Revisiting philosophical and theoretical debates in contemporary educational research and major epistemological and ontological underpinnings

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It is important for educational researchers to possess an understanding that research (albeit a contentious area in terms of what indeed this constitutes) undertaken is done with certain pre-existing values and beliefs as to what we as individuals and teachers hold true. The methods and methodologies defined by Gough (2000, p.3) as "the reasoning that informs particular ways of doing research, or the principles that inform the organisations of research activity" as well as paradigms that we as researchers use and work within are deemed to be highly correlated, as well as congruent to us as in other roles as educators and learners.

As individuals brought up in a certain culture at a certain time, our life experience, education, beliefs (including but not limited to culture and tradition) and very existence, as elements that are not static but constantly changing, often unconsciously influence our research patterns, principles and tacitly dictate what paradigm, along with what methods, are used when research is conducted, whether it be basic or applied. Such a tenet is highlighted by Hustler who states "that we are part of the social worlds we are studying and that researchers' own interpretative processes and authorial position need to be taken account of" (as cited in Somekh & Lewin, 2005, p. 17).

This is especially true in educational research where human learning and development are core and the aim of such research is an understanding of the correlation between these processes and structures. While the disciplinary orientations of educational research are contestable and beyond the scope of this paper, an examination, delineation and critical exploration of epistemological and ontological underpinnings and assumptions of educational research are beneficial in providing researchers with valuable understandings and improved critical thinking skills.

Examples of such understandings include how our existence can determine the paradigm, implicit in the notion of paradigms containing considerable variations defined by Scott & Usher (1995, p. 15) as "frameworks that function as maps or guides to address and define acceptable theories or explanations, methods and techniques to solve defined problems" used in research to the extent that research is inseparable from ontology and epistemology.

It is my contention that this enables and empowers researchers to conduct research in a way fitting to the objectives at hand. The outcome is that armed with the knowledge that there is more than one methodology to tackle research, this results in more accurate findings and a more sound ability to comprehend other research as well. It is this

"personalisation of methodology that helps us to understand how we might know what kind of researchers we are" (Gough, 2000, p. 7), in line with the aphorism that "the researcher you are is the person you are".

Before embarking on an exploration of research and philosophical underpinnings, it seems pertinent at this juncture to contemplate what indeed research is. Definitions abound with the very word 'research' conjuring up different connotations to different individuals, inherent in fact again to the above point of the correlation between us as individuals and the often unconscious way in which research is conducted. Some may see research as "experimentation and observation with laboratory or fieldwork" whereas others may view it as completing "surveys, questionnaires or interviews" (Gough, 2000, p. 2). Personally, it is my preference to view research as well as the contestable concept of education more openly in light of research conducted to broadly align with a definition from Creswell (2005, p. 3) as "to collect and analyze information in order to increase our understanding of a topic or issue".

To begin with the epistemological and ontological as well as axiological underpinnings of education research, requires an understanding of this interdependent relationship and the importance gained through such an examination. Put simply, central to this understanding is the formation of paradigms as well as the inextricable parallel between them and research, i.e. that they cannot be extricated from each other. Furthermore, questions of an epistemological and ontologically based nature are considered by Scott & Usher (1996, p. 11) as "related since claims about what exists in the world imply claims about how what exists may be known", applicable to this aforementioned correlation.

Examining epistemological research is to initially understand epistemology as the philosophical view of knowledge acquisition, i.e. what is, and how is knowledge, including its nature acquired. Johnson & Duberley (2000) debate the origins of epistemology yet agree that the Greek words episteme (meaning knowledge or science) and logos (meaning theory or account or knowledge) come together to mean "the knowledge of/about knowledge" whilst others such as Somekh & Lewin (2005) define it slightly differently as "the study of the nature and extent of knowledge and truth". Hence, what researchers state they 'know' is actually to be in a position to justify how they arrived at such a conclusion, inherent in the claim of epistemology.

Again, Scott & Usher (1996, p. 12) point to the importance of sound epistemologically

based research being conducted in an objective manner where the research is "unbiased, value neutral and takes care to ensure that personal considerations do not intrude into the research process". In fact, it is significant to acknowledge the relationship between an adherence to a particular epistemological perspective and the choice of research methodology, as well as the manifestations of theoretical perspectives such as positivism and empiricism.

