

## Forestalling the Mereological Fallacy

Jim Garrison  
Virginia Tech

While endorsing Mind-Brain Education, Deron Boyles decries its dominant epistemology, which he finds dangerously reductive, dualistic, and committed to what John Dewey calls “the quest for certainty.” Dewey declares:

The advance of physiology and the psychology associated with it have shown the connection of mental activity with that of the nervous system. Too often recognition of connection has stopped short at this point; the older dualism of soul and body has been replaced by that of the brain and the rest of the body. But in fact the nervous system is only a specialized mechanism for keeping all bodily activities working together. (*MW* 9, 346)<sup>1</sup>

We should “define mind as intellect,” Dewey maintains, as “possession of and response to meanings” (*LW* 1, 208). Cognition involves the sociocultural construction of meaning emerging from, but not reducible to, a neurophysiological matrix. The cognitivist, Turing machine functionalist, behaviorist, and neurophile all commit the mereological fallacy of confusing a necessary subfunction with the unity of the entire functional coordination. Boyles is so correct, I only seek to expand the conversation.

In a past-presidents address to the American Psychological Association titled “The Need for Social Psychology,” Dewey affirmed the following principle: “[A]ll psychological phenomena can be divided into the physiological and the social, and that when we have relegated elementary sensation and appetite to the former head all that is left of our mental life, our beliefs, ideas and desires, falls within the scope of social psychology” (*MW* 10, 54). Embracing this principle Dewey uses it to propose an emergent psychological functionalism emphasizing both neurophysiology and the social construction of meaning.

Chapters 2 and 3 of Dewey’s *Logic: The Theory of Inquiry* are titled “The Existential Matrix: Biological” and “The Existential Matrix: Cultural.” The former chapter concerns the neurophysiological domain of inquiry while the latter addresses the social psychological. What Boyles says of Rorty, holds for anyone thinking Dewey’s theory of inquiry is merely a method: “He’s wrong.” Indeed, many confuse Dewey’s epistemological instrumentalism with his entire philosophy. Dewey decries “intellectualism” indicting it as “the theory that all experiencing is a mode of knowing” (*LW* 1, 28). Ignoring most of human experience, intellectualism privileges cognition.

We are participants in the universe not detached spectators. Therefore, our primary encounter with existence is immediate, anoetic, and unmediated. Dewey stresses the primacy of the aesthetic encounter: “If we take advantage of the word esthetic in a wider sense than that of application to the beautiful and ugly, esthetic quality, immediate, final or self-enclosed, indubitably characterizes natural situations as they empirically occur” (*LW* 1, 82). He continues: “Any quality as such is final it is at once initial and terminal; just what it is as it exists. It may be referred to

other things, it may be treated as an effect or as a sign. But this involves an extraneous extension and use" (*LW* 1, 82). Experience overflows any intellectual container.

We may take *immediate*, consummatory qualities and use them as *mediating* natural signs. Linguistic beings may socially construct mediating abstract, arbitrary, symbolic signs (meanings). We must distinguish *existence*, which is given from the *essences* we make from existence. The operations of inquiry produce warranted assertions, ontology, and such just as other systematic operations produce dwellings, liquor, and laws. "The name *objects*," Dewey remarks, "will be reserved for subject-matter so far as it has been produced and ordered in settled form by means of inquiry; proleptically, objects are the *objectives* of inquiry" (*LW* 12, 122). He insists: "Scientific thought is ... in its turn, a specialized form of art" (*LW* 5, 252). It is the art of creating well-warranted assertions.

Boyles is right that Hilary Putnam grasps knowledge as the "end product" of inquiry, but tries to retain truth as correspondence. Dewey remarks:

[M]y own view takes correspondence in the operational sense it bears in all cases except the unique epistemological case of an alleged relation between a "subject" and an "object"; the meaning, namely, of *answering*, as a key answers to conditions imposed by a lock, or as two correspondents "answer" each other; or, in general, as a reply is an adequate answer to a question or a criticism. (*LW* 14, 179)

This is the modest sense of correspondence Putnam sought.<sup>2</sup>

While Dewey never uses the word "neurophysiology," he clearly relies on it. Neurophysiological functions are biological. For Dewey, "Any process, sufficiently complex to involve an arrangement or coordination of minor processes, which fulfills a specific end in such a way as to conserve itself, is called a function" (*MW* 6, 466). Further, life "is a process of activity that involves an environment. It is a transaction extending beyond the spatial limits of the organism" (*LW* 12, 32). Boyles uses Dewey "to reconstruct neuroscientific inquiry as a form of pragmatism aimed toward integrated and transactive inquiry: neuropragmatism."

