



The Nature of Educational Inquiry: Is One Approach Better?

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Abstract: This paper defines the epistemological and ontological assumptions underpinning the two most common research paradigms: the scientific and interpretive; in relation to their methodology and methods. It will also shed light on the third recent approach; namely the critical paradigm. A description of the two methods of data collection corresponding to those paradigms is provided. The conclusion section will end with a discussion about the quality of educational research. This paper might be of help to novice and EFL/ESL researchers who wish to conduct research studies in their areas of expertise.

Keywords: ontology, epistemology, paradigm, positivism, Interpretivism, educational research.

1. INTRODUCTION

Educational research is in constant search of new understandings and explorations of social phenomena. It is all about answering educational questions to strive for effective, valid and credible knowledge. These questions can be investigated utilizing a variety of methods and tools. They can also be viewed, perceived and interpreted differently by different researchers. Literature is lavish with definitions of “research”. To understand it, however, an inquirer has to go through and become familiar with them (Brown & Rodgers, 2002). Simply and basically, research is “a way of finding out answers to questions” (Mackey & Gass, 2005, P.1). Researchers in seeking answers to their questions come up with other questions that might be of interest to other researchers. Thus, research is a cyclical process that in most cases requires more investigations. It is a way of exploring and discovering truth (Cohen & Manion, 2007). This paper attempts to discuss in detail the two most common research paradigms: the scientific and interpretive; and refers in brief to the third recent approach; namely the critical paradigm. It will shed light on the components that underpin these paradigms and describe two methods of data collection corresponding to both of them. The paper will end with a discussion about the quality of educational research.

2. THE CONCEPT OF A RESEARCH PARADIGM

Paradigms are sets of principles, views or beliefs that form our concepts of how the world we live in functions. Literature is replete with different definitions of a paradigm. Denzin & Lincoln (2000), for example, believe that paradigms are human constructs which comprise “a basic set of beliefs that guide action” (p.157), and deal with four main concepts; ethics, epistemology, ontology and methodology; the definition of each will follow this section. Creswell (1994) sees the “worldviews” or paradigms as “a general orientation about the world and the nature of research that a researcher holds” (p.6). Most researchers tend to classify educational research as qualitative or quantitative; justifying the way data is collected to serve the purpose of the research. It is also common to come across other classifications such as the positivist and interpretivist paradigms. One might not think, however, that research is limited to these two only. In other words, each paradigm has a wide variation in itself that makes it difficult within this paper to fully discuss them. For example, within the interpretive paradigm literature, you might find yourself involved with definitions of other approaches like phenomenology, ethno- methodology or case study. All of these different approaches are possible ways that researchers adopt in an attempt to comprehend the world and the phenomena, the truth, the facts and the patterns that prevail in it. To understand and explore these realities, however, scientists and researchers state three basic components that underpin a paradigm; ontology, epistemology and methodology. Knowing and being familiar with these terms for any researcher is a must. In the next section, a brief description of these components will be presented.



3. RESEARCH PARADIGM CONSTITUENTS

To understand the previously mentioned research paradigms, it is important to understand the three basic elements that underpin each one of them; namely ontology, epistemology and methodology.

- *Ontology*

Ontology is the bedrock of all research. It is the study of existence; its nature and structure (Crotty, 1998). It is the “the study of what things exist” as Effingham (2013, p.17) states. In other words, researchers wonder whether social reality is external to individuals or imposed on their consciousness. Is social reality objective and independent from the knower, as positivists believe, or is it the product of one’s awareness, as interpretivists emphasize? Once the researcher has identified his/her ontological stance, epistemology and methodology consequently and logically arise. Some researchers adopt an ontological position that looks at the world as an entity independent of our knowledge. They think that our beliefs are deduced from the truths that compose this world (Hughes & Sharrock, 1997). Other researchers, however, think that the world is socially constructed and that our knowledge can never be apart from it (Grix, 2001). Blaikie (2000) posits that ontology is all about the world that we live in; its social nature, its reality and what we believe about the constituents of this reality.

A crucial issue that may arise here is the emotionality of research in a number of researched areas. Feminists, for example, have acknowledged the significance of emotions in research when it comes to the researcher’s own ontology. Wincup (2001) believes that “despite major shifts in social science research, emotionality is still constructed in opposition to rationality and professionalism, and the importance of emotions is denied” (p. 19). Consequently, the position the researcher may take would definitely determine the level of involvement he/she has in their research.

Obviously, objectivists and constructivists are popular example researchers who adopt ontological position towards social reality. Thus it is logical that their position will result in adopting certain epistemological or methodological positions which will be discussed in the following sections.

