the phenomenological method adopts a theoretical perspective that distorts the pragmatic aspects of lived experience, and the extent to which phenomenological findings are tainted by background theoretical commitments. Second, they exaggerate the extent to which meditative investigation can overcome these impediments. It is well-established that attention dramatically alters experience so, as an essentially attentive activity (p. 78), mindfulness will distort experience rather than simply disclosing it (Dreyfus pushes a related point in his 1992 review of the book). Furthermore, the conclusions reached in the meditative tradition are, like those of the phenomenologists, strongly influenced by theoretical concerns and commitments rather than reflecting lived experience in a manner untainted by theory. Interestingly, these shortcomings of the book's arguments are conceded in Thompson's new introduction, though Rosch is a little less concessive on this issue. Neither author, however, concedes that there are similar exaggerations in their discussion of other themes.

Consider their extended discussion of the self. The authors argue that cognitivism is committed to the non-existence of the self: a conclusion with which they strongly agree. They object, though, that cognitive science has failed to provide a viable self-free framework for understanding the mind and has ignored the need to incorporate egolessness into our lived experience. These accusations only stand up if cognitive science is indeed committed to the non-existence of the self, but this commitment is again exaggerated. Various psychological findings do indeed put pressure on the idea of a substantial, coherent, unified and stable self that is the source of thought, the centre of perception and the origin of action. Although one response to this pressure is to deny the existence of the self, another is simply to *revise* our conception of the self to accommodate these findings. As Dennett puts it, the points raised in the book can plausibly be dealt with by *reformation* rather than *revolution* (1993).

One important example concerns our naïve conception of the self as an enduring substance that persists through all our mental and bodily changes. Various considerations suggest that no such substantial entity exists, but rather than concluding that the self is unreal we can adjust our

understanding so that the self is no longer an enduring substance but instead a certain kind of pattern - a 'perduring' entity. This kind of view gets short shrift from the authors, who misrepresent it as reducing facts about the self to a matter of perspective (p. 65). Our naïve conception of the self also regards the self as an essentially conscious entity, yet cognitive science posits unconscious mental processes. Again, we might take this as evidence against the existence of the self, or we could simply revise our conception of the self to accommodate the fact that we undergo both conscious and non-conscious processes. The authors again dismiss such a view too lightly, arguing that if mental processes can be either conscious or non-conscious then consciousness becomes epiphenomenal (p. 56). This is a particularly patent fallacy: the fact that *some* mental processes can occur non-consciously does not entail that *any* mental process can occur non-consciously.

This pattern of misrepresenting existing positions also extends to their discussion of the nature of the world. The authors highlight the failings of both objectivism – the view that experience discloses a wholly mind-independent world – and subjectivism – the view that experience projects properties of the mind onto the world. They argue that '...Western views have...no methodological basis for a middle way between objectivism and subjectivism' (p. 230) and propose their own middle-way position according to which the world is enacted by organisms through a 'history of structural coupling' (p. 200). On this view, there is a mutual dependence between mind and world such that an organism's world is 'brought forth' by the activities of that organism. Pursuing a middle-way between objectivism and subjectivism is certainly a sensible proposal, but here the authors again exaggerate the distance between their own proposal and existing positions.

They hold that cognitivism is committed to a representational view of the mind, which is in turn committed to the objectivist thought that experience 'recovers' how the world is in and of itself. This disregards the myriad positions in both philosophy and psychology according to which we represent 'response-dependent' properties: that is, worldly properties that are characterised by the responses they elicit in certain kinds of organism. When faced with problems about the objectivity of colour – problems articulately exposed in Ch.8 of the book – thinkers such as Locke have claimed that being red is a matter of having the dispositional property of affecting certain kinds of observer in a certain way. The notion of response-dependent properties is prevalent in Western thought, and is even compatible with a representational view of the mind, so it is a mistake to hail enactivism as revolutionary in its carving of a middle-way between objectivism and subjectivism.

It might be objected that this common-place notion of response-dependent *properties* is disanalogous to the proposed account of an enacted *world*. The authors are not merely arguing that certain experienced properties only exist relative to certain kinds of organism, but rather that an organism's whole world is 'brought forth' by them. I see two ways of reading the proposed enactive view of the world. On the first reading, enactivism says that everything we experience is in some sense relative to the kind of organism we are. If this reading is accurate, the difference between enactivism and the common-place response-dependent view is merely one of degree: most theorists claim that *some* of the properties we experience are organism relative where enactivism claims that they *all* are. This does not mark a radical break from orthodoxy, and might even be read into a number of existing theories such as Kant's Transcendental Idealism. On the second reading, enactivism says not just that everything we experience is relative to the kind of organism we are but that there is *no mind-independent world* beyond our experience. This view would certainly mark a more dramatic departure from orthodoxy, but it is not a view that is justified by the arguments offered in the book. The authors do offer an argument from Mahayana philosopher Nagarjuna that what is seen is inseparable from the seer and the seeing of it, because it is unintelligible for a sight to exist unseen. This is the kind of weak word-play easily unpicked by a keen undergraduate philosopher – a point that the authors come

close to conceding themselves (p. 223) – yet the argument is nevertheless given credence. The denial of a mind-independent world is not just poorly motivated in the book, but hard to reconcile with the enactivist framework. It seems we must posit a world that exists independently of the organism to make sense of the organism bringing forth a ‘lived world’ through its interactions with it. This comes out vividly in the authors’ example of ‘Bittorio’ – a ring of cellular automata that brings forth a world of significance through its coupling with ‘...a random soup of 1s and 0s’ (p. 157). Overall then, it is unclear that *The Embodied Mind* has supplied and motivated a revolutionary understanding of the world at all.

