

Research Article

An Overview: Epistemological Foundations of the Qualitative and Quantitative Research Approaches

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Abstract: The philosophical underpinning of pragmatism allows and guides qualitative/quantitative researchers to use a variety of approaches to answer research questions. Pragmatism's philosophical underpinning permits and directs researchers to use a range of methodologies to address research questions. However, this article provides the philosophical and conceptual framework that informed the two research methodologies and discusses how ontological and epistemological issues were translated in to specific methodological strategies and influence researchers methodological decision. The purpose in writing this article is to describe and reflect on the differences between the two research methodologies from ontological, epistemological and methodological perspectives and how they will be selected for research.

Keywords: Epistemology, Ontology, Methodology, Positivism, Interpretivism.

Introduction

A researcher's beliefs and assumptions about the essential, fundamental characteristics of their research projects influence the philosophical foundations of the research process. Furthermore, one's research approach influences the data collection, analysis, and interpretation processes, all with the goal of reaching a reasonable conclusion. The studies can be influenced by a researcher's beliefs and assumptions, particularly how to apply the positivist and interpretivist paradigms. However, the basic assumptions that serve as a framework for the research are ontology, epistemology, and methodology, which are fundamental principles of philosophy of social science. The purpose of this paper is to identify the key epistemological assumptions that underpin the research by providing basic definitions of the primary principles in social science philosophy, namely ontology, epistemology, and methodology. It also compares the epistemological assumptions of the positivist and interpretivist paradigms. Content analysis and discourse analysis concerns arise from conflicting research approaches based on two major research paradigms, positivism and constructivism, respectively.

Philosophical Knowledge Used in Research

Philosophical assumptions are defined as a specific set of beliefs and/or assumptions that are used to develop a set of research questions. Guba (1994, p.17) defined "worldview" as "a fundamental set of beliefs that guide action" ⁽¹⁾. However, in order to establish fundamental beliefs that underpin a research paradigm, fundamental questions concerning the nature of reality and humanity (ontology), the theory of knowledge that inform the research (epistemology), and how that knowledge may be achieved, influence the choice of research approach (methodology)^(2,3). Ontology is a technical term in philosophy that refers to the nature of reality. In other words, it is the answer to the question of what kinds of things exist in the world ⁽⁴⁾. Blaikie's (1993, cited in Grix, 2004, p.59) definition of ontology apprehension is "claims and assumptions made about the nature of social reality, claims

about what exists, what it looks like, what units make it up, and how these units interact with each other" ⁽⁵⁾. It refers to the nature of reality and the meaning of existence, to be more specific. Ontology is generally associated with the qualitative paradigm, which views reality as something to be perceived and filtered by a participant's experience, whereas the quantitative paradigm is associated with the view that reality exists independently of human perception and can be investigated and measured to evaluate theories ⁽⁶⁾.

Epistemology is the technical term for knowledge theory ⁽⁴⁾. Epistemology is derived from the Greek word *epistēmê*, which means "knowledge" ⁽⁷⁾. The philosophical study of what is required for rational belief in order to gain knowledge of reality is known as epistemology; it assumes that reality can be understood ⁽⁵⁾. Guba and Lincoln (1994) explain that by asking these questions, the nature of the researcher's relationship with what can be understood from knowledge is revealed ⁽¹⁾. Furthermore, Crotty (1998, p.3) defines epistemology as "the theory of knowledge implanted in the theoretical perspective and thus in the methodology" ⁽⁸⁾, whereas Honderich (2005, cited in Benton and Craib, 2011, p.3-4) contends that evidence obtained from our senses is the source of world knowledge—in other words, sense experience or observation should be the source of knowledge ⁽⁹⁾. Methodology refers to the tools used in the research process ⁽¹⁰⁾. According to Schwandt (2001, p.161), methodology is the "analysis of assumptions, principles, and procedures in a particular approach to enquiry" ⁽⁹⁾. Furthermore, methodology can be defined as a philosophical study concerned with the justification of data collection in order to gather evidence. According to Guba and Lincoln (1994, p.108), the methodology can be explained by asking, "How can the inquirer go about finding out whatever they believe can be known?" In this regard, epistemology appears to alter the approach and justify the knowledge created ⁽¹¹⁾.

