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Getting Over the Methodology Wars

Eric Bredo

Howe’s (2009) critique of positivistic tendencies in the education research community is valuable and pertinent. His analysis is nonetheless one-sided, finding fault with one side of current divisions alone. In an effort to retain the good points of his analysis, the author first summarizes Howe’s argument, interpreting it as a critique of hasty and dogmatic reductionism. He then considers parallel problems arising from hasty and dogmatic holism that Howe does not address. Following this discussion, a third, temporal approach is suggested in which analytic and synthetic perspectives are used to suggest and modify one another in a cycle, rather than being taken as fixed stances. Adopting this approach could help reduce the dogmatism evident in the methodology wars, although struggles for advantage would clearly remain.

**Keywords:** education; epistemology; methods; philosophy; pragmatism; research

In his thoughtful and important essay “Positivist Dogmas, Rhetoric, and the Education Science Question” (this issue of *Educational Researcher*, pp. 428–440), Kenneth R. Howe challenges the currently dominant conception of education research, arguing that it is based on an obsolete, positivistic conception of science. He also suggests that three of the most salient divisions within the education research community are products of the same obsolete misunderstanding. Strong divisions between approaches to research—quantitative versus qualitative, descriptive versus normative, scientific versus humanistic—are primarily the result of positivistic dogma, he suggests. This perspective leads him to consider several recent formulations of research standards as based on similar obsolete premises, including those of the U.S. Department of Education’s Institute of Education Sciences (IES) and the broader standards adopted by the National Research Council (NRC) and the American Educational Research Association (AERA). To replace them, Howe recommends a more rhetorical conception of science, a widened definition of legitimate education research that includes approaches modeled equally on the humanities and the sciences, and greater inclusion of diverse voices in the education research process.

Howe’s critique is especially pertinent at a time when a narrow emphasis on instrumental efficiency, a mechanistic conception of “what works,” and a narrow conception of science dominate education discourse. I think he is right that a new orthodoxy is afoot in some sectors of the education research community that is narrow, dogmatic, and harmful to freedom of thought. Howe’s analysis is also helpful in revealing similarities among debates polarizing the research community, debates whose relation to one another is seldom seen so clearly. In assisting us in thinking deeply about the values and assumptions underlying current conceptions of education research, he does exactly what a good philosopher of education should do.

Although sympathetic with much that Howe has written, I nevertheless fear that he has gone a bit overboard in attempting to bring about greater balance. Howe is critical only of a positivistic approach to education research, making it seem as though all fault lies on that side of the polarities he analyzes. His interpretation is understandable given the politics of the time, but reaction and counterreaction reinforce one another, resulting in mutually confirming cycles of divisiveness (Bateson, 1962).

Howe’s analysis can be usefully compared with that of Denis Phillips (2006), who has been critical of both narrow positivistic standards on the “right” and rejection of scientific standards on the “left.” Phillips’s search for a middle way between these extremes has led him to adopt a different attitude toward the NRC standards (in whose drafting he participated). Where Howe rejects this report as too positivistic, Phillips views it as a reasonable compromise:

Analysis of [the NRC] report shows that it should be located close to the moderate middle of the continuum, but many of its critics from left-handed positions regard it as being at the far right-hand pole. Careful reading of the report . . . reveals that it traverses the proverbial razor’s edge—on one hand it does hold, against those on the left, that useful, valid scientific inquiry is possible in education; but on the other hand it does suggest that the narrow account of the nature of scientific rigor, given by those on the right in terms of the randomized controlled experiment or field trial and a narrow range of related designs, is quite mistaken. (pp. 18–19)

Seen in this light, Howe would be regarded as one of the critics on the left who, in Phillips’s view, does not recognize an ally when he sees one.

In approaching the methodology wars Howe and Phillips seem to have somewhat different strategies, despite considerable agreement in philosophical attitude. Phillips seeks to defend a
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research have the same seeming bias because they too focus on “scientific” research, presumably in the “natural science” sense.

