How the Body Knows its Mind: The surprising power of the physical environment to influence how you think and feel

Sian Beilock

New York: Simon & Schuster, 2015, 288pp,
ISBN 978–1451626681, $26 hardback
(paperback out later in 2015)

Review by Paolo Terni

Sian Beilock is a Professor at the University of Chicago and a gifted researcher, one of the world's experts in the psychology of peak performance. So I was very excited when I learned that her latest book was about the science of "embodied cognition".

Embodied cognition holds that cognitive processes are rooted in the body's interactions with the physical world — in other words, the mind is not an abstract information processor but a part of a body that interacts with the world, and as such must be understood. As Clark (1998) put it: "biological brains are first and foremost the control systems for biological bodies. Biological bodies move and act in rich real-world surroundings".

This point of view is of interest to SF practitioners for at least two reasons. The first one is that it constitutes a natural continuum with the interactional view of SF: just as our experience of the social environment is the product of our interactions with others, as some SF thinkers have pointed out (Dierolf, 2011; McKergow, 2013; McKergow & Korman, 2009), so our cognition of the world is the emerging product of our interactions with the environment, as embodied cognition researchers claim. The second reason is that embodied cognition aligns well with Wittgenstein's own interactional philosophy of mind (e.g., "if a lion could speak, we could not understand him", because the world afforded by a lion's body would be very different

from our world, in ways that would defy a simple translation) — and Wittgenstein has long been a like-minded companion for many SF thinkers, starting from Steve de Shazer (de Shazer et al., 2007).

Embodied cognition makes several claims, some of them radical (such as the claim that the environment is part of the cognitive systems), and some of them less radical but better supported by evidence (such as the claim that off-line cognition is body based; Wilson, 2002).

However, Beilock tackles a watered-down version of embodied cognition, starting from her definition of it as the idea that "our mind arises from our interaction between our mind, body, and experiences, especially emotional experiences" (p. 23). That leads her to collect a series of studies supporting this notion, but without an over-arching argument to support any of the specific claims of embodied cognition other than the generic one that our environment and our bodies matter.

The book is organised around the following chapters: "The laughter club", where she shows that emotions and body are connected via a two-way street – emotions are expressed in the body, but we can also use the body to generate emotions; "Act early, think better later", where she shows how important it is for babies and toddlers to actively explore their environment to fully develop their cognitive potential; "Learn by doing", where the author documents efforts by educators to include specific body-environment interactions to teach language and maths to children, or to teach physics to college students; "Don't just stand there", where she shows how moving our body can spark creativity; "Body language", where she shows how gestures can help our thinking; "Shoes, sex and sports", where she explores the relationship between language and movement; "Tearjerkers", where she considers the role of mimicry in understanding others; "The roots of social warmth", where she shows how social warmth is expressed in and impacted by the environment; "Movement", which is about how exercise improves cognition; "Buddha, Alexander and Perlman" on using the body to calm the mind; "Greening

the brain", a chapter about how the physical environment shapes thinking; and finally an epilogue, "Using your body to change your mind", which sums up the key practical insights.

Compiling the above paragraph points to one limitation of this book; some of the chapters had a subtitle, such as "Tear-jerkers: Empathizing with others" whereas others, such as "The roots of social warmth" had none — it was indeed hard to find a common thread for those chapters.

The whole effort seems unfocused because the author puts together so many different strands of research that end up diluting the paradigm-shifting ideas of embodied cognition. For example, she often references mirror neurons (without mentioning that it appears as if, at the very least, their importance has been overstated); she includes detailed descriptions of Harlow's research on attachment; she writes a section about the roots of morality in the emotion of disgust; and she also features Piaget (acknowledging that his findings have been severely criticised). Even though all of the above research programmes involve the body in one way or the other, it is debatable whether they can be included under the embodied cognition umbrella — and the chapters about the benefits to our minds of exercise or of Nature hardly do.

So in the end the book's conclusions are underwhelming: move more; use concrete and actionable representations of abstract concepts to learn better; change something in your body (posture, expression, or gestures) to change your moods.

The promises (and the challenges) of the embodied cognition stance are much more than that.

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