A more in-depth look at epistemology reveals that knowledge, according to Cohen & Manion (1985, p. 7), could be examined as either tangible or alternatively "softer, more subjective, spiritual or even transcendental", a consideration that will influence, perhaps even determine the research approach one undertakes. Specifically, should knowledge be viewed as the former tangible form, this will undoubtedly result in the researcher taking an "observer role" with a reliance and preference for positivist scientific methods such as quantitative surveys and experiments, whereas for researchers who see knowledge with the latter subjectivity will ultimately compel the researcher to take more of an "involvement with his subjects" (Cohen & Manion, 1985, p. 9), i.e. an anti-positivist standpoint with research containing qualitative aspects in addition to quantitative ones.

From a macro perspective, educational research can be categorised into two main components by Wallen & Fraenkel (2001) as empirical and non-empirical research, respectively seen in a broad sense as obtaining information through personal experience and that of research conducted from literature review. One such definition of research in a general sense is that when research is undertaken, researchers are "systematically attempting to address and investigate certain pre-defined issues or problems" (Scott & Usher, 1996, p. 10).

As for ontology (alternatively known formerly as metaphysics), Mack (2010) defines this pragmatically as the "starting point which will likely lead to your own theoretical framework", or in a more general sense, a philosophical area dealing with existence or an individual's viewpoint of reality. In other words, ontology is the nature of what is being investigated. With an ability to group entities into similarities and differences, again, this provides the researcher with a position to devise a theoretical framework.

This theoretical framework can be commenced from different stages according to Crotty (1998) whereas others believe research should be conducted by identification first of what ontological conceptions the researcher has. Grix (2004, p. 68) however is

adamant that the most effective stages in undertaking research are: to confirm one's ontological position followed by one's epistemological position which will in turn help determine the methodological approach. Finally, although beyond the scope of this paper, a conscious understanding or awareness at the very least of axiology, i.e. the philosophical area of values as well as ethics, should also be a consideration.

Positivist, interpretivist, critical and poststructuralist understandings of educational research

An understanding of the paradigms positivist, interpretivist, critical and poststructuralist and their implications in educational research is considered beneficial in gaining an overall perspective of contemporary educational research where debates of a philosophical and theoretical nature abound. Educational research, with reference to the 20th Century has in fact been characterised by an uneasy coexistence of positivist paradigm and the interpretive, humanistic, hermeneutic and critical paradigms. Historically, a particular dominance of positivism was observed by Denzin and Lincoln (2003) as what they term as the 'traditional' period, referring to the first half of the 20th Century. Moreover, as researchers, we should understand that it is the theories behind the paradigms which both to an extent dictate and permeate our work, in spite of whether such research reciprocally combines mixed methods with both qualitative and quantitative analyses.

To begin with positivism, initially devised in the 19th Century by Auguste Comte explicated in his 'Law of Three Stages', this objective paradigm is based on the underlying fundamentals of a philosophy that are deterministic and empiricist, with the goal of being able to directly observe and deductively measure statistical variables in a precise quantitative manner, ideally positioned to test theories and hypotheses based on such statistical inferences. To clarify, three goals are considered paramount to this paradigm, namely description, control and prediction.

Consequently, post-positivism of today, derived from positivism, recognises knowledge claims are permissible despite absolute truth not being fully established. Specific examples could be of the nature where experiments are used in a controlled way in order to provide support for certain hypotheses. Ultimately though, as Popper (1992, as cited in Somekh & Lewin, 2005, p. 209) points to, the positivist paradigm is "a non-justificationist theory of knowledge affirmed on the idea of falsification (that) does not entirely abandon the legacy of the old empiricist tradition".

To further elucidate, the positivist paradigm, also referred to as the scientific paradigm, is research empirically designed to either prove or disprove a hypothesis, with a main focus on statistical analysis and scientific methods, hence its another name, central to the "conventional criteria of validity, reliability and generalizability" (Somekh & Lewin, 2005, p. 209).   With distant observations of phenomena, it is also seen to have an "emphasis on empirical, quantifiable observations" (OECD, 1995, p. 33).

It is in fact the reliance on scientific methods that results in collected data being generally seen as reliable and valid, also stated by Cohen & Manion (1985, p. 12) in that positivism claims science as providing "man with the clearest possible ideal of knowledge".   Such empirically based research, the most common form, can be defined in fact as "involving the collection, analysis and presentation of primary data in a rigorous, systematic and methodological way" (Scott & Usher, 1996, p. 10).

It is the aforementioned dominance of the positivist paradigm that resulted in what Scott & Usher (1996, p. 14) see as two main consequences, i.e. the concentration of knowledge and research findings being based predominately on "facts and formulating theory in terms of generalisations" as well as the "adoption of the language, methods and quantification of the natural sciences in social and educational research."