Dewey claims: "Habits are the basis of organic learning" (*LW* 12, 38). They are organic universals serving as instruments of existential inference while prefiguring formal logical implication. The theory of inquiry "arises as an articulate expression of the habit that is involved in a class of inferences" (*LW* 12, 20). Habits are the biological matrix of language and logic. We are born with species-specific neurophysiological instincts, or so-called "first nature." Habits are second nature: "Habits may be profitably compared to physiological functions like breathing, digesting. The latter are, to be sure, involuntary, while habits are acquired.... Habits are like functions in many respects, and especially in requiring the cooperation of organism and environment" (*MW* 14, 15). Habits are subfunctions of a transactional world without within.

Habit formation involves the biochemistry of neurotransmission. A neuron's resting electrical charge is negative inside and positive outside; firing reverses the potential. The primary synaptic transmitters are an excitatory transmitter glutamate and an inhibitor gamma-aminobutyric acid. Donald Hebb developed the "fire and

wire theory” demonstrating association in the brain occurs when neurons receiving information from stimuli fire simultaneously. It is supplemented by Terje Lømo and Tim Bliss’s long-term potentiation, which allows us to “translate neural activity generated by environmental stimuli into changes in synaptic efficiency ... to record and store information.”<sup>3</sup>

Neurophysiologically, learning is either associative or nonassociative. Nonassociative learning amplifies or suppresses responses to stimuli. Associative learning is an instance of Hebbian LTP. There is classical (Pavlovian) and operant (instrumental) learning. The former focuses on the response following a stimulus while the latter focuses on the response preceding it. Classical and operant conditioning contribute, along with species-specific neurophysiological functions, to the biological matrix of inquiry comprising what many call lower mental functioning.

Turning to the cultural matrix of inquiry, Dewey deems that “modification of organic behavior in and by the cultural environment accounts for, or rather is, the transformation of purely organic behavior into behavior marked by intellectual properties” (*LW* 12, 49). He remarks on “the especial function of language in effecting the transformation of the biological into the intellectual and the potentially logical” (*LW* 12, 51). Linguistic functioning supervenes upon habitual functioning: “Any habit is a way or manner of action, not a particular act or deed. When it is formulated it becomes, as far as it is accepted, a rule, or more generally, a principle or ‘law’ of action” (*LW* 12, 21). Once transformed, habits contribute to cognitive functioning.

For Dewey, to have a mind in the sense of higher mental functioning is to have linguistic meanings. For him it is “association, communication, participation” that “define mind as intellect: possession of and response to meanings” (*LW* 1, 208). Dewey states: “Through speech a person dramatically identifies himself with potential acts and deeds; he plays many roles, not in successive stages of life but in a contemporaneously enacted drama. Thus mind emerges” (*LW* 1, 135). Further: “Language is specifically a mode of interaction of at least two beings, a speaker and a hearer; it presupposes an organized group to which these creatures belong, and from whom they have acquired their habits of speech. It is therefore a relationship, not a particularity” (*LW* 1, 145).

Here Dewey depicts the social construction of meaning as interaction, but as Boyles recognizes, he later favored transactionalism. For instance, Dewey writes: “Yet an act is an interaction, a transaction, not isolated, self-sufficient” (*LW* 1, 154). No function, biological, linguistic, mental, or logical is isolated and self-sufficient. Minds are not brains, but there are no minds without them. In Boyle’s terms, “While biological, technical, and cognitive elements may be necessary conditions for positive growth in humanity, they are not sufficient.” The emergent holism of neuropragmatism offers a wholesome alternative.

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1. All references to John Dewey’s works will be to the multivolume series comprising *The Early Works, 1882–1898*, *The Middle Works, 1899–1924*, and *The Later Works, 1925–1953*, edited by Jo Ann

Boydston and published by Southern Illinois University Press, Carbondale, IL. These will be cited in the text as *EW*, *MW*, and *LW*, respectively. For instance, the citation (*MW*9, 346) refers to *Middle Works*, volume 9, page 346.

2. Hilary Putnam's thinking about facts, values, and "internal realism" evolved. See Hilary Putnam, *The Collapse of the Fact/Value Dichotomy* (Cambridge, MA: Harvard University Press, 2002). He insists his position is one "John Dewey defended," 9.

3. Joseph LeDoux, *Synaptic Self* (New York: Viking Penguin, 2002), 139.