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ABSTRACT

This manuscript examines the uneasy relationship between qualitative and quantitative research. The multiple perspectives of qualitative researchers, quantitative researchers, and critical theorists should be "harmoniously engaged in an earnest dialogue, lifting the discussion to a new level of insight, making progress toward workable solutions of educational problems, and generating theory that fit together" (N. Gage, 1989, p. 10). This work expands that discussion utilizing Teilhard de Chardin's works and suggesting that the various reflections of qualitative research, quantitative research, critical theorists, and race-based epistemologies are how the process can be improved that is becoming the future of the human race. (Contains 20 references.) (Author)

Multiple Perspectives on Research from one Educational Researcher: A revisitation of Teilhard de Chardin

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Multiple Perspectives on Research from one Educational Researcher: A revisitation of Teilhard de Chardin

Abstract

This manuscript examines the uneasy relationship between qualitative and quantitative research. The multiple perspectives of qualitative researchers, quantitative researchers and critical theorists should be "harmoniously engaged in an earnest dialogue, lifting the discussion to a new level of insight, making progress toward workable solutions of educational problems, and generating theory that fit together" (Gage, 1989, p. 10). This work expands that discussion utilizing Teilhard de Chardin's works and arguing that the various reflections of qualitative research, quantitative research, critical theorists, and race-based epistemologies are how we can improve the process that is becoming the future of the human race.

Multiple Perspectives of Research and Teilhard de Chardin

This paper examines the uneasy relationship between qualitative and quantitative research and utilizes the work of Teilhard de Chardin to make a case that there should be a more supportive relationship. Some argue that this type of dialogue is fruitless because it results in educators talking past each other and using terms differently or in using different terms (e. g., Smith, 1983). Others, disagree with Smith and claim that dialogue builds support for those that value multiple perspectives. Gage (1989) added the critical theorist to qualitative and quantitative research and hoped for a future where

> the three approaches were busily and harmoniously engaged in an earnest dialogue, lifting the discussion to a new level of insight, making progress toward workable solutions of educational problems, and generating theory that fit together, as seen from the perspective of each of the three approaches. (p. 10)

Gage's ideas may appear to some as a quantum leap and yet as seen in publications contemporary with and subsequent to Gage (e.g., Howe, 1988; Howe & Eisenhart, 1990; Place and Reitzug, 1992; Salomon, 1991) there are educational researchers supportive of the movement described by Gage.

To expand useful dialogue, key terms (e.g., research, science, quantitative and qualitative) should be revisited and their meaning made more explicit. To start with the Webster's New Collegiate Dictionary (1981) suggests that research is constituted as a "1: careful or diligent search 2: studious inquiry or examination; *esp*, investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws" (p. 976). Science is "1 a: possession of knowledge as distinguished from ignorance or misunderstanding b: knowledge obtained through study or practice" (p. 1026). These definitions are broad enough to encompass both quantitative and qualitative perspectives the way I will use them in this paper. They are also within the framework of Chardin's work (1955/1975). The use of the word, science in this paper as well

as in the work of Chardin is a broad term that includes more than a single field of study. Staying with simple commonly used definitions, quantitative studies are studies that utilize statistics, numbers or that which can be quantified, while "qualitative studies are those in which the description of observations is not ordinarily expressed in quantitative terms" (Best & Kahn, 1986, p. 147).

Discussion of the qualitative and quantitative research perspectives is enriched if multiple perspectives can be appreciated as intrinsically important and valid (Gage, 1989). Place and Reitzug (1992) used the American Indian Medicine Wheel as a metaphor to express the concept that there is value in understanding the world from more than one perspective (see also Storm, 1981 & 1972). While different people may have an initial perspective that they are most comfortable with in viewing the world, in order to develop fully people should view the world from all the directions within the Medicine Wheel.

