

The enactive theory of social cognition: From theory to experiment

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Abstract. For over a decade I have been working on applying an evolutionary robotics approach to gain a better understanding of the dynamics of social interaction. At the same time I have been developing the enactive theory of social cognition by drawing on the phenomenological philosophy of intersubjectivity. Recently I was able to test the predictions deriving from this research on the basis of a psychological experiment using a new variation of the perceptual crossing paradigm. The empirical results support a genuinely enactive conception of social cognition as primarily grounded in embodied intersubjectivity.

EXTENDED ABSTRACT

I argue that the enactive approach to social cognition is the most promising contender among the recent variety of embodied and extended theories of social cognition. It has the virtue of making specific predictions that can be evaluated experimentally.

The upshot of this theory is that the process of understanding another person is best studied as primarily consisting of a direct perceptual interactive engagement, whereby this genuinely second-person perspective is co-constituted by the skillful mutual coordination of bodily interaction.

There are many theoretical reasons for accepting this position, and a series of agent-based models of embodied interaction show that a dynamically extended embodiment spanning two agents is possible in principle [1,2]. In fact, the mathematics of nonlinear interactions leads us to expect that such mutual incorporation should be found empirically.

We studied this hypothesis using the perceptual crossing paradigm, in which the embodied interaction of pairs of adults is mediated by a minimalist virtual reality interface [3]. As predicted, movements became entrained during their interaction, and there was a positive correlation between objective measures of coordination and subjective reports of clearer awareness of each other's presence. Intriguingly, there was a tendency for coordinating participants to report independently yet within seconds of each other that they had become aware of the other, suggesting the emergence of a genuinely shared experience.

Since participants had to implicitly relearn how to perceive the other's presence in the virtual space, we hypothesized that there would be a recapitulation of the initial developmental stages of social awareness [4].

We analyzed trial-by-trial objective and subjective changes in sociality that took place during the experiment. Preliminary results reveal that, despite the lack of explicit feedback about task performance, there was a trend for the clarity of social awareness to increase over time.

We discuss the methodological challenges involved in evaluating whether this tendency was characterized by distinct developmental stages of objective behavior and subjective experience.

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