The Epistemological Emergence of Mixed Methods in Social Research

الظهور الأبستمولوجي للمناهج المختلطة في البحث الاجتماعي

Mokhenfer, Hafida

National Institute for Research in Education

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Abstract:

In the last decade, research in the social sciences field has seen a growing discussion about mixed methods research, due to the epistemological criticism of quantitative and qualitative methods, especially the credibility, reliability, and validity of research results. The present paper discusses some epistemological problems during the application of quantitative and qualitative methods in studying social phenomena and how researchers have used mixed methods in social research.

Keywords: Interview; observation; quantitative methods; qualitative methods; mixed methods; epistemology.

ملخص

عرفت البحوث في مجال العلوم الاجتماعية في العقد الأخير نقاشاً متزايداً حول البحوث المختلطة؛ بسبب النقد المعرفي للمناهج الكمية والنوعية، خاصة فيما يتعلق بمصداقية وموثوقية وصحة نتائج البحوث. وتهدف هذه الورقة إلى مناقشة بعض الإشكاليات المعرفية أثناء تطبيق المنهجين الكمي والكيفي في دراسة الظواهر الاجتماعية، وكيف اتجه الباحثون إلى المناهج المختلطة في البحوث الاجتماعية. ويتحقق الهدف من هذه الورقة من خلال عرض ومقارنة المنهجين الكمي والنوعي، وبالتالي توضيح التحديات المعرفية المتباينة الكامنة في هذين المنهجين. بالإضافة إلى ذلك، تقدم الورقة تحليلاً لسلبيات وايجابيات تطبيق المناهج المختلطة في بحوث العلوم الاجتماعية.

الكلمات المفتاحية: المقابلة؛ الملاحظة؛ المناهج الكمية؛ المناهج الكيفية؛ المناهج المختلطة؛ الأبستمولوجيا.

1. Introduction

Scientific research is the process in which the researchers transform the raw data into scientific knowledge. According to Matthews & Ross (2010), Research may be characterized as a procedure or method that makes it easier to expand information or find solutions to research issues. The research question, the research method, and the research response are the three main parts of the research process in its most basic form. (Matthews & Ross, 2010). Those components are shared between social and natural science practices

Based on Kandel (2020) the main goals of social research are to create new knowledge, discover the truth, improve our understanding of the social world, develop new theories or revise existing ones, enhance current research methods, and clarify facts to aid decision makers in effective planning. Social scientists use social research as a method to learn about social life and are dedicated to establishing systematic, reliable, and valid knowledge (Kandel, 2020).

The researcher must be able to use both non-scientific and scientific methods in order to obtain accurate information on the research issue under investigation. A strategy that relies on intuition, bias, and common sense is considered non-scientific. A scientific approach is one that use logical and methodical procedures to discover the appropriate information. (Budianto, 2020). The distinction between those two approaches is due to the epistemological characteristics of the two methods and the phenomena under study.

When doing research using a scientific approach, the researcher must concentrate on a particular technique that offers a comprehensive framework for carrying out a study and gives us an idea of the processes and logistical preparations needed. A method of research is a workable strategy used by the investigator to provide an objective, accurate, ethical, and cost-effective response to the questions. (Kumar, 2005). The methods of social science are a collection of guidelines, instruments, and strategies for combining abstract and concrete levels of experience in the social science endeavor: theory, data collecting, and data analysis. Building a durable version of social reality is the aim of research methodology. (Babbie & Edgerton, 2022).

The researcher must select an appropriate technique for the topic under study, particularly the type of sample—text, picture, video, behavior, or statement—in order to authentically

depict a sustainable version of social reality. Qualitative techniques, quantitative methods, and mixed methods are the three main categories of research methodologies.

These three types of research methodologies offer precise guidelines for research operations. Some have referred to them as inquiry tactics (Denzin & Lincoln, 2011). The importance of the separation between quantitative and qualitative data should not be overlooked in favor of inquiry techniques. For instance, a quantitative presentation of certain ethnographic study findings is possible (Vanderstoep & Johnston, 2008, p. 166), and they may use quasi-quantitative terms like "many, frequently, or some (Bryman, 2004).