Place and Reitzug (1992) describe four perspectives, one for each of the four directions as follows: the east a realist-quantitative perspective, the south a realist-qualitative perspective, the west a idealist-qualitative perspective, and the north a divergent-quantitative perspective. The term "divergent-quantitative" perspective is used because the four directions are not simply two dualistic axes. Although "divergent" is less elegant and symmetric then "idealist," it is more descriptive and accurate then would be the term of "idealist-quantitative." The quantitative-qualitative portion of these terms simply referred to the usual concepts about research methodology (as described above). The realist-idealist portion is derived from the literature on philosophy and research (Garrison, 1986; Miller & Fredericks, 1991; Smith, 1983; Smith & Heshusius, 1986), although applied here perhaps in a modified sort of genre--reality itself is the crux of the idealist-realist differences. "The subject and the object, perceived by realists as two elements, become one to idealists, who perceive *no reality independent of the shaping or creating efforts of the mind"* [italics added] (Smith, 1983, p. 8). The divergent perspective is closer to the idealist than to the realist, but perhaps not quite as inclined to rule out the possibility of a tree falling in the forest still being able to make what might be termed a sound even if no one is around to hear it.

The Implications of Teilhard de Chardin for Educational Research

The major thrust of this paper is to go beyond definitions and investigate the uneasy relationship between qualitative and quantitative research and to expand the discussion even further through the writings of Teilhard de Chardin, who although not published in his lifetime, still provides a framework salient to this endeavor. Chardin was described by Julian Huxley in the introduction for the 1959 English translation of The Phenomenon of Man as "at the same time a Jesuit Father and a distinguished palaeontologist" (p. 11) . Huxley noted the research implications of Chardin's "great book by describing humanity as a phenomenon, to be studied and analyzed by scientific methods" (p. 12). Huxley also wrote in the introduction that:

> In man, at least during the historical and proto-historical periods, evolution has been characterized more by cultural than by genetic or biological change.
>
> On this new psychosocial level, the evolutionary process leads to new types and higher degrees of organisation. On the one hand there are new patterns of co-operation among individuals--co-operation for practical control, for enjoyment, for education, and notably in the last few centuries, for obtaining new knowledge; and on the other there are new patterns of thought, new organisations of awareness and its products. (p. 27)

Chardin warns about The Phenomenon of Man "it must be read not as a work on metaphysics, still less as a sort of theological essay, but purely and simply as a scientific treatise" (Chardin, 1955/1975, p. 29).

It is a broad view of science which helps to build a framework, interwoven within the broader context of the world, that Chardin's work can help deepen and thereby allow for a more natural and comfortable relationship between qualitative and quantitative research. In another work, The Future of Man, Chardin (1959/1969) omits the statement to the reader that this essay, be read "purely and simply as a scientific treatise" but does continue to speak of science,

> Hence the mysterious attraction which, regardless of all setbacks and *a priori* condemnations, has drawn men irresistibly towards science as to the source of Life.

> Stronger than every obstacle and counter-argument is the instinct which tells us that, to be faithful to Life, we must *know*; we must know more and still more; we must tirelessly and unceasingly search for Something, we know not what, which will appear in the end to those who have penetrated to the very heart of reality. (p. 20)

It is that drive for knowing the heart of reality that I believe leads to the conclusion that we must include both qualitative and quantitative research in our search to know. One of the major points of the treatise in the Phenomenon of Man was the growing or evolutionary nature of humanity. That growth is tied conceptually to a more complex view of research. The vision of educational researchers should not be limited to one methodological perspective. Research is a way of seeing the world or at least a way of increasing one's ability to see. Chardin (1955/1975) talks of the concept of seeing as follows:

> *Seeing.* We might say that the whole of life lies in that verb--if not ultimately, at least essentially. Fuller being is closer union: such is the kernel and conclusion of this book. But let us emphasise the point: union increases only through an increase in consciousness that is to say in vision. (p. 31)

The Relationship of Qualitative and Quantitative Research

Recently, Scheurich and Young (1997) discuss "presumptions about the real, the true, and the good" (p.6) which form "an epistemological, ontological, and axiological network or grid that 'makes' the world as the dominant western culture knows and sees it" (p. 7). They continue to explain that "this grid has evolved and changed to some degree, it has, nonetheless, maintained a kind of coherence and consistency, particularly in terms of some of its primary assumptions" (p. 7). Scheurich and Young contend that "different social groups, races cultures, societies, or civilizations evolve different epistemologies" (p. 8) and that therefore, the educational research community needs to oppose "civilizational racism" by supporting " 'new' race-based epistemologies."