- *Epistemology*

While ontology and epistemology look related, a distinction between the two is needed. Epistemology is the theory of knowledge. It is all about the “how and what” of getting our knowledge (Crotty, 1998). Hence, citing Grix (2002, P.4), “if ontology is about what we may know, then epistemology is about how we come to know what we know”. Epistemology focuses on the way researcher gets information and processes it throughout his/her research. It is varied and dynamic. It has a range of possible ways that make it feasible to understand the social reality around us (Hamlyn, 1995). In this sense, knowledge can be discovered and can be changed according to certain circumstances and conditions. It is also possible within this framework to develop new theories or come up with new patterns.

Positivists and interpretivists have been widely known in literature for adopting contradictory epistemological positions. Positivists, for example, believe that human behaviors can be subjected to natural scientific methods, whereas interpretivists believe that human beings are different and unique in their behaviors, which change contextually and occasionally. In short, according to the above discussion ontology and epistemology are interrelated. The researcher’s epistemological position determines his/her ontological position. Consequently, the way a researcher perceives and understands the world and its realities affects the whole process of investigating the issue in question.

4. METHODOLOGY VS. METHODS

Research “methods” and “methodology” are two terms that are often wrongly overlapped. Methods are tools used by the researcher and are linked with the questions of the research (Baxter et al. 2001). The way a researcher believes that one method or another would make data collection valid and reliable is the basis on which certain methods like questionnaires, surveys or interviews are chosen. Methodology, on the other hand, is concerned with “the logic, of scientific inquiry; in particular with investigating the potentialities and limitations of particular techniques or procedures” (Grix, 2001, P.6). Researchers might choose to collect their data qualitatively or quantitatively or may wish to join the two in one research. However, it is important at this point to mention that research methods should not be subjected to any epistemological or ontological assumptions. A researcher might choose a research tool that best fits his/her research questions. Thus, what matters is whether it is employed logically in order to collate and analyze data used by it. More details will be given in other sections in this paper about the qualitative and quantitative data collection methods.

5. RESEARCH PARADIGMS

Positivism and interpretivism are the most popular opposing paradigms. The former is linked with science and its natural methods, while the latter builds upon individual differences and human behaviors. The following sections will shed light on these two approaches and briefly refer to the third one; the critical theory.

- *Positivism*

Positivism is a mode of inquiry that has prevailed in social science for years. It was originated in the 19th century as an attempt to apply the natural methods and techniques to social science. Philosophers like Comte, Kante and Bacon have set the foundations for this traditional paradigm. The nature of knowledge in this perspective implies that “all genuine knowledge is based on sense experience and can only be advanced by means of observation and experimentation” (Cohen et al., 2000, p. 8).

‘Science’ is the term usually referred to when positivism is the determined paradigm of research. This interrelation as Crotty (1998) states “stems from a conviction that scientific knowledge is both accurate and certain” (p. 27). In this sense, positivists view reality as externally independent from our minds and thoughts. They believe that human behaviors can be investigated and researched scientifically using specific methods for data collection. They also emphasize independence from values and other social principles or commitments. Therefore, human behavior, feelings, perceptions or beliefs are in constant opposition to this scientific view of knowledge. All of these human features can be only understood subjectively. The knowledge they hold cannot be subjected to the rigid rules and laws of scientific paradigm, whose main feature is objectivism.

Researchers who adopt the positivist paradigm usually start with a cause and effect relationship. All through the research process they keep detached from the participants trying to accomplish objectivity and neutrality while measuring and examining different aspects of human life. A hypothesis is derived from a certain existent theory, data is collected and statistics are used to test the theory’s predictions. Therefore, positivism emphasizes the use of empirical theory in the process of generating knowledge, which is assumed to be mediated or socially constructed.

- *Interpretivism*

Interpretive research tends to build understanding between the researcher and the participants who are a major part of the researcher’s study. This approach is mainly concerned with rules, values, or norms that certain people have or share in common in certain environments. Therefore, an interpretive researcher is in constant search of meaning rather than facts that can be shown in numbers or done under experimental conditions. Unlike positivists, interpretive researchers are subjective. They are after understanding rather than explaining. They believe that reality is socially constructed and that is why nothing can be certain or absolute (Grix, 2010). Interpretivists, therefore, are not concerned with causal relationships. Meaning is on the top of their research priorities. Interpretive research is also known and identified by researchers as “qualitative research”. Philosophers such as Wilhelm Ditley and others view reality as sets of social constructions. Holliday, (2007) believes that interpretive qualitative research is all about living among others and understanding why they behave the way they do. This process of understating and interacting “would involve analyzing behavior and language, working out how and when to be formal or informal, learning new technical terms...- attitudes, values, relative status” (Holliday, 2002, pp10-11). Thus, interpretive approaches such as phenomenology, ethnomethodology and symbolic interactionism are mainly concerned with people and their everyday life. In other words, it is all about ‘How do people behave? Why do they behave the way they behave? And how can these kinds of behavior be interpreted within the contextual framework those people live in?’ (Cohen et al, 2000).

