

Review

*Epistemology of the
Human Sciences:
Restoring an Evolutionary
Approach to Biology,
Economics, Psychology
and Philosophy*
by Walter B. Weimer

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Walter Weimer has taken a long road through the philosophy of psychology as a science, a discussion beginning in the nineteen-fifties when sophisticated critics like Paul Meehl and Donald Campbell tried to make critical sense of what had become standard practice in the light of the philosophy of science. This book is a product of that journey, and an attempt to make sense of psychology by taking the criticisms seriously. Much of the discussion is historical and concerned with basic issues, such as phenomenalism and its pernicious influence, which I will not try to reproduce here. But I will try to provide a summary in non-technical terms, or as non-technical as possible.

The obvious place to start with the philosophical problems of psychological science is the comparison between physics and psychological methodological practices, which inspired psychologists and psychologists often pretended were roughly similar. Weimer shows that they are not, and that this accounts for the deficiencies of psychological science. He begins with a long discussion of something psychological methodologists have long tried to obscure: measurement. Physics has objects that are uniform and can be measured, meaning treated as interchangeable. Measurement is not merely a matter of assigning numbers to things, but depends on this fact of interchangeability. Things add up: distances, weights, and so forth are the kinds of things that add up and can be interchanged such that the laws governing them apply regardless. A theory with propositions that follow deductively from one another, requires, if the theory is mathematical, fundamental scales that have units that are interchangeable: when an ounce of water is added to another ounce, it makes for two ounces, regardless of where the water comes from. Physics benefits from the “happy accident” (p. 124) that they have such units of measurement. No such units exist in the social sciences, so no comparable theories are possible. The fact of individual variation means that “generalizations” about people can never attain the kind of precision of physics: one person is not interchangeable with another.

Psychological research practice merely assumes, or pretends, that the things they assign the same unit numbers to are the same. They can't interchange them, or stack them up to see if they actually are the same. Hence this is not measurement. Traditional measurement theory had to be revised, by psychologists, to make mere assignment of numbers into “measurement.” This seems like an abstract, nit-picking, consideration. We are now used to such things as IQ scores, and know that they can be used in experiments, and hypotheses formed about them, and these can be tested. We don't worry about the equality of the units.

But the idea of testing involves another bait and switch: the hypotheses being tested are not genuine generalizations, so the tests are not tests of generalizations that could be used in a deductive theory, but are instead statistical tests of null hypotheses, which indicate that under the controlled situation of the experiment itself there is some effect. Physicists, who, as Weimer notes, would never regard this null hypothesis kind of test as adequate. Nor would they be satisfied with correlations, which are subject to many other issues, such as confounding and spuriousness which do not arise in physics: another happy, for physicists, accident.

Where does this leave economics? Economists aspire to deductive theories about the world, and depend on numbers, which they treat as constant quantities. But “in the domain of the activity of agents, there is nothing that is constant except changing patterns of behavior and expectations” (p. 120), and thus no laws and deductive theories that are true. If we give up on the physics model in economics, what do we have? One view, associated with Milton Friedman, but now just as conventional as the ploys used to justify psychological experimentation and measurement, is that theories and models don’t need to be realistic, they just need to predict, and not predict all that well, just predict in a way that reaches statistical significance. The problem, however, is that the models, or experimental results, have a purely “apply when they apply” status: we don’t know why or when they apply, precisely because of the constantly changing patterns and expectations. Just as psychology copes with the fact that the predictions don’t generalize to the wilds of the real world by giving this fact a label—the problem of external validity or what econometricians call sensitivity, meaning “sensitive” to or false under changed conditions.

Weimer puts this in terms of “demonstration.” All we are doing in either physics or psychology is providing a demonstration that something has an effect. But in physics this works to generalize because the objects are the same: a photon is a photon. In biological and human contexts the objects are never the same. All our results are merely demonstrations that under unknown circumstances with apparently similar enough objects a relation holds. It is a happy accident that it works in physics, because they really are interchangeable objects, an unhappy reality that it cannot in psychology or economics, where they are not. We only pretend that they are.

Weimer wants a serious alternative to all this pretending. So he argues for a functional interpretation of humans: functional objects vary, but can’t be subject to the kinds of laws found in physics. The nature of human variability excludes laws, and people can’t be measured psychologically without resorting to fictions. As in a cell or biological organism, correlation doesn’t help; everything is correlated with everything else. Location is not a useful means of reduction in the brain: it too is largely a system. So what can we say about them? And how do they differ as theoretical objects? Weimer has an answer: a functional conception of humans as the alternative to a mechanical model. We can’t have laws without a mechanical model. What we can do with functional objects is to recognize patterns. But this seems vague, analogical, and not really scientific, especially if our model is point prediction in physics, which Weimer takes to be its essential feature, as distinct from statistical manipulations to generate significance against a null hypothesis. But there is an upside to variability: it is a perfect fit for evolutionary thinking, which is science without point prediction, but with an established process and impeccable credentials as “science.”