The behavioral sciences including educational research are especially effected by the cultural change and new patterns of thought. Julian Huxley referred to new patterns of thought as well as the need to "see" more fully through our research. For many, it would be a cultural change involving new patterns of thought to begin to value multiple perspectives in educational research or to search to know the same educational issues with multiple approaches. The multiple perspectives of the medicine wheel and the work of Chardin may help improve research because if research is evolutionary in nature, then educators may need the adaptive value of multiple perspectives.

The multiple perspective metaphorically sought by Place and Reitzug (1992) through the medicine wheel can be further expanded by looking at the work of Teilhard de Chardin. The wheel metaphor is two dimensional, even though it is multidirectional. Adding a third dimension or even a fourth dimension may be helpful, and researchers may come up with concepts (such as that of the critical theorist or "new" race-based epistemologies) which could be metaphorically represented by going up or down in a third dimension. While, space-time or a fourth dimension is a difficult concept to grasp, it may help educators to "see" life more completely. However, there are other perspectives such as Teilhard de Chardin's which are not strictly limited by three dimensional space. Those perspectives transcend epistemology by at least acknowledging that,

> there are 'spheres' or 'levels' of different kinds in the unity of nature, each of them distinguished the dominance of certain factors which are imperceptible or negligible in a neighbouring sphere or on an adjacent level. On the middle scale of our organisms and of our constructions velocity does not seem to change the nature of matter. None the less, we now know that at the extreme values reached by atomic movements it profoundly modifies the mass of bodies. Among 'normal' chemical elements, stability and longevity appear to be the rule : but that illusion has been destroyed by the discovery of radio-active substances. By the standards of our human existence, the mountains and stars are a model of majestic changelessness. Now we discover that, observed over a sufficiently great duration of time, the earth's crust changes ceaselessly under our feet, while the heavens sweep us along

in a cyclone of stars. (Chardin, 1955/1975, p. 54)

Chardin's point here is that there are many perspectives from which to view reality. Perhaps the perspective that an individual is most comfortable with helps that individual understand reality, but it also limits personal understanding. That limitation is no less problematic for either qualitative or quantitative research. This author shares Chardin's ontological assumption about the unity of nature. However, the "unity of nature" that educational researchers are trying to see may have certain factors or parts of the whole that are not perceivable unless one becomes more aware of personal vantage points. One's vantage point both allows for vision and at the same time constrains viewing other aspects, which are distinguishable from another perspective. Chardin continues,

> In all these instances, and in others like to them, there is no absolute appearance of a new dimension. Every mass is modified by its velocity. Every body radiates. Every movement is veiled in immobility when sufficiently slowed down. But on a different scale, or at a different intensity, there will become visible some phenomenon that spreads over the horizon, blots out the other distinctions, and gives its own particular tonality to the whole picture. (Chardin, 1955/1975, pp. 54-55)

The whole picture was important to both Chardin (1955/1975) and Storm (1981 & 1972): "To see life properly we must never lose sight of the unity of the biosphere that lies beyond the plurality and essential rivalry of individual beings" (Chardin, 1955/1975, p. 54). Huxley also wrote in the introduction that, "Pere Teilhard starts from the position that mankind in its totality is a phenomenon to be described and analyzed like any other phenomenon : it and all its manifestations, including human history and human values, are proper objects for scientific study" (p. 12). Some might argue that the importance of the whole would detract from the importance of (or build a case against) quantitative educational research (especially microanalytic--which attempts to isolate a few factors so as to better study their effects).

The belief in the importance of quantitative research is not contradictory with the belief in

the importance of "the whole" unless one limits research solely to one "scale" or one "intensity" (or one point on the Medicine Wheel). The argument that quantitative research is not valuable because it is too limited, fails to articulate the larger picture (even if those who argue against quantitative research have a perspective that is attempting to look at issues from a more holistic view as some qualitative research does). A holistic view is flawed, if taken to claim that the holistic perspective has a monopoly on discovery, and that microanalytic research should not be done. The fact that the "scale" or "intensity" from which one perceives the whole picture "gives its own particular tonality to the whole picture" (Chardin, 1955/1975, pp. 54-55) does not mean perceptions from any particular "scale" or "intensity" are invalid or less important.