The quantitative purists articulate assumptions that are congruent with the positivist paradigm and argue that social observations should be considered as things in the same manner that physical scientists examine physical phenomena. By rejecting the positivist assumption, the qualitative purist, also known as an interpretivist or constructivist, maintained that reality is subjective, multiple, and socially constructed by its participants ⁽¹²⁻¹⁴⁾.

The Positivism Paradigm

Positivism, a term used to refer to true knowledge that humans can comprehend ⁽¹⁵⁾, is required for the establishment of a quantitative paradigm ⁽¹⁶⁾. The positivist paradigm is also known as a scientific paradigm ⁽¹⁷⁾. Positivism emerged in the nineteenth century, initially associated with certain concerns of empiricism, which was the dominant worldview at the time ⁽¹⁸⁾. Auguste Comte, a French philosopher, popularized the term after assuming that reality could be observed ⁽⁸⁾. The positivism concept stems from the accurate knowledge that humankind can possess ⁽¹⁵⁾.

According to Cohen, Manion, and Morrison (2007, p.9), "Comte's position was to lead to a general doctrine of positivism which held that all genuine knowledge is based on sense experience and can only be advanced through observation and experiment" ⁽¹⁹⁾. As a result, positivists assert that social science can produce positive results by employing the empirical observation method, which is based on the senses to collect data about natural sciences ⁽¹⁸⁾. Furthermore, positivism regards any human characteristics that cannot be observed or measured through systemic observation as non-significant and should thus be ignored because they may misrepresent data ^(4, 18). To put it another way, positivists believe that research should be context-free, value-free, bias-free, and replicable ⁽²⁰⁾.

On an ontological level, positivism is a realism perspective ⁽²¹⁾, which holds that things have a being apart from the self ⁽¹⁹⁾. According to Positivism, scientists should be objective and value-neutral observers of objective reality ^(4, 17). Furthermore, positivists think that scientists must leave aside their judgment and human personality in order to comprehend an abstract reality. Consequently, a discoverable reality is independent of researchers ⁽²²⁾. Therefore, objectivity cannot be assigned to a single individual; rather, it is a communal phenomenon. Because of this, achieving objectivity

requires a triangulation of many faulty points of view or biases ⁽²³⁾. However, positivism maintains a dynamic knowledge base ⁽²⁰⁾. Scientific methods can be used to generate knowledge deductively from hypotheses, but objective knowledge cannot be measured. As a result, the outcomes of social science research are difficult to test because they must be compared to relevant evidence.

The goal of positivist methodology is to explain connections and relationships. Positivism in philosophy focuses on determinism and empiricism, in which influences have determinable causes and actions have predictable outcomes ⁽²⁵⁾. According to this viewpoint, the goal is to create law, thereby producing a source for prediction and generalization ⁽²¹⁾. Furthermore, positivism assumes that the ultimate goal is to transform isolated experiences into distinct ideas or dimensions that can be described and evaluated ^(6, 25). Forming and evaluating testable hypotheses to understand the relationship between cause and effect can address the reality of positivism ⁽²⁶⁾.

On the contrary, the positivist approach is open to a variety of criticisms. Benton and Craib (2011) argue that positivism may lead to practical limitations in obtaining factual knowledge for health and social sciences research ⁽⁴⁾, but that identical casual relatives established in natural science cannot be conveyed to human constructed meaning ⁽¹⁷⁾. According to Creswell (2013), positivism is associated with empiricism and rationalism ⁽⁶⁾. In contrast, even though observation and measurement methods are useful for intentional human behaviour, they cannot be used when a researcher is attempting to comprehend social human actions that influence languages, relationships, and our sense of the world ⁽²⁷⁾.

Positivism has both theoretical and practical flaws ⁽²⁵⁾, for example, argue that it is impossible for a researcher to be value neutral in his or her relationship with the subjects or objects being studied. The logic of induction is another issue with positivism. A scientific law is formed from observations and measurements, and it is then used to forecast future events ⁽⁴⁾. Popper has argued that all sciences are founded on sensory evidence and that the value of induction cannot be a purely logical truth—induction is untrustworthy ⁽²⁴⁾. However, the new empirical instance probability may be falsifying the general law that has always existed ⁽²⁴⁾. Nonetheless, despite the fact that many people believe Popper's criticism of positivism is related to falsifiability, it is still being debated ⁽²⁸⁾. The proponents argue that positivism research is objective and exposes social reality.