His account requires a few novel suggestions. Much of the ground Weimer traverses here is familiar to non-psychologists in the various forms of the explanation vs. understanding problematic, such as those that derive from the fact that people are verbal and narrativized beings that control their actions rather than automatons. Weimer argues that some dualisms are necessary to accept and insists on the irreducibility of the conscious processes of the individual, who “knows” rather than “interacts” or is “acquainted” with, to causal processes. How does this work? His key concept is the notion of functional choice. Functional systems operate under higher order principles that control, through setting boundary conditions, the use or application of the lower order determinist principles. They choose by setting conditions. But choice is possible only, and when, “alternative possibilities” are “equally physically realizable” (p. 215). This is “downward causation,” the term of Donald Campbell (1974), in which causal psychological processes are governed and directed from above, from the agent who does things like decide, know, and so forth: “biological systems

can exhibit self-determination because they generate (at least some of) the constraints that act on their own continuing activity” (p. 220).

Choice is a “consciousness” or “subjective” notion. But the functional unit is not limited to the conscious. It includes such things as the autonomic nervous system, and is intentional even when not conscious. And it implicates the social: “all knowledge is a social, and hence *interpersonal*, construction (p. 163). This implies that the traditional problem of objectivity is backwards: it is not about the “outside” but about the interpersonal, in an ongoing reciprocal relation in which neither the functioning person or their partners in personal relations is primary (p. 172).

Evolution operates on a co-occurrence basis, which creates niches involving the environment and others, producing co-operation in the face of selection. Cooperation requires rules. Rules of co-operation are negative, and constrain the social cosmos (p. 256): “even the simplest activity of an individual is invariably embedded in both a pragmatic and a semantic context” (p. 270). To disambiguate individual action, for example, to give a meaning to an action or utterance, requires a structure, such as a semantic structure, meaning rules. Weimer cites Noam Chomsky to give a sense of what he means by structure. He understands this kind of structure, which is not rationally invented but evolved, to be a condition of a spontaneous social (or economic) order. Structure permits, even as it limits, “creativity” and the evolution of complexity. Science itself is an example of this kind of loosely rule governed spontaneous order. The ongoing joint cooperative activities of scientists undirected from above exemplifies “rationality in an evolutionary epistemology,” as he entitles the last chapter in his concluding appendix. But the evolution of science is threatened by authoritative “planning” or control which does not “harness the superior capacity of the ongoing spontaneous cosmos without attempting to deflect and limit it to particular results” (p. 372).

This is a big picture. Philosophy is, at least sometimes, about how things hang together: a big picture. One of the major problems of making things hang together, indeed *the* major one, involves the dualism that concerns Weimer: between mind and matter. In the history of philosophy this dualism has been variously reinterpreted and understood in other terms. One can identify formulations of the same basic dualism, such as concept-percept, ideas-impressions, scheme-content, and so forth, all through the history of philosophy, back to the Platonic forms, in which we can only “participate.” Each way of formulating the dualism generates its own “solution.”

Psychologists have generally been absent from this discussion, partly because there is an intrinsic push to reduce mind to matter that is central to the whole idea of psychological science, and because “science” is thought of as being about matter. But as Weimer makes clear in his extensive historical discussions, the various forms of this reductive approach, from phenomenism to behaviorism, never quite succeed. The dualisms, whether they are interpreted in terms of cause vs. teleology, cause vs. normativity, ideas vs. reality, between “the ‘manifest’ image of man-in-the-world” and “the scientific image” of the world, and so forth, persist. Sometimes the dualisms are turned upside down so that matter is reduced to mind, or to a more real mental realm, as in Cassirer, Heidegger, and many others, so that the ideal precedes the real because our being or thinking and, therefore, the objective character of the world presupposes a condition which is itself ideal.

Weimer’s project needs to be read in this light: his distinction between physics-like, rate-dependent, and measurable reality and the higher, downward causing level of functional organization is a variant of these big picture dualisms. And indeed, he generously cites such figures as Michael Polanyi, Ernst Cassirer, and others who have taken related paths. He takes the dualist bull by the horns by accepting the irreducible place of teleology, in his notion of function, and the governance of causal processes by downward causation from a teleological entity. Yet accepting dualism is not enough to complete the big picture. The two realms of the dualism, however it is constructed, nevertheless need somehow to be connected, or their connection acknowledged. Typically, this is done with a hinge concept, one that faces, so to speak, two ways: both causal and ideal, for example, in the case of the concept of *idée-force*, the idea of the intrinsic motivating causal power of ideas. Patterns is another dual-facing concept: they are things that can be made mental by being recognized, but are not themselves intrinsically mental. Weimer’s hinge concept is “functional choice”:

these boundary-setting teleological choices control and direct the familiar causal processes that make up embodied human activity. Functional choice is mental, but part of the natural world of functionality. This gives him his solution: dualist, but natural, produced by the natural process of evolution, and therefore consistent with the idea of psychological science.

REFERENCES

Campbell, Donald T. 1974. 'Downward Causation' in Hierarchically Organised Biological Systems. In: Ayala, F. J., and Dobzhansky, T. (eds) *Studies in the Philosophy of Biology*, pp. 179-186. London: Palgrave.