The differences between Howe and Phillips may be simple matters of politcal strategy by two scholars who do not otherwise differ that much, but some philosophically interesting issues may be raised by the differences between them. Howe’s “rhetorical” approach to inquiry seems to borrow a fair amount from the philosopher Richard Rorty, whose work he cites approvingly. Rorty’s conception of truth as “What our peers will, ceteris paribus, let us get away with saying” or “What you can defend against all comers” (quoted in de Waal, 2005, p. 158) was provocative (and clearly meant to be). As Rorty put it, there are no constraints on inquiry save conversational ones—no wholesale constraints derived from the nature of the objects, or of the mind, or of language, but only those retail constraints provided by the remarks of our fellow-inquirers. (Quoted in de Waal, 2005, p. 165).

In Rorty’s view, the purpose of inquiry is to reach agreement so we can coordinate action with others, not to represent relations among external objects “out there.” In fact there is no point in talking about mirroring things “out there” because the only world we have is a linguistic one that cannot be compared with anything outside itself. This view led Rorty (1991) to conclude that “questions which we should have to climb out of our own minds to answer should not be asked” (p. 7).

Phillips (2006) also writes about the need for a more “rhetorical” approach to science. What he means, I believe, is that science progresses through a process of reasoning in which evidence and argument are publicly presented and claims subjected to critical evaluation and potential revision in the light of such evidence and argument. In Phillips’s postpositivistic conception of education research (see Phillips & Burbules, 2000), facts and theories interpret one another, theories being understood as underdetermined by facts (many theories may be consistent with a given set of facts) and facts as theory-laden (facts depend on accepting theoretical assertions). As a result, scientific claims need to be argued, not proved mechanically. In addition, contrary to positivist doctrine, theories never can be truly verified (the next swan could always be black no matter how many white ones were observed previously) but may be falsified. Phillips sometimes appeals to Darwin’s “one long argument” in The Origin of Species as an example of an approach that is rhetorical in this argumentative sense and that uses diverse methods of investigation.

Although Howe and Phillips seem to agree on the need for a more rhetorical approach to inquiry, I believe their differing models and commitments lead them in two somewhat opposing directions. Howe’s literary, humanistic approach seems to lead him to an internalist conception of inquiry that sees human beings as trapped within linguistic or cultural concepts and values. Phillips seems, at least sometimes, to adopt a form of externalism that hankers for propositions that represent “external reality” (which remains undefined), and he believes it possible to separate episemic values from wider social values (Phillips & Burbules, 2000).

One can also see this difference in the fact that Howe apparently approves of Rorty’s conception of truth, whereas I am fairly sure that Phillips does not. This suggests some tendency for both to repeat themes along which the education research community is polarized even as they seek to get beyond them.

I expand on this argument in what follows, focusing primarily on Howe’s article. In the first of the following sections I summarize his critique of three “dogmas” of education research, reframing it slightly as a critique of hasty or dogmatic reductionism (Dennett, 1995). Identifying hasty or dogmatic reductionism as the culprit helps contrast the three positivistic “dogmas” that Howe criticizes with equally hasty or dogmatic holistic views, which are briefly described and criticized in a second section. Both reductive and holistic approaches are then contrasted, in a third section, with a temporal approach drawing on philosophical pragmatism. A concluding section draws some of the threads together and considers some implications.

1. Three Dogmas of Reductionism

Howe’s central thesis is that the most troubling divisions in the education research community result from beliefs associated with logical positivism. He clearly does not mean that thousands of education researchers are secretly poring over the works of the logical positivists of the 1930s, but that an orientation championed by logical positivists has once again become the dominant ideology of the education research community. To support this thesis he argues that each of three dogmas associated with a polarized split within the education research community is consistent with beliefs associated with logical positivism.

The Quantitative–Qualitative Hierarchy

The first dogma is the notion that quantitative research is the truly scientific form of education research that can (and should) be purified by separating it from qualitative research. Qualitative research is then viewed as a merely exploratory or imaginative phase of inquiry that is unscientific but can be replaced by a later quantitative phase in which claims are scientifically “verified” rather than merely “discovered.”