The Interpretivism/ Constructivism Paradigm

Attempting within the interpretive (constructivism) paradigm, the communicated throughout the research process certain beliefs, meaning, and presumptions about how it might happen to be 'known.' Because personal experiences can be influenced the research's perspective, interpretivism is an additional approach used to achieve this research objective. The interpretivist research paradigm seeks a specific phenomenon and recognizes that the connection for which whatever manifestation is conducted is fundamental to the understanding of the data gathered ⁽²³⁾. In other words, social interpretivism holds that individuals develop a subjective sense of their experiences—meaning that they are focused on specific objects ⁽⁶⁾. Interpretivism is regarded as an appropriate approach for qualitative research because it deals with reality as it is constructed through humans' subjective encounters and their understanding of the world ⁽⁶⁾.

An interpretivist (constructivist) perspective, which is the theoretical framework for most qualitative research, sees the world as being constructed, interpreted, and experienced by people in their interactions with one another and with larger social systems ⁽²⁹⁻³¹⁾. However, hermeneutics and phenomenology have a strong influence on an interpretivist ⁽¹⁷⁾. The hermeneutics approach can be defined as identifying humans' knowledge and world perceptions in the context of cultural interactions ⁽²⁸⁾. Furthermore, Crotty (1998) has explained that humans live in a relevant world that is bestowed upon them by their surroundings ⁽⁸⁾. Interpretivism is relativism from the standpoint of ontology ⁽²¹⁾. According to Guba and Lincoln (1994), relativism is the belief that reality is subjective and varies from person to person ⁽¹⁾. Our perceptions of reality seems to be based on our senses.

Furthermore, consciousness is required to give the world meaning ⁽⁸⁾. To be more specific, a group of people who, in turn, interpret events differently in order to develop different perspectives on a given subject realizes social reality. As a result, scientists play an important role in the interpretivist approach by understanding, explaining, and clarifying social reality through the diverse individual perspectives ⁽¹⁹⁾. This seems to be a necessary feature for comprehending and justifying a phenomenon rather than simply describing it.

Max Weber pioneered the social science of interpretivism ⁽³²⁾. Weber contends that social science is fundamentally concerned with individual perception and that the goal of social science is significant social action, including affective, rational, practical, and traditional forms of action ⁽⁴⁾. Human actions, values, and beliefs, according to Weber, can be best understood through meaning rather than measurements ⁽⁴⁾.

According to Weber's methodology, interpretivism emphasizes the comprehension of social action and the causal explanation of social phenomena ⁽⁴⁾. Indeed, Weber emphasizes achieving a significant understanding of an individual's frame of reference, as understanding is a predictor of accurate interpretation.

In his critique of interpretivism, Weber demonstrated that individual actions as only people could be dealt with as operators who are constantly subjectively situated toward other individuals ⁽³²⁾. However, interpretivists continue to consider the objective idea when analyzing data by looking at the data in general—the data informs the researcher of the situation and the nature of the environment rather than the researcher relying on his own biases ⁽¹⁷⁾.

On the other hand, Durkheim, Spencer, Marx, and Weber's claim that social clarification and comprehension may have a chance to be recognized by analyzing that distinct action as opposed to structural method may have a chance to be acknowledged ⁽³²⁾. Even though Weber admits that, the main subjective meanings of human action can be used at this point in research. He appears to take the place of structural acknowledgements and thus connects structure and agency. Because of these points, individual perceptions will be considered as structural variables in the research, such as personal history, medical history, and cultural and social status, in order to fully understand their perspective.

Another criticism leveled at interpretivism is the creation of linguistic and epistemic fallacies ⁽³³⁾. According to Bhaskar (1998), interpretivism is suspected of involving a linguistic misunderstanding in which debates about an inability to detect that there is more reality than is conveyed in the subject's language ⁽³⁴⁾. As a result, other interpretivists argue that researchers should consider various and challenging interpretations of social people's actions based on what those people deliver and integrate with social points ⁽³³⁾. Furthermore, interpretivism is committed to the epistemic misconception that social scope is only related to understanding interpretive approach ⁽³³⁾.

Conclusion

Finally, the research objective will be achieved by examining the two philosophical paradigms of positivism and interpretivism. The qualitative and quantitative research methods are based on different philosophical assumptions and, therefore, the paradigms of positivism and interpretivism have been investigated.

Conflicts of interest

There is no conflict of interest of any kind.

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