Qualitative and quantitative research methods have quite diverse epistemological beliefs. A quantitative research approach makes the assumption that there is knowledge to be found outside of the phenomenon. According to a qualitative viewpoint, knowledge is created via contact and communication; as a result, it exists only in people's views and interpretations. It implies that humans produce or construct knowledge. A qualitative viewpoint is predicated on the idea that you cannot comprehend a thing by dissecting its components; instead, you must look at the broader environment in which information and people operate. We refer to this idea as the social construction of reality (Vanderstoep & Johnston, 2008).

To illustrate how the social construction of reality affects research, Vanderstoep & Johnston (2008) provide the example of "rock climbing." On the one hand, they claimed that the researcher using the quantitative technique may provide us with information about the number of rock climbers, the ranking of rock climbing as a sport in different nations, and even certain personality determinants of rock-climbing interest. On the other hand, a qualitative researcher may evaluate rock climbers' narratives and tell us what they believe about the process of rock climbing. The qualitative information helps us comprehend what rock climbing means to its participants (Vanderstoep & Johnston, 2008). Comparing between qualitative and quantitative methods does not suggest that one approach is better than the other, but the nature of the research question should dictate whether you pursue a qualitative or a quantitative approach.

The two methods reflect various approaches to formulating research questions. In particular, the goal,

emphasis, methodology, and standards for truth of qualitative and quantitative techniques are different (Vanderstoep & Johnston, 2008; Tracy, 2010). In light of this, what are the many epistemological issues with quantitative and qualitative approaches that have contributed to the development of mixed methods in social science research?

2. Quantitative and qualitative methods conception

2.1. Quantitative methods

The quant approach can be based on observations that are transformed into discrete units so that statistical analysis can compare them to other units (Bergman, 2008, p. 1). It involves gathering numerical data and analyzing it using techniques based on mathematics in order to explain phenomena. For instance, in the field of education, we may like to gather information about how students feel about their instructors and school. We can create a questionnaire that asks students to rate a number of statements (like "I think school is boring") as either agree strongly, agree, disagree, or disagree strongly, and assign a number to each response (e.g., 1 for disagree strongly, 4 for agree strongly). These attitudes clearly do not naturally exist in quantitative form. Additionally, we may use data gathering tools like tests or questionnaires to gather information about a phenomenon and make it quantifiable. But not every phenomenon is best investigated with quantitative techniques (Muijs, 2004).

There are two main types of quantitative research methods: experimental and non-experimental. Because of its popularity in the scientific research in which it was first used, the experiment—which may be defined as a test carried out under controlled conditions to establish a known truth or evaluate the viability of a hypothesis—is the basis of the experimental method. The key element of this concept is control, which distinguishes experimental research from non-experimental quantitative research(Denzin & Lincoln, 2011).

A statistically significant association between an independent variable and a dependent variable may be discovered when examining quantitative data, and we may be able to infer some causation between these two variables. For instance, how biological sex or gender affects communication (Vanderstoep & Johnston, 2008). We can predict, for example, dropout of school risk factors using Data mining.

2.2. Qualitative research

Qualitative research is defined as the study of the nature of phenomena". This comprises their characteristics, their various manifestations, the context in which they appear or the perspectives from which they can be perceived, but it excludes their range, frequency, and place in an objectively determined chain of cause-and-effect effect (Busetto, Wick, & Gumbinger, 2020)

It is crucial to note that qualitative research is not a recent development; rather, it has a long history that sparked interest in its possibilities in the 1960s. In fact, it is frequently linked to symbolic interactionism, which existed before qualitative research became a powerful force in the social sciences. The failure of the quantitative method in social research and the spread of phenomenological concepts from the late 1960s are two elements that may have contributed to the emergence of the tradition of qualitative research (Bryman, 2004).