Many of the students I interact with adopt a bipolar view of research methods that is similar to this, seeing quantitative and qualitative research as distinct paradigms justified by competing positivistic and interpretive epistemologies. Their proposals commonly begin with sentences like, “This is a quantitative [or qualitative] study of X,” as though they had to proclaim doctrinal
loyalty immediately for fear of being burned at the stake. Although more consider mixed methods these days, their notion of mixture reproduces the idea that they are working with radically different things that must be handled very carefully lest they explode on contact. The unnaturalness of the whole attitude is stunning.

Howe argues that this view is the product of positivistic thinking. One can appreciate his point by recalling how the early positivist philosophers and scientists associated with the Vienna Circle defined the "scientific world conception" that they sought to advance:

First it is empiricist and positivist: there is knowledge only from experience, which rests on what is immediately given. This sets the limits for the content of legitimate science. Second, the scientific world-conception is marked by application of a certain method, namely logical analysis. (Hahn, Neurath, & Carnap, 1929)

In other words, in this conception of science, content and method can be cleanly separated. Immediate observation provides the content of scientific thought, and symbolic logic provides the method. These are the two legs that logical positivism stands upon (at least when considered in the stereotypical manner under consideration).

What this conception of science meant in practice was that higher order statements and concepts were to be analyzed, or broken down, into logically equivalent conjunctions of lower order statements and concepts until arriving at those referring to directly observable events. Statements that could at least in principle be verified by direct observation were considered scientific; other statements were regarded as descriptively meaningless, or "without sense" (Carnap, 1935/1966). The point of this approach was to purify science by eliminating religious, general metaphysical, and ethical statements that sound like empirical claims ("There are multiple realities," "Killing is evil") but cannot be verified by any form of observation (Carnap, 1935/1966). One can see this attitude in the notion that quantitative research is scientific because it is where verification by direct observation confirming theoretical expectations gets done, whereas qualitative research is a merely imaginative or preparatory phase of discovery.

Howe argues that this approach collapses if positivism collapses. To make this point, he draws primarily on the influential critique of "two dogmas of empiricism" by W. V. O. Quine. In his article by that name, Quine (1953) argued that neither the logical leg nor the empirical leg of logical positivism holds up. Logical form and empirical content are not cleanly separable in practice, as claimed by positivists; hence logic is not a content-neutral method. Nor are theories reducible, in general, to statements about directly observable facts. Rather, method and meaning are interdependent, and the statements in a theory relate to relevant facts as a whole. As a result, various equilibria are possible when relating theory and fact, depending on how the facts and assertions are weighted or adjusted. (To a sufficiently dedicated paranoid, anything can be interpreted as an attack.) The possibility of theoretical and factual assertions of varying depth or commitment multiple equilibria led Quine to conclude that there is inevitably a pragmatic element in theory choice, theories being chosen because they are simpler, more easily solvable, more relevant to the issue at hand, and so forth, than their competitors, and not just by conformity with data irrespective of these concerns. If this is true, there can be no categorical contrast between discovery and verification: Discovering new theoretical interpretations and checking them against accepted facts go hand in hand, each modifying the other. As a result, a quantitative researcher cannot ever assume that the qualitative phase of discovery or interpretation is over. Einstein's reinterpretation of the concepts of space and time would be an example. Thus the rationale is lost for believing that quantitative research has higher scientific status than qualitative research and should supplant it.

The Fact–Value Hierarchy

The second "dogma" is the notion that science is about matters of fact alone, and that it can and should be purified by separating it from wider, nonepistemic values. One sees this attitude in everyday life in the United States, where fact and value are believed to be quite different things, values being impossible to criticize objectively. One sees it also in education research where scientific research is thought to be about means, or "what works," whereas normative or critical inquiry is viewed as primarily about ends, such as social justice.