- *Critical theory*

As a counterbalance to positivism and interpretivism, the critical paradigm has evolved to emancipate individuals in societies from the authorities that control their lives and result in accepting harmful situations. Instead of exerting efforts to understand or explain different types of existing phenomena, this approach focuses on individuals; identifying the social, cultural and political or historical contexts surrounding them. In other words, while the positivistic paradigm strains to obtain objectivity and the interpretive paradigm strives for meaningfulness and dependability, the critical approach, influenced by Habermas, emphasizes “the emancipation of individuals and groups in egalitarian society” (Cohen et al., 2000, p.28). Like positivism and interpretivism, the critical approach has its variants; poststructuralism, postmodernism and a mixture of these two. The main objective of them all is to help individuals identify their problems and be aware of their social actions. Consequently, a change in beliefs and actions is a must if free and good life is aspired. The question that might rise after the above discussion would be: what distinction is usually made among these paradigms? An attempt to make a relevant explanation is in the section below.

6. QUALITATIVE VS. QUANTITATIVE APPROACH

Since natural science is measured and quantified, scientific (positivistic) research is commonly related to the quantitative methods. Similarly, the interpretive approach, with meaning and understanding as a priority, is directly linked with qualitative data collection methods (Bernard, 2013). This distinction between qualitative and quantitative approaches came out as a result of “the false polarization of the two approaches” as Wellington, (2001, P.17) claims. Although some researchers like Tashakkori and Teddlie (1998) argue for what is called “the mixed-methods approach”, which will be discussed at the end of this paper; other researchers are still inclined to separate them in various aspects. For example, it is familiar to describe quantitative research in terms of objectivity, hypothesis, neutrality, numerical



information, generalization and replication. These would be mostly associated with research methods such as surveys, questionnaires or structured interviews. On the other hand, the qualitative approach depends heavily on meaning and understanding. It is, therefore, subjective and interpretive in nature. Usually, methods like observation and interviews (semi-structured, structured or open-ended) are highly utilized, though other methods like questionnaires might still be an option. To make it clear, I will describe briefly certain issues often raised on the two approaches.

Simply, both qualitative and quantitative approaches include ontological and epistemological assumptions about social reality. Quantitative research assumes objective reality that can be measured depending on certain identified variables. In comparison, the qualitative approach views reality as socially constructed. This belief confirms the complexity of variables, which are usually interwoven and difficult to measure. Furthermore, a quantitative study begins with a theory or hypothesis that aims at generalization by the end of the research. It utilizes instruments that make it possible for the researcher to manipulate or control the variables in the study. The findings are numerically introduced. On the other hand, qualitative research does not seek theorizing, though it might end with a hypothesis. It mostly searches for patterns or types that facilitate understanding the meanings. Numerical data could be used, but a descriptive account of the results obtained in a study is more popular and transferability is often the researcher's aim.

Quantitative research tends to extend the findings and the conclusions obtained in a certain piece of research from the sample population of the study to a larger population. It is all about predictions. Experimental research, for example, often tends to generalize results. For this to be reliable in research, researchers subject their experiments to rigorous conditions. However, no claim is made by the quantitative researchers and no guarantee is given to confirm that these rigorous conditions would result in the same findings every time an experiment occurs in different contexts. On the opposing side comes what the qualitative researchers call "transferability". It is an attempt to apply the results of one study to other contexts that might result in the same or nearly the same findings. Thus, it is reasonable for one to argue after this discussion about the quality of good research!

7. POSITIVISM VS. INTERPRETIVISM: IS ONE APPROACH BETTER?

Positivistic researchers utilize quantifiable methods that ensure the validity and reliability of their research. This implies the essential need for collecting data from an unbiased population. Nevertheless, with the availability of all the rigorous conditions, validity of this type of research has been criticized for the inability to control and accommodate the dependent variables. In other words, different individuals participating in a study might have variations among each other that the positivistic approach might not take into account. This consequently will impact on the objectivity claimed by these researchers. Similarly, a piece of research is said to be reliable if other researchers would be able to replicate the study and come up with the same results. This reliability is closely attached to objectivity which has been criticized for being exaggerated (Crotty, 1998). The world we live in cannot be always subjected to rigid rules and knowledge is not always objective. Cohen et al. (2007) have also criticized this scientific positivistic view for excluding the nature of human beings from research. This might be true as individuality and human behavior cannot be absolute and subjected to the regularities and principles controlling the material world. However, this is not to deny all the contributions made by scientific researchers to the field of social research, which have proved to be, in many cases, of great value.