The examples offered above are not the only cases in which the authors misrepresent existing views, nor are they the only cases in which the depiction of their own view is skewed or unclear. It is worth noting that Kabat-Zinn, despite the positivity of his foreword, admits that he didn’t understand most of the book on first reading it (p. xi). Similarly, Rosch’s introduction alludes to ‘...twenty years of emails from confused readers...’ (p. xxxviii). It would be a mistake, however, to dismiss the whole book as unclear and poorly argued. The text packs in an incredible amount of content, so for every poor argument there is another that is more convincing, and for every muddled or inaccurate piece of exposition there is another that is incredibly clear and informed. More importantly, there is a sense in which criticisms of the lack of rigour in some stretches of the book risk missing the point. Consider the following statement of the book’s purpose:

Let us emphasize that the overriding aim of our book is pragmatic. We do not intend to build some grand, unified theory, either scientific or philosophical, of the mind-body relation. Nor do we intend to write a treatise of comparative scholarship. Our concern is to open a space of possibilities in which the circulation between cognitive science and human experience can be fully appreciated and to foster the transformative possibilities of human experience in a scientific culture. (pp. lxiv-lxv)

A book that is intended to instigate an intellectual revolution in our approach to the mind can perhaps be excused for misrepresenting the orthodox views it opposes, and for over-stating the promise of the new frontier it signals. A project with this kind of space-opening remit should perhaps be judged not by the arguments behind it but by the legacy before it: that is, by the extent to which the world-view it preaches has gone on to yield valuable results. Such a retrospective evaluation was, of course, unavailable at the time of *The Embodied Mind*’s original publication, but 26 years on with the publication of this second edition we are in a better position to judge it by its legacy. Despite admitting his limited understanding of the text, Kabat-Zinn talks about the enormous influence that the book had upon his thinking. Perhaps this is representative of the book’s wider influence: even without understanding every claim in the book or accepting every argument, many researchers have had their thinking moulded by the spirit of the book, and have achieved deeper insights into the mind as a result.

The two new introductions offer a useful overview of *The Embodied Mind*’s legacy. Rosch identifies some key ways in which the contemporary landscape of cognitive science vindicates the ideas proposed in the book. She cites the increased appreciation of: the role of phenomenological investigation in the study of the mind; the importance of mindfulness training and the transformative experiences it provides, and; the development of enactivist principles in both psychology and philosophy. Thompson’s list is a little longer. He notes that researchers have increasingly moved away from a stimulus-response model of the brain to models on which brain activity is self-organising, non-linear, rhythmic, parallel and distributed. He places this in the context of a wider advance in our understanding of autopoietic systems. Furthermore, subjective experience is now typically regarded as an efficacious aspect of the mind that offers a suitable target for empirical investigation. Meditation and mindfulness are now commonly employed in clinical practice and Buddhism is increasingly

regarded as a valuable player in philosophical debates. Many mental processes are regarded as embodied, including abstract mental capacities that are taken to be grounded in motor-perceptual processes. Finally, the enactivist principle that an organism's world is not pre-specified but in some sense enacted by the organism has also gained traction.

Although this legacy is quite formidable, we must also note some of the recommendations that have not been so widely taken up. Rosch suggests that mindfulness has not been given the right place in contemporary research, and that its scientific investigation has displayed serious shortcomings. She also suggests that science has not approached the lessons of Buddhism with an 'open heart' but instead treated the tradition 'imperialistically', incorporating only those insights that are not too disruptive to the scientific status-quo (p. lii). Individual experience is still too-often disregarded in favour of an impersonal and reductive view of the mind, and there is little appreciation of evidence that Rosch takes to indicate the separability of mind and body. Finally, little has been done to extend the enactive framework beyond our understanding of the mind to other domains such as symbol-systems, disease and societal structures. Thompson proposes that more attention should be given to enactivism's radical view of scientific models as '...formalised representations of the world as disclosed to our embodied cognition.' (pp. xxvii). He also claims that experience is still erroneously treated as an object of scientific investigation rather than unobjectifiable, and suggests that more needs to be done to achieve the practical wisdom championed by the book.

The list of ideas in the book that have not proven successful could be extended further, but what should we make of this list? One possibility is that the network of ideas presented in the book form an integrated world view. The last 26 years have allowed some nodes of this network to be incorporated into the mainstream understanding of the mind, and with a few decades more the rest of the network will go the same way and enactivism will become the new orthodoxy. Another possibility is that the proposed network of ideas is not as integrated as the authors advertise, and that one can pick and choose which claims are worth adopting. On this view, the best components have been carved-off, refined and developed over the years while the weaker components have rightly been left by the wayside. I'm inclined to favour the latter interpretation: cognitive science has been reformed in light of the insights captured by the book, but the full-scale revolution that Varela, Thompson and Rosch call for has rightly been resisted. But even if I'm right that not all of the driving claims of *The Embodied Mind* will be proven right, the point remains that the book has an impressive legacy that marks it as a valuable contribution to cognitive science and as a text worthy of our continued critical attention.

Literature:

Dennett, D.C. (1993) Review of "The Embodied Mind," *American Journal of Psychology*, 106: 121-6.

Dreyfus, H. (1993) Review of "The Embodied Mind". *Mind*, 102: 542-6.