Lastly, it should be noted that the assumptions and ideas behind positivism are not without criticism, summarised by Cohen & Manion (1985, p. 27) to be "banal and trivial that they are of little consequence to those for whom they are intended, namely, teachers" in that by controlling variables in research for instance, often the result is synthetic and not a sound representative of the research.   The positivist paradigm appears pragmatic in certain fields yet highly likely to be ineffective in education, a field implicit in the relationships between people and the complex nature of learning.

Interpretivism however, also known as a hermeneutic or alternatively anti-positivist approach with influences of culture and history in its development as a reaction to positivism, was initially an ideology proposed by Wilhelm Dilthey, suggesting differences in the approach of research between social and natural sciences.   This is to say Interpretivism is a construction of socialisation and interaction, hence the interchangeable terminology of constructivism being synonymous with this theoretical perspective.   It should be noted that the important ontological discrepancy and central tenet is that of people having the ability to objectively interpret the environment

(normally albeit with the researcher as a passive collector and expert interpreter of data), an ability that inanimate objects do not possess; in fact an important aspect of this is the possibility of numerous interpretations of what is the 'truth' of a single event (O'Brien, 2001).

Consequently, it seems clear to acknowledge that researchers interpret findings in varying ways and as such an open view should be taken without the bias of certain assumptions. In this sense, a clear sense of contrast can be seen to the previous paradigm of positivism in the subjective and qualitative interpretations inherent in the interpretive paradigm. From a contemporary viewpoint, values and facts are able to be placed together, examples of which are interviews and group research where the ability to take down numerous variables is possible.

Moving on to the critical paradigm in its examination of culture and society requires a questioning of assumptions; ultimately there is a need to challenge other paradigms in educational research and the inherent relationships in both human and social interactions. Such a perspective is most commonly associated with Habermas, in reference to changing situations as the "organisation of enlightenment" (Scott & Usher, 1996, p. 23). Furthermore, it is the critical paradigm that suggests that powerful people inclusive of groups have the ability and power to manipulate what the truth is, examples of which are feminism and classical Marxism.

More specifically, the main view it seems in this paradigm stems from the critical theory of a rejection and uncovering of previously proposed assumptions that state objective knowledge is attainable. This is because there is "no neutral or disinterested perspective because everyone is socially located and thus the knowledge that is produced will be influenced always by a social interest" (Scott & Usher, 1996, p. 23). Mack (2010) views the critical researcher in education as one who aims not only to understand or give an account of societal behaviours but one who enacts to change such behaviours, embodying ideologies ranging from feminism to postmodernism. A relevant question though in examination of this paradigm is the elitist view of whether we need emancipating, and when emancipating does occur, what evidence of benefits are there of a new critical consciousness?

As for the interdisciplinary poststructuralist theory in what Johnson & Christensen (2008, p. 390) see as a "critique of science" especially in the realm of educational research, this theory's deconstruction, albeit rejections of social practices as well as

what constitutes reality, is a better understanding of the complexity of human existence.

In fact, it is a specific rejection of the enlightenment subject and universal truth which appears central to this paradigm or in other words anti-humanism, influenced by existential phenomenology.   Moreover, it was this qualitatively based phenomenology with its subjectivist ontological assumptions within Interpretivism where the experience of the researcher is pivotal incorporating qualitative research and providing philosophical thought leading to developments in poststructuralism.

However, according to Lee (1992), the theory's focus is more the avoidance of "the various reductionisms which are an inherent part of other research paradigms." Furthermore, again with respect to the rejection inherent in its claims, a direct response to structuralism, Agger (1991) believes it is not only social practices that poststructuralist perspectives avoid, but the rejection of "presuppositionless representation as philosophically impossible."

It is relevant to note that the contextualised concept of poststructuralism is also easily confused with postmodernism, but nevertheless the framework is essentially characterised by its style of philosophising and inherent features of exemplifying an anti-scientific stance in light of the focus on people's varying interpretations of reality rather than a set of predictable patterns.   In addition, according to Johnson & Christensen (2008, p. 391), another focal tenet is the notion of knowledge to be not constant but instead "a set of ideas that are historically situated in society"; reasoning behind what is seen as knowledge in a constant flux of change "through dynamic, power-laden discourses" (ibid.).

To recapitulate, this paper has shown how pertinent it is to understand the correlations and implications of the beliefs and values educators instinctively bring as researchers with respect to methodologies and paradigms employed.   In an examination of the ontological and epistemological underpinnings of educational research, it is possible to identify the research method that most closely aligns intrinsically with one's epistemology.

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