

DISTINGUISHING BETWEEN METHOD AND METHODOLOGY IN ACADEMIC RESEARCH

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ABSTRACT

The terms “method” and “methodology” are frequently used interchangeably in academic research, leading to confusion among researchers, particularly those in the early stages of their careers. This article aims to enlighten the differences between “method” and “methodology” and clarify common misconceptions associated with their usage. The “method” refers to the specific techniques and procedures used to collect and analyze data, whereas “methodology” encompasses the overall research design, including the theoretical framework, research questions, and the research approach. The article examines the key components of both concepts, illustrated with examples from various disciplines. By highlighting the crucial distinctions between “method” and “methodology,” this article supports a more accurate understanding and application of these terms.

Keywords: Research Methodology, Method Selection, Research Validity, Research Reliability

INTRODUCTION

In academic research, precision and clarity are essential to ensuring the integrity of the research process [1]. Unfortunately, the landscape is often mired with misapplied terms, leading to ambiguities that weaken the foundations of the research. Two terms often entangled in this confusion are “method” and “methodology.” Despite their distinct meanings and implications in the context of scientific research, they are frequently used interchangeably. This misuse not only impedes the conceptual understanding of the research process but also leads to flawed research designs and, consequently, affects the reliability and validity of the research outcomes.

The main objective of papers, articles, theses, and dissertations is to advance knowledge through scientific research. The scientific approaches usually generate new knowledge, evaluate and refine existing theories, and develop innovative solutions to problems. However, selecting and implementing appropriate research methods and methodologies are critical steps in this process, forming the foundation of the research design and guiding the collection, analysis, and interpretation of data. Yet, there is often confusion among researchers, particularly those in the initial stages of their careers, about the precise meanings and implications of these terms.

For example, a researcher may mistakenly use the term “method” to describe the overall research approach when, in fact, “methodology” is the correct term. This could lead to misunderstandings during the peer review process, as reviewers may expect a detailed explanation of the data collection and analysis techniques (the “method”) rather than a broader discussion of the research approach, theoretical framework, and rationale for selecting particular methods (the “methodology”). This confusion arises partly from the interchangeable use of the terms “method” and “methodology” in academic and non-academic contexts.

Therefore, this article highlights the differences between “method” and “methodology,” illustrated with examples from various disciplines. By clarifying the crucial distinctions between these terms, this article promotes a more accurate understanding and application of these terms, supporting research practices.

The article is organized into three main sections. The introduction begins by contextualizing the problem and outlining the proposed solution and expected results. The Methodology vs Methods discussion forms the article’s core, providing a detailed examination of the key components of both “method” and “methodology,” illustrated with examples from various disciplines. The conclusion summarizes the article’s main points, reiterates the importance of correctly understanding and applying the terms “method” and “methodology,” and highlights the potential impact of the article on supporting research practices.

METHODOLOGY VS METHODS DISCUSSION

Research is an orderly, systematic, and ethical inquiry and investigation process that addresses practical problems and expands knowledge within a given domain [2]. Scientific research has been instrumental in advancing human progress and development across various fields [3]. The objectives of the research can encompass reviewing or synthesizing existing knowledge, examining existing situations or problems, providing solutions to problems, exploring and analyzing broader issues, developing or creating new procedures or systems, explaining new phenomena, acquiring new knowledge, or a combination thereof [2]. The distinguishing feature of scientific knowledge, as compared to other forms of knowledge, is its verifiability, which is inherently tied to the practice of scientific research grounded in methodological rigor [4].

Research is a crucial pillar of human progress, serving as an orderly, systematic, and ethical inquiry and investigation process that addresses practical problems and expands knowledge within a given domain [2]. It has played a pivotal role in advancing human progress and development across various fields [3]. For example, scientific research has led to significant advancements in medicine, technology, and social sciences, thereby improving the quality of life for people worldwide. The objectives of research are multifaceted and can encompass a range of goals, including reviewing or synthesizing existing knowledge, examining existing situations or problems, providing solutions to problems, exploring and analyzing broader issues, developing or creating new procedures or systems, elucidating new phenomena, acquiring new knowledge, or a combination thereof [2]. For instance, a researcher in the field of public health may conduct a study to examine the effectiveness of a new vaccination campaign, aiming to provide a solution to a specific problem while acquiring new knowledge about vaccination uptake in different communities. A key characteristic that sets scientific knowledge apart from other forms of knowledge is its verifiability, which is inherently tied to the practice of scientific research grounded in methodological rigor [4].