Vanderstoep & Johnston (2008) state that qualitative approaches use interviews, observations, and text analysis. In qualitative research, the term "text" can refer to a variety of things, such as spoken language, tales, discussions, speeches, images, films, videos, historical records, books, newspaper articles, reports, poetry, and cultural items like monuments, buildings, highways, and shopping centers. Cultural group: inhabitants, gangs, and homeless individuals. The observations, interviews, and texts are analyzed for meanings and themes.

In order to represent the experiences of the participants, the qualitative technique usually examines people's lives and actions in narrative or descriptive ways. These two paradigms are based on two opposed and conflicting worldviews that are linked by the researcher's perspective, the way that research data is collected, and the differentiation between evidence and discovery(Bryman, 2004).. In other words, it refers to the study of the social world, which aims to characterize and examine human behavior and culture from the perspective of the subjects

The most well-known technique for gathering data in qualitative research is participant observation, which involves the researcher spending a considerable amount of time with the subjects of the study in order to provide a comprehensive, detailed description of the group, organization, or others (Busetto, Wick, & Gumbinger, 2020). Soon after the turn of the

century, Malinowski especially pushed for the use of this kind of study approach, pushing social anthropologists to leave their verandahs and interact with the locals (Bryman, 2004, p. 45).

The fact that participant observation is frequently supplemented by unstructured interviewing. Participant observers are seldom just that—they frequently undertake unstructured interviews, review documentary materials and even conduct postal questionnaire surveys and organized interviews (Bryman, 2004). In addition, the life history, the unstructured interviewing method, the group discussion.

2.3. Types of qualitative methods

Interviews, case studies, ethnographic research, phenomenology, discourse analysis, and grounded theory are just a few of the techniques that fall under the wide category of qualitative research. (Muijs, 2004).

The main category of qualitative approaches is phenomenology. The goal of a phenomenological research study is to comprehend how people see a situation from their own point of view. To characterize the feeling of parental loss, researchers may, for instance, perform phenomenological research on students who have lost a parent (Johnson & Christensen, 2014,).

One of the most often used qualitative methodologies is ethnography. Ethnography literally translates to "writing about people." Ethnographers are interested in characterizing a group of people's culture and discovering what it's like to belong to that group from their point of view (Johnson & Christensen, 2014, p. 103).

Narrative inquiry; Participants in narrative inquiry share tales of their personal experiences. Three steps make up the analysis process: transcription or organizing, turning the audio narrative into written form, and analysis by comprehending the facts and making inferences (Matthews & Ross, 2010).

In case study, the researcher provides a detailed account of one or more cases. Exploratory, descriptive, and explanatory research issues can all be addressed through case study research. The focus of case study research is on each instance as a whole in its actual context. (Johnson & Christensen, 2014).

Grounded theory: a method developed by two researchers Barney Glaser and Anselm Strauss. According to Glaser, grounded theory is a broad analytical methodology

associated with data gathering that use a methodically applied set of techniques to produce an inductive theory about a topic. When grounded theory was created, it was widely believed that only quantitative or deductive research could produce systematic scientific findings (Fendt & Sachs, 2008).

1.4 Comparison of quantitative and qualitative research

We will discuss a number of epistemological problems that come up while doing qualitative research. The ability of the investigator to see through other people's eyes and understand events from their point of view, as well as the degree to which qualitative research derived from case studies may be generalized, are the two main aspects of qualitative research that are explored. The question of how much qualitative research differs from quantitative research in its approach to the study of social reality revolves around each of these subjects (Bryman, 2004).

The creation of equipment for quantitative research and the framing of research questions can both be preceded by qualitative research. Qualitative research can serve as a source of hypotheses for quantitative testing. Additionally, developing scales and indices for quantitative research may be made easier by qualitative research (Johnson & Christensen, 2014).

While qualitative research employs non-numerical data, quantitative research relies on statistical analysis of numerical data (Muijs, 2004). Furthermore, the term "qualitative" is used just to denote a tiny sample size. Qualitative data are characteristics, or descriptions, of an object, whereas quantitative data are numbers. Ladner (2019), pages 14–16.

Researchers can get insight into the context of occurrences and behaviors through qualitative research. It mainly concentrates on people's experiences and emotions and allows researchers to explain the behavior of the informants. In general, qualitative data offer a more thorough and in-depth representation of people's experiences, viewpoints, and beliefs (Altinay & L. Wang, 2009).