As human thought and the importance of educational research continues to evolve, the complexity issues dealt with by educational researchers further push us to value multiple perspectives. Education is a proper object for scientific study. Chardin (1959/1969) viewed education in a broad sense as very important. He notes,

> Life had attained through Man the highest degree of inventive choice in the individual and socialisation in the community. For this double reason the phenomenon of education as it affects Man possesses a greater amplitude and clarity than in any other context and calls for more exhaustive study. (p. 31)

In fact, education is central to the further evolution of humanity and an essential part of the process by which evolution takes place (Chardin, 1959/1969):

> To accept that education is one of the factors, or better, one of the forms of the process which we denote by the very generalised and rather vague term evolution, is therefore to imply that the sum of knowledge and acquirement retained and transmitted by education from one generation to the next constitutes a natural sequence of which the direction may be observed. (p. 32)

The direction that educational research is evolving towards includes qualitative research, quantitative research, critical theorists, race-based epistemologies as well as others in a more unified vision. We need to continue to strongly encourage each perspective in its own endeavors

while both encouraging more mixed methodologies and maintaining high standards for acceptance of what is considered sound educational research.

Chardin's discussion of existence can still further add to our attempt to improve the uneasy relationship between qualitative and quantitative research by careful consideration of what he calls the *within* and the *without* of things. The *within* and the *without* of things, Chardin refers to as the two energies of mind and matter:

> Since the stuff of the universe has an inner aspect at one point of itself, there is necessarily a *double aspect to its structure*, that is to say in every region of space and time--in the same way, for instance, as it is granular: *co-extensive with their Without, there is a Within to things* (Chardin, 1955/1975, p. 56).

These two aspects of existence (the *within* and the *without* of things) are interrelated and provide food for thought about the multiple perspectives and dimensions which may be helpful in the search for truth, the nature of reality, and the character of research. Though it is tempting to jump to the conclusion that the *within* is the qualitative perspective and the *without* is the quantitative perspective, Chardin (1955/1975) dismisses the possibility by noting: "spread respectively through the two layers of the world (the *within* and the *without*) have, taken as a whole, much the same demeanour" (p. 64). In The Future of Man Chardin further breaks away from the "encampment approach" that some take toward qualitative and quantitative debate: "we must rid ourselves of a prejudice which is deeply embedded in our thought, namely the habit of mind which causes us to contrast unity with plurality, the element with the whole and the individual with the collective, as though these were diametrically opposed ideas" (Chardin, 1959/1969, pp. 54-55).

Both the quantitative perspective and the qualitative perspective have the *within* and the *without*. The *without* of things can be studied from either the qualitative perspective or the quantitative perspective. The other way to look at it is as Chardin discusses the *within* he notes, " Things have their *within* ; their 'reserve', one might say; and this appears to stand in definite *qualitative* or *quantitative* connections with the developments that science recognises in the cosmic

energy" (Chardin, 1955/1975, p. 54).

This relationship between qualitative and quantitative research is implied in what Chardin calls for in the statement, "the internal aspect of things as well as the external aspect of the world will be taken into account. Otherwise, so it seems to me, it is impossible to cover the totality of the cosmic phenomenon by one coherent explanation such as science must try to construct" (Chardin, 1955/1975, p. 53). Physics and mathematics can be considered less complex than education because in their usual sense they have been dealing only with what Chardin referred to as the *without* of the world (although this may oversimplified what some in those fields attempt).

An "Outside" Perspective

Many in the "hard" sciences (e.g. physics) have sought one coherent explanation or unified theory. Their efforts have gone unrewarded thus far. Stephen W. Hawking (1996), the Lucasian Professor of Mathematics at Cambridge University states: "It turns out to be very difficult to devise a theory to describe the universe all in one go" (p. 17) Hawking notes that the general theory of relativity and quantum mechanics "are known to be inconsistent with each other--they cannot both be correct" (p. 18). However, these are the two great theories in the field of physics, which many people have tried to reconcile into a grand unified theory. Hawking (1996) notes

> can there really be such a unified theory? Or are we perhaps just chasing a marriage? There seem to be three possibilities:
>
> 1) There really is a complete unified theory, (or a collection of overlapping formulations) which we will someday discover if we are smart enough.
>
> 2) There is no ultimate theory of the universe just an infinite sequence of theories that describe the universe more and more accurately.
>
> 3) There is no theory of the universe; events can not be predicted beyond a certain extent, but occur in a random and arbitrary manor . . . .
>
> we have effectively removed the third possibility above by redefining the goal of science: our aim is to formulate a set of laws that enable us to predict events only up the limit set by the uncertainty principle. (p. 224)

