PHILOSOPHY OF EDUCATION 1995

Response to “Reconceptualizing Educational Psychology”

Sophie Haroutunian-Gordon
Northwestern University

The authors summarize the position of their paper when they write:

> Educational psychology is properly concerned with a theory of learning, not simply with descriptive theories of knowledge acquisition which the tradition has conflated with a theory of the material process of change which constitutes learning. Situated perspectives, while valuable in their own right, participate in this tradition in a way that threatens to block educational inquiry.

When the authors say that educational psychology “is properly concerned with a theory of learning,” I take them to mean that educational psychology ought to present a theory of learning, not something else. When they say that the tradition [of educational psychology] has “conflated” descriptive theories of knowledge acquisition with a theory of the material process of change, I take them to mean that the latter is not a descriptive theory of knowledge acquisition and that the former is what they mean by a “theory of learning.” The “material process of change,” is, then, the proper concern of educational psychology. When the authors say that "situated perspectives…participate in this tradition in a way that threatens to block educational inquiry," I take them to mean that such “blocking” occurs when situated approaches distract from the search for a theory of learning. In what follows, I examine the arguments for the claim that educational psychology ought to present a theory of learning, as defined, and in so doing, review the authors' treatment of Wittgenstein. Let me say at the outset, however, that they have presented a cleanly written statement, and it is a joy to work with their formulation.

The claim that educational psychology is properly concerned with a theory of learning is argued by describing the criteria that the theory must meet and defining some of its features. The first requirement is that the theory not conflict with an account of human knowledge that uses “human” categories of understanding -- categories that are “experienced-based and malleable,” a la Rosch and Lakeoff, rather than logically ideal and immutable. Since situated approaches to knowledge, grounded as they are in human experience, offer appropriate categories of thought, an adequate theory of human learning ought not conflict with them. Second, an adequate theory of human learning cannot *be* a “descriptive theory of knowledge acquisition,” as it must “do more than speculate about the conditions under which knowledge, as properly characterized, is acquired. Third, in accordance with the tradition of western education, the theory will “not ignore the individual across learning contexts”, that is, it will explain how what is learned in one situation is "transferred to another."

If these are the criteria that an adequate theory of learning ought to meet, what, then, ought its features to be? To address the question, the authors turn to Wittgenstein. They state that Wittgenstein “attempted to show how thought is constructed through the concrete features and practices of everyday living.” Since his approach is compatible with situated approaches to knowledge, it provides a suitable philosophical perspective from which to develop a theory of learning.

When Wittgenstein says, “Try not to think of understanding as a ‘mental process’ at all,”[1] the authors infer that the word “understanding” refers to “a material apperceptive process." Why? Because according to their reading of Wittgenstein, “understanding, and therefore learning, is tied to immediate circumstances in which the process occurs” -- a process that is “intimately linked to a

form of life." Here, I take the authors to mean that (the later) Wittgenstein was at pains to show how learning arises as one plays language games, thereby participating in patterns of words and activities that are woven together so as to achieve a purpose, such as describing events, telling stories, selling items in a shop, playing chess. Wittgenstein called such patterns forms of life. (Therefore, an adequate theory of learning will describe the process by which this learning occurs -- a process which the authors claim is a "material apperceptive process."

Exactly what they mean by the phrase "material apperceptive process" will become clearer momentarily, as we examine the connectionist model they recommend. In introducing the model, let me make another point: to locate the aim of educational psychology squarely within the later Wittgensteinian tradition is to ground it in social activity. That is, to say that educational psychology should offer an explanation of learning compatible with Wittgenstein's perceptive is to require the field to explain how learning that is social, in a particular sense, occurs. To see the significance of this point, it is important to grasp that to which the phrase "social activity" refers in the context of Wittgenstein's perspective. In what follows, I take up the issue and make two points: 1) I do not see that Wittgenstein's position in the *Philosophical Investigations* calls for a "material apperceptive theory" of learning; 2) I do not see how the connectionist model, which the authors offer as an appropriate basis from which to construct such a theory, can generate a theory that is consistent with Wittgenstein's conception of "social activity." Let us begin by considering the features of the connectionist model.