Howe offers two arguments against such partitioning. The first is that the concepts of concern in education research—he uses the example of achievement—are already evaluative. (Consider also intelligence, learning, development, and even education.) As a result, value commitments are "woven into the fabric of investigations of what works, however infrequently they may be identified or carefully examined" (2009, p. 431). The second is that the choice to take narrower or broader aspects of the social context as given also has value implications. A narrow study that looks at the way inputs and outcomes are related under current institutional conditions implicitly takes the status quo as given, whereas a broader study that considers how different kinds of institutional arrangements function, and for whose benefit, is likely to be seen as "value-laden." The decision not to question what it means for something to work, and for whom, when studying "what works" hides a value choice within a supposedly value-neutral way of thinking.

These points also hang on an argument against reductionism. If one could without loss reduce big concepts such as learning or achievement to lots of little concepts without obvious value implications, one could seemingly avoid much of the problem of value-ladenness. Big values could be reduced to little technical issues. The same would be true if one could reduce the study of institutional functioning, without loss, to little causal relationships that could be evaluated one by one and added up for an overall judgment about how an institution is doing. If such reduction is impossible, however—as seems to be the case—the attempt at reduction will become lost in technicalities, losing sight of what is important.

The Science–Humanities Hierarchy

The third "dogma" that Howe criticizes is the notion that the sciences are the true contributors to knowledge, whereas the humanities serve a merely expressive function. This belief also serves to polarize the education research community, privileging the scientific over the humanistic, the modern over the postmodern. The fairly obvious gender implications of the contrast, as
tritionally conceived, also tend to lead to feminist criticism of this notion.

Howe views this dogma as deriving from an essentialist conception of science adopted by those who think about it in narrow, positivistic terms. Essentialism is apparent in the notion that sciences possess a set of characteristics in common that no non-sciences also possess. The idea that there is a “scientific method” common to all of the sciences is an example, as is the positivistic notion that science consists of all inquiries that are in principle verifiable by direct observation.

The problem with this approach is that the essential features of science are presupposed ahead of time rather than determined by investigation. As Howe puts it, “Rather than seeking to uncover the essence of education science directly, the new orthodoxy presupposes that a set of general criteria for science is unproblematic and then seeks to specify the varieties of education research that fit them” (Howe, 2009, p. 434). If one actually inspected all the fields commonly called sciences, it is likely they would differ so greatly that few methods would be shared by all. In addition, those methods that are shared probably would be so general as to be shared with scholarship in many other fields. If this is true (and so far it is only a hypothesis), then a narrow conception of science, like that adopted in the new orthodoxy, would lead to rejecting many sciences as unscientific, which is more or less what happened to logical positivism. On the other hand, a broader conception of science, based on what the various fields termed sciences actually consist of, would include many forms of inquiry not usually considered to be science.

But why go to so much effort to develop an essentialist conception of science in the first place? Howe suggests that the reasons are primarily political. The point of proclaiming certain approaches scientific and others unscientific is to protect the power, status, and funding of interested groups. Howe clearly thinks that even more moderate reports, like those of the NRC and AERA, were also politically motivated, attempting to protect the autonomy of education research from narrow IES standards but giving away too much to positivistic purists in the process. When Howe (2009) recommends (p. 433, by way of quoting Ian Hacking) that we should ask first for the point rather than the definition, I take him to mean that it would be better to be aboveboard about the purpose for drawing a distinction rather than adopting self-serving conceptions a priori to gain influence by sleight of hand.

The third contrast, of science versus humanities, can also be seen as involving issues of reductionism. The notion that science consists merely of adopting certain methods, such as randomized field trials, is reductive in both senses. It is reductive in suggesting that simply following a given method makes one a scientist. It is also reductive in assuming that a given method, such as field experiments, is the only secure way to infer causation. As Phillips (2006) notes, determining causation is far from the only goal of science, and experiments are far from the only way of doing so (clinical observation being another). David Kaplan (2009) has expanded on these points in an interesting essay that considers the uses and limitations of experiments and a variety of differing conceptions of causation. It seems scientists are fated to have to think hard about how to achieve their purposes rather than simply adopting fixed formulas.