Qualitative research aims to be more descriptive than predictive. Gaining a thorough understanding of a research participant's perspective is the aim. Different study participants will interpret their personal experiences and the social systems they deal with differently since they are aware that all understanding is manufactured. Moreover, the qualitative approach is generally less concerned with aggregate

generalizations because the researcher will impose his or her cultural, social, and personal identity on any interpretation of the research participant's experience. A large portion of qualitative research does not claim to be generalizable; rather, it only claims to represent the people studied (Vanderstoep & Johnston, 2008).

Qualitative research is perceived as subjectivist, whereas quantitative approaches have been characterized as realist or positivist. Realists believe that the purpose of study is to reveal an existent reality. It is the researcher's responsibility to apply impartial research techniques to find that truth. This indicates that in order to maximize objectivity and decrease the researcher's participation in the research, the researcher must be as separated from the study as feasible (Muijs, 2004).

Giving voice to those on the margins of a culture is the main goal of qualitative research. Each situation is legitimate, representative, and perhaps deserving further research. Finding the usual, average, and trend that can be applied to large populations, on the other hand, is the main goal of quantitative research. (Johnston & Vanderstoep, 2008).

Many discuss "paradigm wars," in which quantitative and qualitative research are viewed as hostile and incompatible factions (much like capitalism and communism). This is because the distinction between quantitative and qualitative research is sometimes perceived as being rather fundamental. Many researchers identify as either qualitative or quantitative (Muijs, 2004).

According to Johnson & Christensen (2014), the quantitative research technique is mostly based on the confirmatory scientific process since it focuses on hypothesis and theory testing. Quantitative researchers believe that it is critical to articulate one's hypotheses and then test those hypotheses against empirical facts to determine if they are supported. However, the exploratory scientific method is the main approach used in qualitative research. In addition to describing what is observed locally, qualitative research is occasionally utilized to develop new ideas and hypotheses. When little is known about a subject or phenomena and one want to learn more about it, qualitative research is employed (Johnson & Christensen, 2014).

In accordance with Salmon (2007), distinct perspectives on human behavior are another way that quantitative and qualitative research vary. It is considered in quantitative

research that behavior and cognition are quite predictable and explicable. In quantitative research, the assumption of determinism—that all events are entirely predetermined by one or more causes—has historically been made (Salmon, 2007).

For instance, according to Johnson & Christensen (2014), a number of factors affect how children learn to read. The majority of modern quantitative researchers strive for probabilistic explanations since they have been unable to find any universal or infallible rules of human behavior. An illustration of a probabilistic assertion is as follows: Adolescents who use drugs and alcohol are more likely to drop out of high school than those who do not. The main argument is that the majority of quantitative researchers aim to generalize and forecast using probability. (Christensen & Johnson, 2014).

The primary distinction between qualitative and quantitative approaches is that the former is inductive, while the latter are deductive. A consensus among researchers over what constitutes proof is essential to any kind of study. Statistics are that proof in quantitative research. In order for other researchers to duplicate our investigations, we also provide a detailed description of our techniques. If many researchers obtain the same results, we are certain that we have found a truth (Vanderstoep & Johnston, 2008).

A broad image is created by combining quantitative and qualitative research. One of the situations where quantitative and qualitative research are most commonly combined is when an ethnographer conducts a survey to fill in some knowledge gaps about a community, group, organization, or anything else that cannot be easily filled by relying solely on participant observation or unstructured interviewing. These gaps can arise for a number of reasons, including the inaccessibility of specific individuals or circumstances (Johnson & Christensen, 2014).

3. The epistemological emergence of mixed methods

3.1 Mixed methods emergence

A single research project or program that combines at least one qualitative and at least one quantitative component is known as mixed methods research. It has been more popular in the social, behavioral, and related sciences in recent years. Its popularity may be attributed to a variety of factors, including the rise in publications on the subject; the use of mixed methods designs in textbooks that mostly concentrate on mono

technique designs; The number of studies using this design and methodology has expanded since Sage Publications founded the Journal of Mixed Methods Research in 2007; a growth in the quantity of workshops and conferences on this subject (Bergman, 2008, p. 1).

