

Educational Psychology: Between an Epistemic Rock and a Hard Place

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A recent criticism of psychology and educational psychology in particular charges that these disciplines face an epistemological dilemma. Specifically, the criticism contends that many, perhaps most psychological knowledge claims are *either* analytic in the pejorative sense of trivially true by definition *or* arbitrary in the sense of highly contingent and, therefore, ungeneralizable. The analytic knowledge claims of educational psychology, however, can be construed more charitably as "necessary truths" or axioms about human behaviour that imply important, contingent, and reasonably general empirical consequences.

D'après des critiques récentes dont a fait l'objet la psychologie et tout particulièrement la psychologie de l'éducation, ces disciplines feraient face à un dilemme épistémologique. En termes plus précis, un grand nombre et peut-être la plupart des affirmations sur la connaissance sont soit analytiques dans le sens péjoratif de "vraies mais superficielles," soit arbitraires dans le sens de "très incertaines" et, par conséquent, non généralisables. Les affirmations analytiques de la psychologie de l'éducation sur la connaissance peuvent toutefois être considérées, si l'on veut être plus charitable, comme des "vérités nécessaires" ou des axiomes sur le comportement humain, qui impliquent des conséquences empiriques importantes, aléatoires et assez généralisées.

Royce (1976) has proposed a scheme for classifying knowledge claims according to three epistemologies—empiricism, rationalism and metaphorism. He suggests that any discipline, insofar as it advances knowledge claims, can likewise be classified or "profiled" in terms of these three epistemologies. He shows how the three epistemologies or "three ways of knowing" might be combined to characterize and contrast various disciplines. In particular, Royce suggests that any discipline or field of knowledge can be broadly portrayed as a variable combination of these three epistemic components: rationalism, empiricism and metaphorism. Thus, physics, for example, might be said to consist epistemically of large, more or less equal parts of rationalism and empiricism—with only a dash of metaphorism.¹ By contrast, certain humanistic disciplines could perhaps be described as consisting almost entirely of metaphorism with some rationalism and only a smattering of empiricism.

Royce's three-way typology for parsing the disciplines into their broad epistemological components and commitments is, of course, a grand oversimplification. I do not wish to defend the theoretical validity or utility of Royce's scheme. However, I do want to use Royce's typology as an expository device for framing some general issues about the relationship of psychology, as a discipline, to education. First, I want to consider how Royce's "three ways of knowing" do and do not define the epistemic character of educational psychology. Second, I want to consider briefly what these conflicting epistemic profiles imply about how psychology can or cannot contribute to education.

The conventional epistemic stereotype of educational psychology, using Royce's terms, is made up of a generous portion of empiricism with small, perhaps equal parts of rationalism and metaphorism. This stereotypic profile mirrors the common assumption that educational psychology, as a social science, is (and should be) devoted largely to the search for reliable empirical findings—a search only weakly constrained by an assortment of provisional, miniature theories and/or metaphorical models. On this view, educational psychology, like its parent discipline, is singularly committed to empiricism, as against the two rival epistemic modes—a singular commitment which Liam Hudson (1972) has referred to collectively as "the cult of the fact." This same epistemic commitment in its more exclusive, although more degenerate, form has been dubbed "dustbowl empiricism."

This epistemic characterization of educational psychology as a preeminently empirical fact-gathering enterprise with only minimal rational and metaphorical components is linked with an equally stereotyped view about how psychology does or, at least, ought to contribute to educational practice. Briefly, the view contends that educational psychology can furnish a reliable body of empirical findings so that educational policy and practice can, in turn, be firmly based upon social scientific fact. Educational psychology thus strives to put educational practice on a solid empirical footing. This characterization of educational psychology is the one typically purveyed by the best-selling textbooks in the field. Usually, these textbooks begin with an introductory catechism that asks: "Why study educational psychology?" And the standard answer is: "So that educational practice can be based upon empirical psychological fact rather than mere opinion." Thus, for example, such textbooks typically sort and select a number of empirical generalizations from the accumulated research on teaching effectiveness and then offer them up as practical prescriptions for teaching, that is, for how teachers, *given the facts*, ought to teach.