2. Three Dogmas of Holism

Having summarized Howe’s critique of three dogmas associated with logical positivism, which I have related to hasty and dogmatic reductionism, let me—hastily—consider some similar problems associated with hasty and dogmatic holism. These are issues that Howe does not consider in the article under discussion, although Phillips has spent much of his career addressing them (Phillips, 1971, 1976, 1992).

These two orientations—reductionism and holism—are obviously opposites. The former explains a whole by its parts, the latter the parts by a whole (James, 1907/1963). Reductionists seek to get rid of vagueness by breaking wholes down into more definite, testable, or observable parts; holists seek the larger meaning or significance of fragments by identifying wholes of which they are coherent parts. Both strategies can be useful, but both can also become hasty and dogmatic. Reductionism becomes hasty and dogmatic when it is presupposed that wholes—theories, ideas, plans, actions, and so forth—can be reduced to independently testable or implementable parts and the latter treated as given and secure foundations. Holism becomes hasty and dogmatic when it is presupposed that no reduction is possible without total loss of meaning, and security found only in wholes, which are also treated as given foundations. In other words, each orientation becomes rigid and dogmatic when it is believed to be the only true approach.

The Qualitative–Quantitative Hierarchy

Those favoring qualitative research sometimes attempt to turn the tables on quantitative researchers by proclaiming qualitative research more basic or foundational than quantitative. This assertion is based on the notion that for any event to count as the “same” as another, norms and interpretive practices must be used to discriminate it from other events. In natural science these are the norms and practices of the scientific community, such as the standards determining what counts as one degree Kelvin or one centimeter. In most social and education research, however, the norms and practices of those being studied are also critically important (Taylor, 1971; Winch, 1958). One needs to know what counts as a legitimate instance of “speeding,” “voting,” or “getting an A grade,” for example, and this depends on the standards and methods of interpretation being used in the relevant community. Viewed in this way, qualitative research is more basic or foundational than quantitative research, at least in social and educational applications, because understanding the social norms and practices in play is necessary for knowing which repeated events count (or function) as the “same.”

Given this point, positivistic research is often criticized as liable to distortion or invalidity because it can lead to counting events as the same from the scientific observer’s point of view that do not actually have the same meaning or function for those whose conduct is being studied. This is especially likely when research conducted under tightly controlled conditions where meaning or functional significance can be imposed is generalized to less-controlled, naturalistic settings (Bruner, 1985; Chomsky, 1959; Cole, 1996; Cole, Gay, Glick, & Sharp, 1971). In other words, while reductionists tend to accuse holists of making unverifiable (meaningless) statements, holists tend to accuse reductionists of making invalid statements.

Unfortunately, sensible criticism of potential positivistic blindness to social norms and practices can all too easily lead to
an exaggerated belief in the total incomparability of different groups or cultures. For example, I sometimes hear students proclaim: "All generalization is impossible!" or "There are multiple realities!" I even had a colleague claim to be "against all categorization" because it inevitably involves distortion and dominance. Such statements are obviously self-refuting and also just the sort of expressions that positivists sought to reject. As a result, they tend to confirm positivists’ worst fears about holistic extremism, reinforcing a cycle of distrust.

The fact that everything is unique when considered as a whole clearly does not mean that it is incomparable in uncounted specific ways. Chicken hearts, pig hearts, and human hearts all differ but may be compared in size, weight, volume, and a virtually infinite set of other characteristics. The same applies to schools in different societies. Of course there are dangers in making glib contrasts, such as presupposing that a formal difference is a functional difference. For the extreme holist, however, comparability is impossible in principle because each whole is considered to be so distinctive and perfectly integrated that each part functions in entirely unique ways within it. Every heart or school is unique and qualitatively different from every other, when considered as a whole, hence totally in-comparable. Such a view is false, however, because as long as commonality of function is recognized across cases, practical comparison is possible. In effect, qualitative researchers who limit generalization to identifying patterns within a case mirror quantitative researchers who limit generalization to identifying patterns between cases. Both take one form of generalization as the only possible one.

