

Research Paradigms: The Novice Researcher's Nightmare

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Abstract

The aim of this paper is to present an overview of three major research paradigms (positivist, interpretivist and critical) and the philosophy underpinning them. It also present a simple explanation to some of the most used terms in educational research: epistemology, ontology, methodology, and methods. Understanding research paradigms is extremely crucial to any novice researchers who embark on the journey of researching for the first time and to any language teachers who are interested in reading research articles.

Keywords: critical paradigm, epistemology, interpretive paradigm, methodology, ontology, positivist paradigm

1.Introduction

Understanding the research paradigms is the first and most crucial step in any researcher's journey. Guba and Lincoln (1994) define paradigms as "the basic belief system or worldview" which influence the researcher's choice of epistemology, ontology, and methodology of the research.

Ontology refers to the nature of reality. Guba and Lincoln (1994) mention that the ontological assumptions are concerned with the question 'what is there that can be known?' or 'what is the nature of reality?' Epistemology refers to the theory of knowledge. In the words of Guba (1990), epistemology asks, "What is the nature of the relationship between the knower (the inquirer) and the known (or knowable)?"

According to Crotty (1998: 7), methodology is the "strategy or plan of action" which influences the choice of methods. Guba and Lincoln (1994) point that methodology asks the question: how can the inquirer go about finding the known?

Methods in the words of Troudi (2010: 1) refer to "the particular technique or instrument employed in the process of data collection."

Each research paradigm has its own ontological and epistemological assumptions that influence its methodology and methods used. The major research paradigms discussed in this paper are: the positivist, the interpretivist, and the critical paradigm.

2. The Positivist Paradigm

2.1Origin

August Comete is considered to be the populariser of the term positivism (Crotty, 1998). Positivism was the prevailing and most trusted method of inquiry during the 19th century. Positivists share an aversion to metaphysics and for them, "Anything that cannot be verified by experience is meaningless" Blaikie (2009: 98). Some of the popular names associated with positivism are: Frances Bacon (1561-1626), August Comte (1798- 1857), The Vienna Circle (1920), Sir Karl Popper (1902-94), Thomas Kuhn (1922- 96) and Paul Feyerabend (1924-94).The Scientific method and the quantitative approach are among the terms used to refer to positivism.

2.2 Theoretical Framework

Realism is the ontological position of positivism which states that, "realities exist outside the mind" Crotty (1998: 10). There is one tangible reality that exists "out there" and can be studied independently with prediction and control (Guba & Lincoln, 1982; Guba, 1990 and Grix, 2004).

As for epistemology, the positivist has an objective epistemology which in the words of Crotty(1998: 5) believes that, "things exist as meaningful entities independently of consciousness and experience, that they have truth and meaning residing in them as objects." Thus, there is a clear distinction between the researcher and the researched. The researcher adopts an observer role and treats the social world as the natural world where through prediction, control and careful methodological measures, "values and other biasing and confounding factors are thereby automatically excluded from influencing the outcomes" (Guba, 1990; Cohen et al., 2007). The aim of the research is to produce a "nomothetic body of knowledge" (Guba & Lincoln, 1982 ; Punch, 2009). In short, the positivist believes in the "facticity of the world" Scott and Usher (2011: 12).

The positivist believes that the natural world is similar to the social world and the same methods can be used to study both. Hence, the positivist's methodology is, "experimental / manipulative" Guba (1990:20). In the positivists' search for patterns and cause and effects in the social world,

they prefer experiments, correlational survey research designs and quantitative statistical analysis. As for methods, they use quantitative methods like tests and questionnaires (Guba and Lincoln, 1982; Crotty, 1998; Punch, 1998; Cohen et al., 2007; Creswell, 2009; Mertens, 2010; Scott & Usher, 2011).

It is worth noting that positivism with its shallow naïve realism is replaced by postpositivism which is according to Richards (2003:37), "built on recognition of the limitations of positivism and represents an attempt to come in terms with these." The postpositivist's ontology is "critical realism" (Guba, 1990) which believes that reality exists outside the individual's mind, but can be discovered within "a certain realm of probability" Mertens (2010: 14). The aim of scientists is to not to prove a theory, rather to "try to prove it wrong" Crotty (1998: 32)

The postpositivist holds a "modified objectivist" epistemology (Guba, 1990) which still believes in the strict distance between the researcher and the researched, yet it can be "approximate" (Guba, 1990). The researcher should strive to be objective through following controlled standards and procedures (i.e. validity and reliability of the research).