The practice of scientific research grounded in methodological rigor ensures that the findings are verifiable and can be replicated by other researchers. This includes rigorous protocols, reliability and validity of measurement instruments, and reproducible processes. Methodological rigor in research refers to the precision of a study in terms of planning, data collection, analysis, and reporting. Rigor in designing and performing scientific research and the ability to reproduce findings are cornerstones of scientific advancement. This is essential as it ensures the credibility and validity of the research. For example, a study conducted with rigorous methodology in psychology, examining the effects of cognitive-behavioral therapy on anxiety, would be more dependable if the results were verifiable and could be replicated in

different settings and populations.

This verifiability is essential for translating research findings into practical applications, such as developing new therapeutic interventions, formulating public policies, or designing technological innovations. The verifiability of scientific knowledge, grounded in methodological rigor, contributes to the continuous advancement of human progress and development across various fields. This includes protocols, reliability, validity of measurement instruments, and reproducible processes. Methodological rigor in quantitative research refers to the precision of a study in terms of planning, data collection, analysis, and reporting.

The distinction between research methods and research methodology is fundamental yet often misunderstood. Methodology refers to the approach or framework used in research, influenced by the researcher's theoretical perspective and guiding principles [5]. It encompasses the researcher's beliefs, theories, and values that support their research approach. On the other hand, method refers to the specific techniques, procedures, or tools employed for data collection and analysis [5]. It involves gathering and analyzing data, such as surveys, interviews, or documents. While methodology provides a framework, the method focuses on the specific strategies used within that framework [6]. The methodology is the broader theoretical perspective and guiding principles, while the method is the practical techniques and procedures.

Research methods encompass the techniques and procedures employed in conducting research, while research methodology refers to the appropriate means of addressing research problems [7]. For example, in a study investigating the effects of a new drug on blood pressure, the research method might involve a randomized controlled trial with a specific protocol for administering the drug and monitoring blood pressure. Meanwhile, the research methodology would encompass the study's overall design, including the rationale for selecting a randomized controlled trial as the most appropriate means to address the research question. Methodology pertains to the methods or rules used to execute a specific research study and the underlying principles, theories, and values that inform a particular research approach [8, 9]. This involves the selection of appropriate methods and the theoretical framework that guides the entire research process. For instance, a study on the social impacts of urbanization might adopt a qualitative methodology informed by a sociological theory on urban development. This would guide the selection of methods, such as interviews or participant observation, and the interpretation of the data collected.

In line with prevalent definitions, the methodology is the research approach connected to a paradigm or theoretical framework, while the method refers to systematic modes, procedures, or tools utilized for data collection and analysis [9]. For example, in a study examining the relationship between physical activity and mental health, the methodology might be grounded in a biopsychosocial paradigm, which considers the complex interactions between biological, psychological, and social factors. This would guide the selection of methods, such as questionnaires to assess physical activity levels and mental health status and statistical analyses to examine the relationships between these variables. Understanding the distinction between method and methodology is crucial for designing and conducting rigorous, coherent, and impactful research.

The reliability and validity of research outcomes hinge on a well-designed study underpinned by objective, reliable, and repeatable methodology, as well as proper execution, data collection, and analysis with logical interpretation [10]. For example, in a study measuring the effects of sleep deprivation on cognitive performance, it is crucial to have a reliable and valid measure of cognitive performance, a clear and repeatable protocol for inducing sleep deprivation, and appropriate statistical analyses to interpret the results. Any flaws in these aspects of the study design could lead to unreliable or invalid results, such as spurious associations or failure to detect true effects. An unsuitable or flawed methodology may render the research unacceptable and potentially result in inaccurate information [10].

The study design must also select an appropriate method to guide the investigation. In defining the method, the researcher delineates their research strategy [4]. For example, in a study examining the factors influencing consumer purchasing decisions, the researcher might choose a mixed-methods approach, combining quantitative surveys to gather data on many participants with qualitative interviews to gain deeper insights into individual decision making processes. The chosen method informs the researcher's choice of data collection and analysis techniques [4]. In this example, the decision to use a mixed-methods approach would necessitate the development of both a survey instrument and an interview protocol and selecting appropriate statistical and analysis techniques.