**The Value–Fact Hierarchy**

A holistic orientation also tends to reverse the fact–value hierarchy. Considered holistically, facts are conclusions of inquiries having an overall orientation or aim. The very fact that a given educational issue is considered a “problem,” for example, is likely to make the behavior of some person or group problematic and the behavior of others unproblematic, thereby raising questions about who really has the problem. Educational concepts such as presupposing that a formal difference is a functional difference. For the extreme holist, however, comparability is impossible in principle because each whole is considered to be so distinctive and perfectly integrated that each part functions in entirely unique ways within it. Every heart or school is unique and qualitatively different from every other, when considered as a whole, hence totally in-comparable. Such a view is false, however, because as long as commonality of function is recognized across cases, practical comparison is possible. In effect, qualitative researchers who limit generalization to identifying patterns within a case mirror quantitative researchers who limit generalization to identifying patterns between cases. Both take one form of generalization as the only possible one.

**The Humanities–Science Hierarchy**

A holistic viewpoint tends to reverse the science–humanities hierarchy as well, making the particular more important than the universal. The sciences commonly seek universalistic statements, generalizations that are true for all times and places that all people can accept because they are so well substantiated. This attempt to find knowledge that is both universally applicable and universally acceptable seems to give the sciences priority over the humanities insofar as knowledge is concerned.

These aims are undercut by those giving priority to the humanities, however. If generalizations about human behavior depend on unique contexts in which certain norms are used, then attaining the first aspect of universality is unlikely if not impossible because generalizations change with time and space. If scientific communities are themselves culturally and historically unique, then the second aspect of universality is also undercut. Cronbach's (1975) assertion that psychology should aspire only to summarizing the tendencies of its time, rather than seeking timeless generalizations, is an example of the first qualification, while Kuhn's (1962) suggestion that scientists are limited by the paradigms or conventions of their time is an example of the second.

If both the object of study and the community studying it are unique, particularistic wholes, then generalization would seem to be impossible. Attempts at generalization are then viewed as presumptuous “meta-narratives,” local stories puffed up to sound as though they were the single universal account of things (Lyotard, 1984). Viewed in this way, it is the local stories that are valid, while the presumptively universalistic story is a distortion, a “view from nowhere.” As Daniel Ortiz (1999) notes, however, such arguments depend on the presupposition that different communities are categorically distinct and integral. They depend on presuppositions about preexisting categorical differences prior to examination of functional commonality and diversity within and between communities (Eisenhart, 1989). This is not to say that the methodological hypothesis that cultures are integral wholes, or that one's informant makes sense, are not useful tools of inquiry; however, one should not confuse a methodological postulate with a fact determined by using it.

**3. Pragmatic Complementarity**

Two aspects of the present argument should be clear by now. Reductionists take parts as what is real and definite, the things to hang onto, and holists take wholes as real and definite and seek to hang onto them. Each seeks secure foundations in a preferred attitude and then (commonly) attempts to ground it in presumed entities. In so doing, each is likely to overgeneralize a sometimes valuable insight.

This contrast is relevant to Howe's essay because I believe he tends to err on the holistic side. One can see this in his lack of criticism of hasty or dogmatic holisticism and his apparently unqualified approval of holistic approaches, like those of Kuhn and Rorty. At the very least, all of his criticism focuses on reductionism. Phillips, on the other hand, shows a bias toward reductive themes in calling for knowledge to represent external "reality," emphasizing fact–value separation, and placing greater emphasis on the deductive verification–falsification aspect of inquiry than the inductive, meaning-discovering aspect. Even though critical of both sides, most of his criticism has in the past been aimed at extreme holists who seem all too willing to reject science wholesale. Howe wants to include both the sciences and the humanities on an equal basis within education research, whereas Phillips seeks a broader understanding of science that is not so polarizing.
But neither places much emphasis on the temporal aspects of inquiry (see, e.g., Koopman, 2007).