The postpositivist's methodology is according to Guba (1990): "modified, experimental / manipulative" where it can be done in a natural settings (i.e. quasi experiments) and allowing the use of qualitative methods.

As for Ethics, Mertens (2010: 12) notices that "In the postpositivist's view, ethics is intertwined with methodology in that the researcher has an ethical obligation to conduct "good" research". According to Nolen and Putten (2007) the researcher should follow the three ethical standards published by AERA (2000): informed consent, respect confidentiality and autonomy of the participants. Howe and Moses (1999) states that, "For both quantitative and qualitative research studies, the integrity of the research is determined by the authenticity of data, proper data representation, and the political issues surrounding research findings."

2.3 Quality Criteria

Influenced by the scientific method in researching, research in the positivist paradigm is known for its rigor. According to Guba and Linclon (1994), there are four criteria for judging the quality of the positivist research:

Table 1: *The Quality Criteria for Judging the Positivist Research*

a. Internal Validity	According to Perry (2005: 91) it "is concerned with the degree to which the results of the study are due to the independent variable(s) under consideration and not due to anything else." Since most of the quantitative designs aim at establishing cause and effects through manipulation of variables, internal validity is crucial in these designs. However as Cohen et al. (2007: 133) notice that no research can be 100 per cent valid, there is always "a measure of standard error which is inbuilt and which has to be acknowledged."
b. External validity	In the words of Bracht and Glass (1968) external validity refers to "the extent and manner in which the results of an experiment can be generalised to different subjects, settings, experimenters, and, possibly, tests", which can be increased through random sampling.
c. Reliability	According to Cohen et al. (2007: 146), reliability "is essentially a synonym for dependability, consistency and replicability over time, over instruments and over groups of respondents." In order to trust the quantitative instrument used, two kinds of reliability should be reported.

	The first is the stability of the instrument over time which can be examined using the test - retest technique. The second is the internal consistency of the items in the instruments which is reported by a reliability coefficient (see also Punch, 1998; Perry, 2005; Cohen et al., 2007).
d. Objectivity	Refers to the effectiveness by which the researchers are able to detach themselves from the researched phenomena.

2.4 Critique

According to Guba and Lincoln (1994) positivism is attacked on two levels: the internal or “intraparadigm” critiques (i.e. context stripping and exclusion of meaning and purpose) and the external or “extraparadigm” critiques (i.e. the theory-ladenness of facts and the underdetermination of theory) which they think can be avoided by the use of qualitative data. The positivism is attacked by the interpretivist for ignoring the role of the human actors in constructing reality. They attack the objectivity in the research and the use of scientific methods to study human behaviour as there is no “linear causal method” to understand human behaviour since it is neither stable nor uniform (Gage, 1989). In addition, the critical theorists attack the positivists’ claims of generalization and how they see the world as a “closed system” and totally ignoring its complexity (Blaikie, 2004; Cohen et al., 2007).

In short, positivism as Scott and Usher (2011: 27) note “can therefore be critiqued on the grounds that it fails to understand the multiplicity and complexity of the life world of individuals.” Hence, the interpretivist paradigm emerged.

3. The Interpretive Paradigm

3.1 Origin

Interpretivism emerged as an opposition to positivism. Among some of the popular names associated with this paradigm are: Max Weber, Wilhem Dilthey, George Herbert Mead, Herbert Blumer, and Edmund Husserl. Interpretivism as a paradigm is often associated with other terms like constructionism, naturalism and qualitative approach. It is worth noting the difference between constructionism and subjectivism. While both are epistemologies (although some writers refer to constructionism as ontology i.e. Grix, 2004 and Bryman, 2012) constructionism sees meaning as interplay between the subject and the object as Crotty (1998: 9) states, “meaning is constructed out of something (the object)”. While according to subjectivism meaning, “is imposed on the object from the subject” (Crotty, Ibid). Interpretivism seeks to understand the researched phenomena from the point of views of the people involved. It accepts multiple interpretations and double hermeneutic. Unlike positivism, the research in this paradigm is inductive and emergent and it does not seek generalization as it is context bounded. It is also value laden and seeks ideographic knowledge (Guba & Lincoln, 1982; Ernest, 1994; Crotty, 1998; Garrick, 1999; Richards, 2003; Grix, 2004; Owen, 2008; Scott & Usher, 2011; Cohen et al., 2011; Creswell, 2012).

