Embodied Cognition in Context

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Keywords: embodiment; context; qualitative and quantitative empirical methods; dynamical systems theory; feminist theory; history and philosophy of science.

Symposium Overview

That *cognition is embodied* is a claim that virtually no cognitive scientist today will deny: after all, even the researcher who models cognition in terms of entirely abstract, "medium-independent" states and processes will concede that particular instances are always necessarily realized in some body (of some kind) or other. The same is true for the theme of this year's CogSci meeting, "*Cognition in Context*": even if you think that there are cases in which the context plays merely a peripheral role in cognitive processing, you cannot deny that cognition always occurs in some context or other.

This symposium is motivated by the realization, on the one hand, that the concept of *embodiment* means different things to different researchers in different contexts (see, e.g., Wilson 2002; Wilson and Golonka 2013; Crippen and Schulkin 2020), just as, on the other hand, the concept of *context* means different things to different researchers with different views on body and mind (see, e.g., Clancey 1997; Mesquita, Barrett and Smith 2010; Ibáñez and García 2018).

The four talks in this symposium illustrate the diversity that cutting-edge work on *embodied cognition in context* can have, including diversity in terms of theoretical background, methodological commitments (e.g., qualitative and quantitative approaches), and disciplinary orientation. Speakers of different career stages and career paths will present research emphasizing embodiment in context in two different but complementary senses of 'context'. The first sense applies to the phenomena under investigation, and concerns the role that the context plays in cognition given the speakers' particular interpretations of what it means for cognition to be an embodied phenomenon. The second sense applies to the context of research and researcher. In this sense, speakers will reflect on how their own context (e.g. varied expertise, social situatedness) contributes to their understanding of embodied cognition; and, conversely, they will also consider ways in which their particular understanding of embodied cognition in context can be applied to shed light on scientific practice and the cognitive processes at play when humans engage in scientific research.

Speakers

Dr. Guilherme Sanches de Oliveira is postdoctoral fellow and assistant lecturer in the Department of Biological Psychology and Neuroergonomics at the Technische Universität Berlin, in Germany, where he leads the interdisciplinary *EMBODY Research Group*.

Dr. Nick Brancazio has a PhD in philosophy from the University of Wollongong, in Australia, and now works as an independent researcher and consultant for non-profit organizations.

Dr. Joanna Rączaszek-Leonardi is professor in the Cognitive Psychology and Neurocognition Unit at the University of Warsaw, in Poland, where she leads the *Human Interactivity and Language Lab*.

Dr. Rachel Kallen is associate professor in the Department of Psychology at Macquarie University in Sydney, Australia.

Dr. Michael Richardson is professor in the Department of Psychology at Macquarie University and the director of the *Centre for Elite Performance, Expertise and Training (CEPET)* in Sydney, Australia.

Talks

Ecological Psychology and Cognition in Context: Theoretical Foundations and Meta-Theoretical Implications

Gui Sanches de Oliveira — The ecological approach to visual perception (Gibson 1979) is, both directly and indirectly, one of the main influences behind contemporary work on embodied cognition (Clark 2001, Gallagher 2017). But it is often misunderstood, by advocates and critics alike, as being only that, a theory *of perception*, and, crucially, one that needs to be supplemented with a theory *of cognition*. Countering this common view, this talk identifies reasons for seeing the ecological approach to perception as already a theory of cognition. Key here is the concept of "education of attention," less well known than that of "affordances" but arguably more fundamental than it. As I propose, the ecological view of the education of attention amounts to a proper theory *of cognition* as inherently *embodied and in context*. Based on this, I outline implications for how the ecological perspective can fit in the context of contemporary cognitive science, emphasizing (i) the prospect of integration

In M. Goldwater, F. K. Anggoro, B. K. Hayes, & D. C. Ong (Eds.), *Proceedings of the 45th Annual Conference of the Cognitive Science Society.*

with seemingly competing computational approaches, and (ii) the untapped potential for guiding research on science education and on expert performance in scientific explanation and understanding.

Taking Context from Transaction to Interaction

Nick Brancazio — The theme of this year's meeting shows that we hold context to be important for understanding cognition, no matter what cognitive framework one prefers. In this talk, I'll discuss some concerns that methodological individualism holds us back from understanding the ways that context is involved in cognition. Following Longino (2020), I argue this is a widespread problem that needs to be addressed through ontological pluralism. I'll provide some examples of interactive agential dynamics from coordination models (Kelso 2021) and active matter systems (Ramaswamy 2017) that show how interaction provides a productive ontological framing for questions about how context shapes cognition. I'll then discuss some implications for interpersonal dynamics.

Symmetries of Behavior in Social Performance Contexts

Rachel W. Kallen and Michael J. Richardson — Many everyday behaviours are accomplished in social contexts and require that individuals coordinate their actions and behaviours with those around. Such interactions are remarkably diverse, ranging from individuals avoiding one another on a crowded sidewalk, to more sophisticated turn-taking during conversation and the highly complex behaviours required of musical ensembles or sports teams. A major challenge to understanding these phenomena is identifying the principles that define what patterns of behavioural coordination are possible or most likely to occur within a given context. Here, we briefly detail how the theoretical and formal principles of symmetry and symmetry-breaking provide a generalizable, yet context sensitive language for understanding and explaining the behavioural order of individual and social performance systems. To do so, we canvass examples of symmetry and symmetry-breaking, ranging from lower-order interpersonal synchrony to higher-order intergroup relations, and illustrate how these principles can account for the patterning of social performance across multiple contexts and levels of analysis.

Cognition in the fields of values

Joanna Rączaszek-Leonardi — The notion of "context" is a tricky one for a truly embodied cognitive science. One can talk about a context (of a cognitive process or act) only when one can identify the "thing" (process or act) as distinct from the context it's immersed in. But if we agree that context actually has a constitutive role for "things," a paradox arises: the same stuff is considered to be a part of a phenomenon and its context. I will show that following William James (e.g., 1912) in favouring the processes of selection as main cognitive processes may alleviate this paradox. However, such a theoretical move puts in the centre the question of choosing from among competing organizations of a perceptual field. Recent attempts in returning to the Gibsonian call for the "psychology of values" (Hodges & Rączaszek-Leonardi, 2022) may be of help here: the value-realizing framework provides a wider perspective on "context," understood as boundary conditions shaping individual behavior and interactions. I will illustrate the usefulness of the framework in developmental psychology, but will also suggest that it is helpful for recognizing how the students of cognitive sciences (that is, we all) move in their research (Reddy, 2023), inherently inviting values realized in our daily and professional activities into shaping our objects of study.

Acknowledgments

For this project JRL has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 952324.

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