Hawking notes that quantum mechanics is based on Werner Heisenberg's uncertainty principle. Heisenberg advanced the concept of the uncertainty principle in 1926. The uncertainty principle basically means, "the more accurately you try to measure the position of a particle, the less accurately you can measure its speed, and vice versa" (Hawking, 1996, p. 72). Even though the concept of an uncertainty principle is from the physical sciences and does not directly deal with what Chardin referred to as the *within*, it is pertinent because it provides a needed parameter for discussion in complex fields such as education which need to attempt to deal with both the *within* and the *without.* Educational researchers should not and do not claim certainty unattainable in the natural sciences. However, the fact that we like the natural sciences must deal with uncertainty in our research does not detract from the value of our research.

The attempt to reconcile the general theory of relativity and quantum mechanics is not the same as what we are doing when we say there is value in multiple perspectives. However, the attempts to develop a grand unified theory, document the present inability of natural science to develop a theory with universal implications for how natural scientists view reality and pursue research. If true for physics, consider the implications for the social sciences. No one view and no one paradigm fits all contexts.

Conclusion

How can educational researchers move beyond the oppositional nature of qualitative/quantitative research. Hansgen (1991) notes:

> Both objective space and subjective space exist within the classroom. To ignore the former is to close the door on the truth and beauty of the external world. To ignore the latter is to commit the sin of treating another human being as an object. (p. 693)

Salomon (1991) argues that not only is qualitative and quantitative research compatible, but that what he terms systematic and analytic approaches transcend the oppositional nature of qualitative/quantitative research. Salomon even questions the need for "a superordinate set of

'objective criteria ... for a claim to be made that (a) paradigms are valid within their own epistemological parameters and that (b) they are complementary because they differ in terms of their assumptions, phenomena they study, questions they raise, and methodologies they employ" (p. 15). Further as in the medicine wheel each paradigm is unique and valid:

> it becomes evident that the complementarity is not any fusion of paradigms; they *are* different because they are based on different epistemological bases leading to different ways of understanding.... The systemic study of complex learning environments cannot be fruitful, and certainly cannot yield any generalizable (applicable) findings and conclusions, in the absence of carefully controlled analytic studies of selected aspects in which internal validity is maximized (Salomon, 1991, p. 16).

No single perspective provides all the answers, nor does any perspective provide proof or certain answers. All research can do is to reduce uncertainty. In fact, to reduce uncertainty we can not ignore the multiple perspectives available to us. The *within* and the *without* of the world may help educational researchers from different perspective appreciate each other, then also expand the discussions and social understandings of what it means to be a human being. Hawking (1996) notes that the search for the illusive complete unified theory of physics "may have to use different reflections of the underlying theory in different situations. It might be like our being unable to represent the surface of the earth on a single map... This would be a revolution in our view of the laws of science..." (preface). While the human race is continuing to evolve, educational research is going through its own revolution.

There certainly are those who continue to oppose research because it is not using the methodology they believe is best. However, if there is an human existence toward which we are evolving and education is part of the that evolutionary process (as Chardin proposes) then qualitative researchers must respect and attempt to learn from quantitative researchers and those who are quantitative must appreciate and learn from qualitative researchers. Traditional quantitative and qualitative researchers must respect and attempt to learn from researchers that are

critical theorists, as well as those that use new race-based epistemologies and the opposite must also happen.

What is the role of education in the evolution of human beings and how will different reflections of our research add to our growth, maybe questions that require us to use different reflections of the underlying theory in different situations. The role of education in what it means to be a human being is vital. Chardin (1959/1969) describes a future of "mature" humans:

> In the passage of time a state of collective human consciousness has been progressively evolved which is inherited by each suceeding generation of conscious individuals, and to which each generation adds something.... the specific function of education is to ensure the continued development of this personality by transmitting it to the endlessly changing mass: in other words, to extend and ensure in collective mankind a consciousness which may already have reached its limits in the individual. Its fulfilment, in the case of man, of this function is the final proof of the biological nature and value of education... (p. 33-34)

Its fulfillment also requires that social phenomenon be examined form multiple perspectives. The various reflections of qualitative research, quantitative research, critical theorists, and race-based epistemologies are how we can improve the process that is becoming the future of the human race.

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