Needless to say, such a "straightforward" factual-transfer model of the relationship between psychological research and education has not gone unchallenged. Schlechty (1976), for example, decries the way in which

psychological models and methods have maintained an epistemic stranglehold upon our very conception of educational research. He is convinced that "this dominance seems sufficiently clear and widespread to warrant the use of the term bias" (p. 14). Elsewhere, Phillips (1980) has pointed out how attempts to infer or deduce *normative* educational policies and practices (the "ought") from *empirical* research findings (the "is") unwittingly commit the Naturalistic Fallacy. Recently, however, a more preemptive criticism of educational psychology has been advanced by Egan (1983, 1988) and echoed by Barrow (1984). It is a criticism which contradicts the conventional disciplinary stereotype of educational psychology as a social science concerned almost exclusively with establishing empirical knowledge claims. Instead, Egan, following a line of argument developed by Smedslund (1979), contends that many (perhaps, most) of educational psychology's so-called empirical findings are either *analytic*, in the pejorative sense of trivially true by definition, or *arbitrary*, in the sense of highly contingent and, therefore, nongeneralizable. Egan defends his analytic charge by showing that certain putative empirical claims can be reduced to logical, analytic truths (or worse, truisms) by substituting synonymous phrases for one another. For example, the supposedly "empirical" generalization that "More intelligent people learn faster than less intelligent people" is plainly analytic. The claim can be seen to be true by definition once we analyse what we mean by "intelligence" and realize that the concept entails "speed of learning." The claim turns out to be analogous to the proposition that "all the bachelors in the city of Vancouver are unmarried," to use Egan's favorite example.

The analyticity of some supposedly empirical claims may not always be as obvious as in the foregoing examples. Consider the following proposition: "Pictures that transform task content into a more meaningfully coded form will be more effective than those that do not" (Levin, 1983). This is a proposition that I came across in an article which discusses the use of pictorial material for teaching beginning reading. I cannot be certain how Egan and Barrow might regard this proposition, but I suspect that both would say that if we unpacked what is meant by the phrases "more meaningfully coded" and "more effective" we would discover that its truth is analytic. That is, the claim is a disguised tautology; it asserts little more than: "Pictures which are more meaningfully coded are more meaningful." Or perhaps alternatively: "Pictures which are more effectively coded are more effective." To the extent that such "empirical" claims are common, educational psychology is, as Egan wryly puts it, "doing epistemology the hard way. It merely articulates in confused terms what are analytic truths" (Egan, 1983, p. 175).

The other half of the Egan (cum Smedslund) critique, the arbitrary charge, further contends that many psychological findings, when they are genuinely empirical (or non-analytic) are unhappily *only* valid under highly

restricted circumstances or under extremely local conditions. As a consequence, many of psychology's empirical findings, while perhaps situationally valid, lack sufficient generalizability to be of much use to educational practice.

In terms of Royce's typology, both Egan and Barrow conclude that educational psychology, contrary to the conventional stereotype, is far more rational (in the sense of analytic) and far less empirical than it might care to admit. So educators take heed: To the extent that educational practice is derived from psychological theory and research, it is in danger of being based upon either the trivially true (the analytic) or the generally false (the arbitrary). Small wonder then that Barrow is all for *Giving Teaching Back To Teachers* (1984).

As Egan acknowledges, Smedslund was the first to advance the argument that psychology is caught in an epistemic dilemma—stranded, in Smedslund's words, "between the analytic and the arbitrary" (Smedslund, 1979). Subsequently, both Egan (1983) and Barrow (1984) have, it seems to me, emphasized the bleak "downside" of Smedslund's analysis. That is, both Egan and Barrow stress the possibly incorrigible, pseudo-empirical character of psychological knowledge claims. Smedslund, himself, is more optimistic. He views the analytic/arbitrary dilemma less as a terminal condition and more as a recurring symptom of the need for a fundamental reconstruction of psychological inquiry.

More specifically, Smedslund (1979) believes that the dilemma points to the conclusion that psychological theory and explanation perhaps ought to be reconstrued as "attempts to explicate the conceptual network embedded in ordinary language and that psychological data must be seen as historically constituted" (p. 129). Again, in Royce's terms, Smedslund argues that psychology needs to be reconceptualized as a primarily rational (that is, analytic) mode of knowing although with deductive, empirical consequences. In Smedslund's view, psychology, correctly understood, has more in common, epistemically speaking, with geometry than it has with physics, its traditional role model. As a formal or analytic discipline, like geometry, psychology should "ask and pursue the following question: *what is necessarily true in psychology?*" (Smedslund, 1979, p. 140).