Likewise, the interpretive qualitative approach has been exposed to criticism with regard to what makes good quality qualitative research. Compared to the validity and reliability of scientific research, similar constituents determine the quality of interpretive research. Whilst replication of a study is feasible under certain rigorous conditions in scientific research, this is problematic in qualitative interpretive studies. This issue emerges from the fact that a small sample in size would highly impact on the findings of a qualitative study, and thus limit the possibility of generalization. However, qualitative researchers develop their own way of addressing research validity. They are keen on spending ample time with their representative samples and allow a closer stance to them. Yet, this caution would still be surrounded with doubts in terms of the researcher's subjectivity. Researchers such as Denzin and Lincoln (1994) believe that once "triangulation" is deployed in qualitative research, findings are validated. In other words, when qualitative or quantitative methods are utilized together or separately in research, the phenomena in question can be investigated from different aspects and results can be more valid. Morrison and Scott, (2007, p.252) confirm this view and believe that "triangulation provides key pathways for comparing the data collected by different methods, allowing findings to be corroborated".

Regardless of the criticism associated with both scientific and interpretive approaches, it is obvious that both of them have provided literature with considerable findings that might be of help to others, in particular to researchers. That is to say, since a researcher is aware of these prevailing distinctions among these approaches, and has hypothetically decided on the question to be investigated; the options are always there to choose from. Nevertheless, it is highly important for the researcher to justify and clarify whatever approach is adopted so that validity and reliability will not be underestimated. From the above discussion, one can infer that good-quality research is not exclusive to either of the two approaches. It is not the epistemological or ontological stance that gives merit to research, rather it is the position that a researcher takes in search of knowledge using appropriate tools and methods that help in obtaining better and trustworthy



results. Due to the limitation of space in this paper only a brief description will be provided on the two research methods commonly used in both quantitative and qualitative studies: questionnaires and interviews

- *Questionnaires*

The questionnaire is a quick and relatively cheap instrument used by a researcher for “collecting survey information, providing structured, often numerical data” Cohen et al (2000, p. 245). It is highly associated with the scientific paradigm. Yet, it is also used in qualitative research but interpreted differently. It is, therefore, a simple rule of thumb that questionnaires need to be clear in purpose and appropriate in terms of questions they ask. A piloted, well-worded and refined questionnaire would raise its validity and give reliability to the data numerically collected. Scott and Morrison (2007, p.192) emphasize the need for “detailed qualitative explanation to accompany statistical tabulations, so that the latter are not left to ‘speak for themselves’, or become open to multiple (or manipulative) interpretations by others”. Bell (1999, p.119) asserts within context that “thought must be given to how the responses will be analyzed at the design stage, not after all the questionnaires have been returned”. A researcher has to decide on the research question to be investigated and consequently the type of the questionnaire required.

- *Interviews*

An interview is a research method that has been defined as “an interchange of views between two or more people on a topic of mutual interest” Cohen et al. (2000, p.267). It is a way of sharing everyday life events. Using interviews in social research is said to be effective due to the close interaction they impose on the researcher and the participants. That is to say, researchers who utilize interviews might have a better chance to focus on the interviewees’ verbal responses and the body language they use to get answers. Those can also be requested orally to complete their responses or comments, unlike questionnaires, where by the researcher is detached from the participants and, therefore, unsure of whether they were willing or forced to fill in the questionnaire, or whether they understood the questions. For this particular feature of closeness to participants, interviews are usually associated with qualitative interpretive research, though often used by positivistic researchers for different purposes. Interviews can be structured, semi-structured or open-ended. Nevertheless, Bell (1999, p.139) believes that “where specific information is required, it is generally wise to establish some sort of structure” to save time and get the right and appropriate data.

Creswell (2009) summarizes the distinction between the qualitative and quantitative approaches confirming that it should not be a matter of “viewing quantitative and qualitative as two end points in a dichotomy, but rather as different points on a continuum” (p.19).

However, the debate over the dominance of one approach over the other has resulted in another argument over the possibility of adopting a “mixed-method” approach. This new paradigm combines qualitative and quantitative methods in one study. The adoption of this view has been also known as “pragmatism”. Though a mixed-method research is still considered a new-born paradigm, it has a number of advocates that have become well-known in research, such as Tashakkori and Teddlie (1998) and Creswell (2009).

CONCLUSION

This paper has examined the three common research paradigms: scientific (positivistic), interpretive and critical paradigms and the components that underpin them; namely epistemology, ontology and methodology. It also shed light on what some researchers might believe to be a good quality research; qualitative or quantitative. Hence, the debate that goes around the advantage of adopting one approach over the other should be more about its value in relation to the purpose and the questions of a certain study. In other words, each approach has been criticized by other researchers whose epistemological or ontological stance does not favor a certain approach. Their arguments might be well defended and justified. However, I do believe that each approach fits into a field where the other might also be an option. Though scientific research provides valid and reliable data, an individual is, and should always be, a priority in terms of views, perceptions, beliefs and attitudes. Numbers can serve the purpose of a study, yet human nature should never be ignored or overlooked.

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