Jordan Bailey

Classic Paper 4: Review/Analysis

Title and Author

Title: *Embodied Cognition: A field guide*

Author: *Michael L. Anderson*

Summary/Hook

This paper discusses the nature of cognition and provides a guide to the principles of Embodied Cognition: Cognition is a *situated/embodied* activity, and that beings should be considered as *acting* beings. Principles of *Cartesianism, Cognitivism, Good Old Fashioned Artificial Intelligence, Cambrian Intelligence, Neolithic Intelligence*, and *Criticisms of Embodiment* are also discussed. Finally, the idea of *scaffolding* is briefly mentioned.

Knowledge Related to the Cognitive Science Program Learning Outcomes

1. **Consciousness and Controversies**

   Descartes is the thinker most responsible for the theoretical duality of mind and body is one of the things that everybody knows; and like most such common knowledge it is not quite accurate. Descartes' arguments for the separation of body and soul are part of a long legacy of dualistic thinking, in which Plato's discussion of the immateriality of the soul and the Christian metaphysical tradition which adopted and preserved that discussion played a central role. Indeed, Descartes himself always insisted that, although body and soul were conceptually, and therefore ontologically distinct, they nevertheless formed an empirical unity. What we have inherited from Descartes is a way of thinking about our relation to the world—in particular our epistemological relation to the world— which serves to support and strengthen this ontological stance [91,92].

2. **Foundational Assumptions**

   Simply put, cognitivism is the hypothesis that the central functions of mind—of thinking—can be accounted for in terms of the manipulation of symbols according to explicit rules. Cognitivism has, in turn, three elements of

note: representation, formalism, and rule-based transformation. First and foremost is the idea that cognition centrally involves representation; cognitivism is committed to the existence of "distinct, identifiable, inner states or processes"—that is, the symbols—"whose systemic or functional role is to stand in for specific features or states of affairs" [20, p. 43]. However, just as is the case in modern logic, it is the form of the symbol (or the proposition of which the symbol is a part) and not its meaning that is the basis of its rule-based transformation.

3. **Embodiment, Emergence, and Distributed Cognition**

Merleau-Ponty argues that perception and representation always occur in the context of, and are therefore structured by, the embodied agent in the course of its ongoing purposeful engagement with the world. Representations are therefore 'sublimations' of bodily experience, possessed of content already, and not given content or form by an autonomous mind; and the employment of such representations "is controlled by the acting body itself, by an 'I can' and not an 'I think that' " ([59, pp. 108–109], see also [33]). A full explanation of the significance of this claim would require an excursion into the bases of the categories of representation and the transcendental unity of apperception in Descartes and Kant, for which there is no room here (but see [117]). However, the most immediate point is fairly straightforward: the content and relations of concepts—that is, the structure of our conceptual schema—is primarily determined by practical criteria, rather than abstract or logical ones. Likewise, experience, which after all consists of ongoing inputs from many different sources, is unified into a single object of consciousness by, and in terms of, our practical orientation to the world: "the subject which controls the integration or synthesis of the contents of experience is not a detached spectator consciousness, an 'I think that', but rather the body-subject in its ongoing active engagement with [the world]" [59, p. 111].

4. **Darwinian Processes and Phenomena**

Although, of course, the evolutionary history of an agent is physiologically stored, it expresses its effects in a somewhat less direct manner. First the sentiment, as expressed by Lakoff and Johnson: Reason is evolutionary, in that abstract reason builds on and makes use of forms of perceptual and motor inference present in "lower" animals. The result is a Darwinism of reason, a rational Darwinism: Reason, even in its most abstract form, makes use of, rather than transcends, our animal nature. The discovery that reason is evolutionary utterly changes our relation to other animals and changes our conception of human beings as uniquely rational. Reason is thus not an essence that separates us from other animals; rather, it places us on a continuum with them (p. 4).

5. **Language and Culture**

A further problem is the holistic nature of human language and reasoning: 'chair' is closely related to other concepts like 'table'. One is entitled to wonder whether knowing what sort of chairs belong at a table is part of the mastery of 'table' or 'chair'. It is unlikely that clear boundaries can be drawn here; knowing one partly involves knowing the other. Likewise, 'chair' is related to 'throne', so that it is not clear whether we should say of someone who walked up and sat in the King's throne that she failed to understand what a throne was, or failed to understand what a chair was (and wasn't). Given that these concepts are semantically related, that there is a rational path from sentences with 'chair' to sentences with 'table' or 'throne', any agent who hopes to think with 'chair' had better have grounded 'table' and 'throne', too.