The comparison with geometry, of course, points up that the analytic or logically necessary or tautologous component of psychology need not be merely truistic or trivial. The analytic propositions or "theorems" of psychology can, like geometry's, yield nonobvious and useful empirical implications. But the important epistemological implication of Smedslund's geometric analogy is that the relationship between psychological theory and empirical findings is *not* one whereby the latter serve to confirm or infirm the former. Rather, the relationship is one whereby the empirical data are organized and

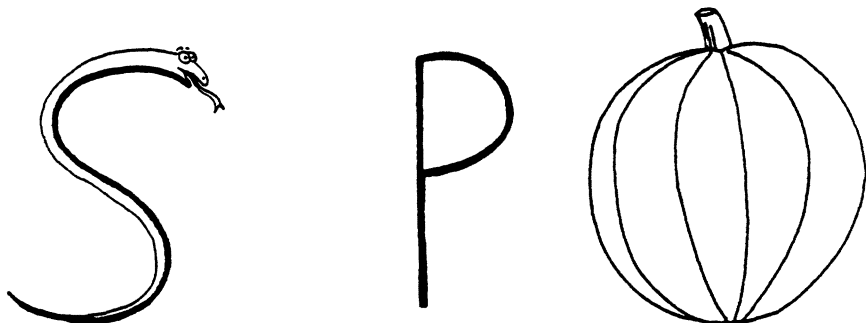


FIGURE 1

*Example of “More Meaningfully Coded” Versus “Less Meaningfully Coded”
Mnemonic Pictures*

Source: M. Pressley & J. Levin (Eds.), *Cognitive Strategy Research: Educational Applications* (New York: Springer-Verlag, 1983), pp. 219–220. Adapted by permission.

related by the psychological theory. “This means,” as Smedslund (1979) warns, “that we must stop believing that our data are relevant for and support or refute general theories. Empirical research should be directed at solving concrete practical problems” (p. 140).

Smedslund’s “geometrical” psychology can be illustrated by reconsidering the proposition that I took from Levin (1983). The proposition (or now, perhaps, “theorem”) is: “Pictures that transform task content into a more meaningfully coded form will be more effective than those that do not.” I suggested earlier that I thought that both Egan and Barrow would likely dismiss Levin’s proposition as a trivial tautology, as true by definition. Certainly my own first reaction was to dismiss it as precisely the sort of pseudo-empirical claim that Egan and Barrow complain about. But I now think that the claim can and ought to be construed more charitably as a quasi-theorem (a la Smedslund) which helpfully makes explicit the inter-connectedness between “meaningfulness” and “effectiveness” in learning and instruction. What changed my mind is that Levin goes on to demonstrate that his “theorem” does, in fact, generate a number of empirical findings of considerable practical importance. For example, the “theorem” both implies and explains the empirical finding that children learn consonant letter sounds more effectively with the aid of pictures that provide *both* a phonetic and a visual coding as compared with pictures that provide *only* a phonetic coding (see Figure 1). That is to say, children learn their initial consonant sounds more effectively with the help of pictures of things that both *look* and *sound* like the consonants (e.g., “S” as in Snake) than with pictures of things that only *sound* like the consonants (e.g., “P” as in Pumpkin).

To be sure, such an empirical generalization or finding is, as Smedslund

says, "historically constituted" or "arbitrary." But acknowledging the finding's contingency and limited applicability should not cause us to overlook its considerable practical importance wherever children are learning to read and write English—and wherever snakes and pumpkins are not unknown!

It remains unclear how Smedslund's re-conceptualization of psychological inquiry, if correct, might redefine the relationship between psychology and education. Certainly, the analytic or, in Royce's terms, the rational component implies an educational psychology more concerned with "what is necessarily true" about such concepts as teaching, learning, thinking, intelligence, motivation, and the like. These "necessary truths" or theorems would, in turn, serve both to generate and confirm those important empirical (though contingent and situationally bound) solutions for educational problems.

NOTE

- ¹ Royce, an expert in the statistical technique of factor analysis, sometimes illustrates his typology using equations with weighted linear components. Thus, $physics = .4E + .4R + .2M$. I assume that Royce intends such equations to be a mock-mathematical or (in his terms) "metaphorical" rendering of his general scheme.

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