Bechtel and Abrahamsen provide the following characterization:

> Connectionism can be distinguished from the traditional symbolic paradigm by the fact that it does not construe cognition as involving symbol manipulation….The basic idea is that there is a network of elementary *units* or nodes, each of which has some degree of *activation*. These units are *connected* to each other so that active units excite or inhibit other units. The network is a *dynamical system* which, once supplied with initial input, spreads excitations and inhibitions among its units. In some types of network, this process does not stop until a *stable state* is achieved. To understand a connectionist system as performing in a cognitive task, it is necessary to supply an interpretation. This is typically done by viewing the initial activation supplied to the system as specifying a problem, and the stable configuration produced at the end of processing as the system's solution to the problem….Both connectionist and symbolic systems can be viewed as computational systems….In the symbolic approach, computation involves transformation of symbols according to rules. . .The connectionist view of computation…focuses on causal processes by which units excite and inhibit each other and does not provide for stored symbols or rules that govern their manipulations.[2]

When Bechtel and Abrahamsen say that connectionist and symbolic models are computational systems, they seem to mean that both function by processing input of some kind according to rules for operation that the system has -- rules for transforming symbols (in the case of symbolic systems) or conditions under which units or groups of units activate one another (in the case of connectionist systems). In the latter instance, activation occurs once specified conditions are achieved; when the activation returns the system to a stable state, the units are activated no further until further input is received. The conditions under which units in the system are activated at some level, however, are not represented as rules by the connectionist system itself. Rather, the system acts according to the conditions built into it.

St. Julien and Triche state that connectionist systems themselves "do not adequately recognize the nature of knowledge as grounded in social activity." If, by this, the authors mean that these systems function without reference to the social context in which the activation is occurring, then they are correct. Even where connectionist systems are sophisticated enough to "decide" which causal patterns to employ in a given circumstance,[3] that "decision" is made by selecting one firing pattern from a set of options, and the system makes its "decision" according to rules that have been built into it -- rules which specify the conditions for activating given firing patterns.

Now, according to Wittgenstein, a human being acquires knowledge through social activity, that is determines his or her actions through activity that is social rather than isolated and solipsistic.

Hence, the human being establishes the criteria for action through agreement with others, and will judge whether the criteria have been met in consort with others, not by itself. There will be, as Wittgenstein puts it, “agreement in judgment.” Computational systems cannot function in that way. Hence, they are not “social” in Wittgenstein's sense.

St. Julien and Triche might object that the connectionist model need not "adequately recognize the nature of knowledge as grounded in social activity"; instead, it is sufficient the at model does *not conflict* with an account of knowledge that *is* grounded in social activity. Hence, they might maintain that the connectionist model is an advance over the symbolic model, since the latter computes over logical rather than human “experience-based, malleable categories,” while the connectionist model does not. If, as Bechtel and Abrahamsen suggest, one thinks of the “output” as the categories or concepts that form as the system executes particular firing patterns under given conditions, then it seems plausible that connectionism could provide a model for a learning theory that *could* explain how such experience-based categories come to be.

The objection does not hold. While the “outputs” of a connectionist system may be the result of "inputs" that arise from the location of the system in a particular setting -- “inputs” which create certain conditions in the system and hence, call for a certain response that is sensitive to experience; in that situation, the "outputs" cannot be social in Wittgenstein's sense. That is, they cannot result from agreement with others about the criteria that must be met and agreement about whether the criteria have been met. The criteria to be met, or procedures for forming them are built into the system. Likewise, the judgment that the criteria for the outputs have been met in specific instances are made by the system itself. Even if the system had "built into" it criteria that had been previously agreed upon by a community, neither the system, nor, ipso facto, any theory based upon that model of explanation, could explain how those criteria had been reached. Furthermore, even if the system had built into it a mechanism for consulting others about whether the criteria had been reached, it still must judge the others' judgments for itself, by itself, as opposed to creating a shared judgment.

It is striking that Wittgenstein, in his multitude of remarks on psychology and the philosophy of psychology never offers a theory of learning, nor does he call for one. Perhaps this is because his perspective implies a revision of how learning occurs that eschews theory building of the sort that the authors seek. Because participating in language games is social in the sense that it calls for agreement in judgments, the account of the learning that occurs should show how criteria and judgments are reached through a process of agreement between people. Such an account cannot be based upon a solipsistic model, such as that of connectionism. On the contrary, it seems to require a model that can represent events in a conversation wherein judgments are negotiated. Might the proper appropriation of Wittgenstein inspire educational psychology to reconceive its mission and work towards the development of such a model?

---

1. Ludwig Wittgenstein, *Philosophical Investigations* (Oxford: Basil Blackwell, 1953, 1958), 1: 151.

2. W. Bechtel, and A. Abrahamsen, *Connectionism and the Mind: An Introduction to Parallel Processing in Networks* (Oxford: Basil Blackwell, 1991), 2.

3. Ibid., 127.

4. Wittgenstein, *Philosophical Investigations*, 1: 242.