3.2 Theoretical Framework

Interpretivism is based on a “relativist and “anti foundationalist” ontology (Guba, 1990; Grix, 2004). Unlike positivists, interpretivists believe in multiple complex realities (Guba & Lincoln, 1982; Cohen et al., 2007) and these realities do not exist independently but they are socially constructed. As for epistemology, it is “subjectivist” (Guba & Lincoln, 1982; Guba, 1990; Grix, 2004) where meaning is the product of interaction between the subject and the object. Thus, the

aim of interpretive research is to understand these complex realities through the eyes of the social actors as Richards (2003) notices:

Actors are individuals with biographies, acting in particular circumstances at particular times and constructing meanings from events and interactions. An understanding of this develops interpretively as research proceeds, so the relationship between the researcher and the object of investigation is of fundamental importance. (p.38)

In this approach generalisation is not sought and is impossible to achieve as the whole paradigm is based on the respect of the individuality where according to Guba and Lincoln (1982): “differences are as inherently interesting as (and at times more interesting than) similarities.”

And since ontology and epistemology influence methodology, the interpretivist has a dialectic and hermeneutic methodology (Guba, 1990: 27): “individual constructions are elicited and refined hermeneutically, and compared and contrasted dialectically, with the aim of generating one (or a few) constructions on which there is substantial consensus.” Among the methodologies used in the interpretive approach are phenomenology, grounded theory, ethnography, and case studies (Crotty, 1998; Dornyei, 2007; Cohen et al., 2007; Owen, 2008; Creswell, 2009). Although different in their aim, the interpretive methodologies share some kind of observation, description and studying the phenomena in situ. The researcher's role is emphasized and the interaction between the researcher and the researched is accepted as long as it is realised and noted.

Mostly qualitative methods are used in the interpretive approach i.e. interviews, field notes, diaries, and observation yet also quantitative methods can be used (Ernest, 1994).

In the words of Owen (2008), the ethical dimensions in this approach are: “vast and are in constant need of negotiation throughout the research process.” He adds that the researcher should seek consent from the participant throughout the investigation due to the emergent nature of the interpretive research. In addition, the interpretive paradigm with its respect of the persona compiles the researcher to preserve the participants' privacy and confidentiality during the research process and when reporting the findings (Howe & Moses, 1999; Willington, 2001; Wertz et al., 2001 ; Guillemain & Gillam, 2004; Fikfak et al., 2004; Cohen et al., 2007; Miller et al., 2012).

3.3 Quality criteria

According to Holliday (2010) trustworthiness in qualitative research depends entirely on how “subjectivity is managed.” The three principles of good qualitative research are: transparency of methods, submission and making appropriate claims. Guba and Lincoln (1982) present four concepts to judge the quality of the interpretive research instead of the positivists' labels: credibility (internal validity), transferability (external validity), dependability or consistency (reliability) and confirmability (objectivity). They argue that these criteria, “assure the consumer of such research that any and all appropriate steps have been taken to assure that data from human sources and contexts are meaningful, trackable, verifiable, and grounded in the real-life situations from which they were derived” (Guba & Lincoln, 1982; Guba, 1981; Sandelowski, 1986; Kirk & Miller 1986; Creswell & Miller 2000; Shenton, 2004; Perry, 2011).

3.4 Critique

The interpretive approach is mainly criticised because of its inability to create common judging criteria that matches all the qualitative methodologies as Sandelowski (1986) notes, “In short, the debate surrounding the methodological rigor of qualitative research is confounded by its diversity and by lack of consensus about the rules to which it ought to conform and whether it is comparable to quantitative research.”

Since the approach believes in interpretation and no interpretation is fully correct (Scott & Usher, 2011), the positivists constantly question the subjectivity in this approach and in turn its generalisability (Ceci, Limacher & McLeod, 2002). As for the critical theorists, they condemn the approach of ignoring the historical, social and environment affecting the researched experience.