There were two phases in the transition from single-method to mixed-methods research. The first phase, which took place between the 1960s and the 1980s, supposedly entailed accepting blended approaches to address the main axiological, ontological, and epistemological flaws of qualitative and quantitative paradigms. A more integrated method that blurs the lines between qualitative and quantitative research is part of the second stage, which began in the 1990s and gave rise to mixed model research (Bergman, 2008).

The word "mixed" has several meanings. Mixed-mode research, which combines qualitative and quantitative research in a single or multi-phase study, is sometimes used as a substitute for the more well-known phrase "mixed methods research." The precise combination that is deemed suitable will rely on the research questions as well as the practical and situational challenges that a researcher faces. As we work to address the many issues that confront us, all three research paradigms are crucial (Bergman, 2008; Johnson & Christensen, 2014, p. 82).

Additionally, mixed methods research incorporates both techniques of investigation and philosophical presumptions. As a technique, it incorporates philosophical presumptions that govern the course of data collection and analysis as well as the combination of qualitative and quantitative approaches in several instances of the research process (Ladner, 2019).

The link between methodologies, data items, analytical conclusions, and viewpoints is known as mixed methods research. They give an illustration of this connection: The many modes of transportation operate together in transportation systems. For example, a customer may simply switch from bus to rail and purchase a single ticket for the whole trip. Integration makes it easier to go where you are going (kerblad, Seppanen-Jarvela, & Haapakoski, 2020).

The integration of techniques entails merging many approaches, mixing and blending them as needed. Researchers might employ techniques specific to certain data types or transcend the boundaries between various data sets. For instance, they can transform textual data into numerical form

and utilize quantitative tools to examine it (Moran-Ellis et al., 2006). In analytical integration, analyses can be performed by using separate methods. Although different types of data are analysed, at least partly, using the methods specific to them, the intent is to use all the data sets and analyses to complete the same objective (kerblad, Seppanen-Jarvela, & Haapakoski, 2020).

Additionally, structured interviews are occasionally used by researchers to collect both quantitative and qualitative data at the same time. Nonetheless, there is little question those techniques like surveys and participant observation are commonly regarded as sources of quantitative and qualitative data, respectively. As a result, it is not suggested to question this convention but rather to draw the reader's attention to the lack of a clear-cut distinction (Bryman, 2004).

3.2 The costs and benefits of mixed methods research

The mixed methods technique is intended to get a thorough knowledge of the complex social phenomena (Kerblad, Seppanen-Jarvela, & Haapakoski, 2020). Furthermore, it contributes to the advancement of research as various research methodologies yield distinct types of information and have varying advantages and disadvantages (Johnson & Christensen, 2014).

There are five methodological justifications for combining methods: (1) complementarity, which refers to deepening or improving other data; (2) expanding the inquiry to ask different questions; (3) development, which uses one method to inform and improve the other; (4) triangulation, which corroborates earlier data and initiates the resolution of earlier contradictory findings (Ladner, 2019).

Conclusion

In order to uncover systematic, trustworthy, and legitimate information, social research use scientific methodologies to provide solutions to our inquiries. Three types of approaches are used in social science: mixed, qualitative, and quantitative. The type of research topic, the participants, and the sample all influence how best to use or choose a technique for the phenomena under study. The intricacy of social phenomena has led to several epistemological issues in the development of social science methodologies.

Quantitative research is based on numerical data analyzed statistically. There are two main types of quantitative

method, experimental method and non-experimental method. Using quantitative data might find a statistically significant relationship between an independent variable and a dependent variable.

The epistemological assumptions of qualitative and quantitative approaches to research are radically different. A number of problems in the application of the qualitative method the first one: the investigator sees through people's points of view, and the extent of difficulty to which qualitative research deriving from case studies can be generalized. Due to that, the researchers tend to the application of mixed methods, which are the combination of qualitative and quantitative components in a single research project.

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