The appropriate selection and implementation of methods and methodology are crucial to the success of any research endeavor. It ensures that the research is robust, dependable, and meaningful to the body of knowledge in the relevant field. **Figure 1** visually illustrates the interconnected yet distinct components of "Methodology" and "Methods" within the research process context.

The figure emphasizes the importance of aligning the methodology and methods in any research study. A well thought out methodology, grounded in a robust theoretical framework, guides the selection of suitable methods, ensuring that the research questions are effectively addressed, and the research objectives are met.

Analyzing the figure, the methodology is the comprehensive framework that guides the entire research journey, from inception to completion. It encompasses the theoretical framework, which consists of the theories and concepts that support the research; the research approach, which outlines the overall strategy and rationale for the research; and the research design, which is the blueprint for conducting the research. The methodology dictates the overall approach and design of the research, guiding decisions about the type of data needed, how it should be collected, and how it should be analyzed.

Methods refer to the specific techniques and procedures used to collect, analyze, and interpret the data. This includes decisions about the sample, the instruments or tools employed for data collection (e.g., surveys, interviews, experiments), and the techniques used for data analysis (e.g., statistical analysis, thematic analysis). Key components of many “Methods” include sample selection, which involves choosing the participants or subjects of the study; the data collection instruments, such as surveys, interviews, experiments, or observations; and the data analysis techniques, ranging from statistical or quantitative analysis to content or qualitative analysis.

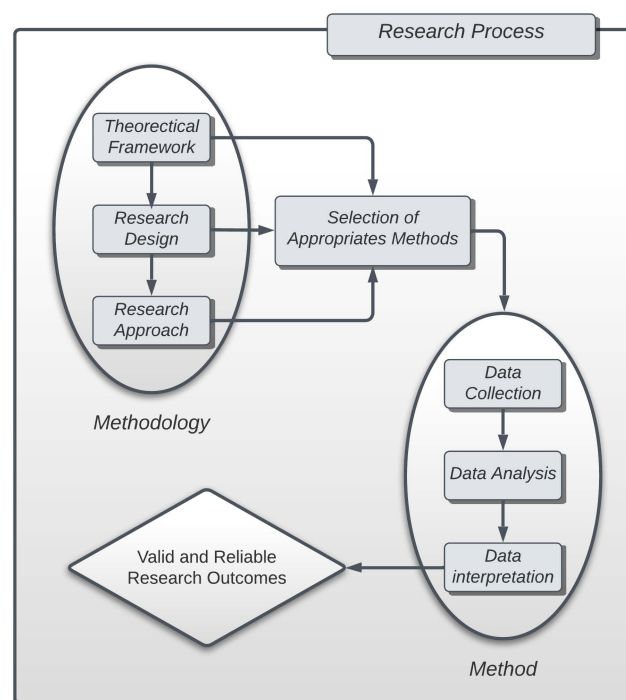


Figure 1: Distinction between Methodology and Methods in the Research Process
Source: Author (2024).

The “Selection of Appropriate Methods” is a crucial step in the research process, influenced by the research questions, objectives, and overall “Methodology”. For instance, if the research question aims to understand the experiences and perceptions of a group of people, qualitative methods such as interviews or focus groups would be more appropriate than quantitative methods like surveys. Conversely, quantitative methods like surveys or experiments would be more suitable if the research aims to identify trends or relationships between variables in a large population. The “Methods” selected should align with the research questions and objectives to ensure the research outcomes are valid and reliable.

CONCLUSION

In conclusion, this paper’s objective was achieved, as it presented the differences between “method” and “methodology” in scientific research, thereby promoting a more accurate understanding and application of these terms. By examining the key components of both concepts, the article clarified the distinctions between “method” and “methodology.”

While “method” and “methodology” are often used interchangeably, they refer to distinct concepts integral to the research process. The “method” involves the specific techniques and procedures used for data collection and analysis, whereas the “methodology” encompasses the broader research approach, including the theoretical framework, research questions, and rationale for selecting particular methods. Both components are critical to the success of a research study and must be carefully considered and implemented to ensure the validity and reliability of the research outcomes.

The discussion underlined the importance of selecting and implementing appropriate research methods and methodologies. The reliability and validity of research outcomes depend on a well-designed study supported by objective, reliable, and repeatable methodology, as well as proper execution, data collection, and analysis with logical interpretation. It was emphasized that an unsuitable or flawed methodology potentially results in inaccurate information. Additionally, the article highlighted common misconceptions associated with using these terms and provided knowledge for researchers.

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