4. The Critical Paradigm

4.1 Origin

The critical research paradigm is originated from the critical theory which is drawn from the work of different thinkers for example: Marx, Horkheimer, Adorno, Marcuse, Erich, Formm, Habermas, Friere and Foucault. Crotty (1998: 159) notices that despite the diversity associated with the critical theory, "critical inquiry remains a form of praxis a search for knowledge, to be sure, but always emancipatory knowledge, knowledge in the context of action and the search for freedom." This search for change is the aim of the critical research. In the words of Mertens (2010: 21-22) the critical / transformative research paradigm, "arose partially because of dissatisfaction with the dominant research paradigms and practices and because of limitations in the research associated with these paradigms." The two research paradigms were scrutinised by the critical theorists as they focused only on the technicalities and ignored the power and politics in society. They aimed at understanding not improving the researched context (Gage, 1989; Cohen et al., 2007; Bronner 2011; Creswell, 2012).

4.2 Theoretical Framework

The ontology of the critical paradigm is historical realism (Guba & Lincoln, 1994) which states that reality exists outside the mind, but is historically constructed. Social, political, cultural, economic, ethnic and gender shape the reality. And since this reality is crystallized over time, the researcher needs to examine it critically bearing in mind the issues of power and politics (Guba, 1990; Ernest, 1994; Mertens, 2005; Lather, 2006). According to Freeman and Vasconcelos (2010), the critical theorists "view society as a human construction in need of reconstruction."

The critical paradigm epistemology is transactional and subjective (Guba & Lincoln, 1994). The knowledge is socially and historically constructed within a complex cultural context .The relationship between the researcher and the participant is interactive with acknowledging the issues of power and trust. The knowledge is value laden as the researcher might influence the findings (Ernest, 1994; Mertens, 2005 , Mertens 2010).

The methodology of the critical paradigm according to Guba (1990: 25) is "dialogic, transformative; eliminate false consciousness and energize and facilitate transformation." As the aim of this paradigm is to bring out change and improve the studied context, this can be accomplished through a dialectic dialogue between the researcher and the participants. The dialogue is transformative and accepts the historical and political backgrounds to bring about change. The critical theory has its own methodology, "ideology critique, action research and critical ethnography" (Cohen et al., 2007: 46).

As for methods, some qualitative methods are used like diaries, interviews and critical discourse analysis. However, others argue for mixed methods in this approach (Punch, 1998; Johnson & Onwuegbuzie, 2004; Creswell & Creswell, 2009; Mertens, 2010). The reason is in the words of Mertens (2007), "mixed methods are preferred for working toward increased social justice because they allow for the qualitative dialogue needed throughout the research cycle, as well as the collection of quantitative data as appropriate." I think this argument is valid as the critical

approach shares the positivist ontology with the interpretive epistemology thus mixed methods will yield better understanding of the research phenomena.

Like the other research paradigms the ethical dimension in critical research is very important. Along with the previously mentioned ethical dimensions, piloting the research is crucial in order to “establish trust and respect with the participants so that inquirers can detect any marginalization” (Creswell, 2009: 88).

4.3 Quality Criteria

The research in this approach is evaluated at two levels: First, if it achieves its overall critical aim (i.e. improvement) and second, if it follows the quality criteria of its data collection methods. Guba and Lincoln (1994) think that the critical research should be judged to, “the extent to which the inquiry acts to erode ignorance and misapprehensions, and the extent to which it provides a stimulus to action, that is, to the transformation of the existing structure” (see also Lather, 1986).

Depending on the kind of methods used (quantitative / qualitative) the appropriate quality control criteria should be sought.

4.4 Critique

The critical approach is always criticised for having a political agenda. According to Ernest (1994: 28), although the critical approach aims to improve the investigated context, “The disadvantage is that there are often hidden institutional sources of resistance to change, such as teacher and pupil ideologies, institutional structures, and so on, which may prevent the desired progress.” In addition, according to Cohen et al., (2007) the critics always question the following in the critical research:

- a. The role of the ideology critique to emancipate people;
- b. the assumed neutrality of the critical researcher;
- c. the power of action research to change the situation.

5. Conclusion

This paper serves as an introduction to the major research paradigms in education. Bearing in mind the complexity of each research paradigm, the research should choose the adopted paradigm carefully to result in better understanding of the researched phenomena.

About the author

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