If one considers inquiry as a process taking place over time, it is easier to see how contrasting viewpoints can be adopted without contradiction. One can analyze a situation one moment, seeking to divide it into relatively independent claims or suggestions, and then synthesize it the next, seeking the common meaning or significance of the parts. Analysis and synthesis can be used as phases of recurring cycles of inquiry rather than as static, warring orientations.

Viewing the inquiry process in this way, one does not start with parts or wholes, facts or theories, signs or meanings. Rather, inquiry begins with a puzzling situation that is ambiguous, uncertain, or contradictory. In such a situation, both the character of the problem and the nature of the solution are unclear, and a tentative version of each is used to suggest and constrain the other. As John Dewey (1933) wrote, “Analysis leads to synthesis, while synthesis perfects analysis” (p. 131). Later in the same book, he elaborated on that relationship:

The two functions . . . accompany one another. The improved selection and discrimination of pertinent data [analysis] gives a better clew to ideas that are fruitful when employed and to the new tests to which they must be submitted. The improvement of ideas [synthesis] in turn stimulates the performance of new observations and the collection of new data. (p. 166)

Neither problem nor solution is fixed ahead of time when inquiry is open.

But if both problem and solution are undetermined at the beginning of an inquiry, how does one resolve the situation? What constraints can one use to make any progress? Obviously, the test of an idea is whether it leads from valid premises to valid conclusions. As Dewey (1933) again wrote,

First, the process of forming the idea or supposed solution is checked by constant cross reference to the conditions observed to be actually present; secondly, the idea after it is formed is tested by acting upon it, overtly if possible, otherwise in imagination. The consequences of this action confirm, modify, or refute the idea. (pp. 104–105)

In other words, there is a temporal process involving repeated cycles of inquiry and testing. An idea of a possible solution leads to new observations about presupposed initial conditions to ensure that these premises hold. The idea is then tested to see if it works when acted upon, leading to new observations of its consequences and possible further modification of the idea. One might say that ideas are constructed and tested like bridges. One designs a bridge to cross from one bank to another, just as one develops an argument that goes from premises to conclusions. On the other hand, one also selects and even modifies the banks to be spanned to fit a given bridge. Both the gap to be spanned and the design of the bridge to span it are selected in light of each other. Once it seems as though a satisfactory fit will be achieved, the bridge is built and tested to see if it carries traffic safely. Ideas are developed and tested similarly to see if they can resolve an uncertain situation.

These points are so simple they would hardly seem to bear restating. Nonetheless, this approach differs from those more commonly adopted in that it does not begin with a given problem definition or solution-set. Reductionists, for whom observational facts are simply given, tend to base knowledge on an externally well-defined situation, like a bridge builder who believes that the banks are simply given or a thinker who believes the problem already well defined. Holists are like bridge builders who believe that the idea of the bridge, the solution-set already in mind, determines the banks the bridge will span. If analysis and synthesis can modify one another cyclically, however, a clearer view of a problem can lead to a better understanding of a solution, and vice-versa, neither being given priority over the other. In effect, the objective and subjective aspects of a situation, the given and desired aspects, the descriptive and normative aspects, and so forth, can be used to suggest and define one another.

What makes a cycle of inquiry go somewhere, other than just around and around, is progress in resolving the initial situation. One can get nearer to a design that successfully spans a gap, just as one can get nearer to selecting (or modifying) the gap to be spanned. As James (1907/1963) put it, truth has a go-between function, helping to “summarize old facts and lead to new ones” (p. 28). Einstein’s theory was preferred over Newton’s, for example, because it resolved contradictions in existing theory while remaining approximately consistent with old facts, and also revealed unexpected new facts (e.g., light’s being bent by gravitation).

I do not mean to suggest that different phases or aspects of a process of inquiry can work together merely because we can verbally understand the possibility. Every real resolution must be achieved in practice, not merely in talk. Possibilities may also be blocked by those favoring fixed orientations, like dogmatic reductionists and holists who refuse to take each other’s potentially valuable points into account. Such rigid accounts can be unstillified when the situation is approached more pragmatically and attention focused on progress in resolving a situation in practice (James, 1907/1963).

Seen in this way, each of the one-sided orientations dividing the education research community has something useful to contribute, especially when not adopted in a fixed or dogmatic fashion. Qualitative generalization within a case can assist quantitative generalization across cases, and vice-versa. In fact, neither makes much sense without the other. Judgments about fact and value may also be used to modify one another: Reflection on present aims or values helps in judging whether one is considering the correct facts, and inquiry into factual consequences helps in judging whether a given aim or value is truly valuable (Dewey, 1939). Scientific exploration of means and humanistic exploration of ends can and should inform one another in a society seeking to be both technically progressive and humane. Having a feel for the whole combined with technical accuracy of parts, each informing the other to achieve something in common, is what is needed in any art, including that of social and education research (Dewey, 1934).

4. Conclusions

A number of conclusions flow from this analysis. First, and simplest, it would be better if those of analytic and synthetic temperament learned from one another rather than engaging in methodology wars. The war between dogmatic reductionists and dogmatic holists is the equivalent of an argument between those favoring use of only the left side versus only the right side of the brain. Why would anyone who cares about resolving social and educational difficulties want to
adopt either position? At the very least, this discussion is intended to suggest that there is little intellectual justification for doing so.

Second, there is only one proper standard for education research: It should perform its function well. A good research project is one that clears up ambiguities in the situation it aims to resolve while opening up fruitful lines of future inquiry. As a result, there are as many models of good research as there are research studies that clarify the situation to which they are addressed well and open up new, fruitful lines of inquiry.

Third, statements of research standards should take account of C. S. Peirce’s (1898/1998) first rule of logic: “Do not block the way of inquiry” (p. 48). This is basically the same as the statement in the Hippocratic oath that one should, above all, do no harm. Standards are hints for how to do things well, not rules to follow slavishly. Standardization of thought will only impoverish, not improve, education research.

Fourth, although Howe’s article is extremely helpful in its criticism of the contemporary reincarnation of positivism, it is somewhat one-sided. I have tried to suggest a way of achieving greater balance by adopting a temporal approach in which different perspectives are used cyclically to guide and constrain one another. This approach allows for a strong role for factual constraints without making facts external to the process of inquiry. It also allows for a strong role for values and overall meaning, without making them independent of judgment and testing. Whether the resulting interpretation is fair to Howe I leave for others to judge. He certainly includes elements of these suggestions in his discussion, but he seems to have adopted a somewhat one-sided approach in the article to which I am responding here.

Fifth, although there is much to recommend Phillips’s advocacy of a postpositivist middle ground, a more dynamic conception of balance would consider how various perspectives can be used to achieve a common purpose by taking one another into account rather than by adopting a midpoint between them. The approach proposed here also gets away from some remaining positivistic or externalist elements in Phillips’s approach. Phillips’s approach, nonetheless, has much in common with the one that I propose here, the difference (as with Howe) being perhaps more a matter of emphasis than of doctrine.

NOTES

I want to thank Walter Feinberg and Ray McDermott for helpful comments and suggestions. Remaining errors are of my own doing.

1They included the authors Hans Hahn, Otto Neurath, and Rudolf Carnap and a longer list of sympathetic scholars signing the statement. In fairness, there were many differences among the scholars associated with the Vienna Circle and many changes in their views over time (Ubel, 2008).

2Those who accept the notion that science should be purely factual obviously accept the notion that epistemic values, such as valuing truth and honesty, are important. It is the “wider” values beyond these that are of concern.

3For a good discussion of reductionism and holism in psychology, see Hilgard and Bower (1966).

4Note that Lyotard was too canny to be caught in this trap, suggesting “incredulity” toward meta-narratives, not objective knowledge of their falseness. Unfortunately, many of his followers have not been so careful.

5This contrast clearly repeats arguments between Anglo-American empiricists and Continental rationalists or modern externalists and internalists (Bredo, 2006; Godfrey-Smith, 1996).

REFERENCES


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