Critique of Research Methodologies and Methods in Educational Leadership

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Abstract

The purpose of this exploratory study was to document aspects of research methodology in educational leadership directed at emerging school leaders and the academic community that supports them. The intricacy of educational challenges highlights the necessity for a thorough investigation, the results of which will inform suitable reforms. Scholars have long argued about which of the qualitative and quantitative approaches is more rigorous in its contribution to the development of education. Some academics contend that since education focuses primarily on human behaviour, which is value-laden, research in this area should take a qualitative approach. Results indicate that while qualitative methods were more common in the arts, quantitative methods dominated research in education and the sciences. However, the social sciences frequently used a blend of qualitative and mixed approaches. The findings' implications for improving research methodology skills and the integrity of educational research are examined.

Keywords: research approaches, research design, educational leadership, triangulation, ethical issues, sampling techniques, data collection methods

1. Introduction

This study seeks to comprehend the state of the art by examining the research methodologies employed by researchers in the study of educational leadership. Researchers and newcomers to the field may be able to spot potential gaps in the literature by becoming familiar with the various research methodologies and methods. Reviews of research methodologies can be beneficial to academics in a variety of ways, according to Hallinger (2013), in addition to synthesizing knowledge, identifying gaps in the literature, and promoting policy recommendations. A helpful framework for comprehending how "methodology" fits into the research process is provided by McWilliam et al. (1997). Research involves three different types of work, according to McWilliam et al. (1997), "headwork, fieldwork, and text work." The methodology is part of the research's "head work," which involves thinking through the problems, questions, and issues that will arise as the study is conducted. Headwork and text work are frequently overlooked in "research methods" courses, which traditionally place a greater emphasis on methods for collecting and analyzing data. Examining methodological issues encourages one to pose inquisitive queries about their own and other people's research.

2. Different Research Methodologies and Methods

There are three major research paradigms in the literature: qualitative, quantitative, and hybrid (Babbie, 2001; Creswell, 2014). Since these methods are based on various traditions, they have varied goals and methodologies (Pyrczak, 2003). Researchers choose one of these three options depending on the type of research they are interested in. Research methods may be mixed, qualitative, or quantitative, depending on the researcher's viewpoint (Creswell, 2014; Guba, 1990; Neuman, 2009). The quantitative approach, therefore, is dominated by postpositivists and positivists who favour quantification (Phillips & Burbules, 2000). According to them, cause and effect are causally related, which means that particular causes have particular effects. Given this, positivists and post-positivists create hypotheses and research questions, devise numerical measurements, gather data, and use statistical software to

analyse them (Creswell, 2014). Their viewpoint is typically described as empirical science or scientific study that largely relies on the quantitative method.

The constructivist worldview, which is regarded as deterministic, is an alternative strategy. According to this theory, studying people with prepared questions, gathering data using tools with closed-ended inquiries, and putting the data through statistical analysis are necessary because human behaviour is unpredictable. As an alternative, social constructivism operates in a natural environment, relying on information (data) gathered from participants in the study (Bogdan & Taylor, 1975; Lincoln & Guba, 1985; Patton, 2002). Through interpretation, the researcher makes sense of the information (inductive analysis) instead of presenting their findings through numbers. Instead, the themes that surface do so. The naturalists' approach to qualitative research, which has conceptually impacted the social sciences and education, is characterised by this stance (Bogdan & Biklan, 1982; Patton, 2002).

The pragmatic attitude, which pays attention to the research topic and applies practical and relevant methodologies to address the research questions, underpins the mixed methods paradigm. Because research problems must be addressed in various contexts, including social, economic, historical, and political ones, pragmatists use a variety of methodologies, or mixed methods, which can be used either for exploratory or explanatory purposes (Babbie, 2001; Creswell, 2014). As a result of the theory that the world is not static, researchers use mixed methods to collect data rather than following one specific methodology. Based on the preceding, it appears that mixed-methods approaches are more appropriate in the behavioural and social sciences than in the core sciences, assuming researchers are capable of defending their choices.

A protracted argument has developed between researchers from many worldviews, each claiming particular principles. In contrast, quantitative researchers (positivists) assert that their methodology is more rigorous and based on science (Carey, 1993). What constitutes scientific research is not entirely clear. In every discipline, scientific research is a process of careful examination that is supported by the right theory and framework, the research methods employed, and the results that result from it (Shavelson & Towne, 2002). An investigation must follow a set of guidelines for performing the research and evaluating the veracity of the results in it to be considered scientific. Despite the National Research Council's assertion that a study's design does not determine whether a study is scientific, a study's design must permit direct empirical investigation of a research problem, adhere to the conceptual framework, take into account the context in which the investigation was conducted, and present the findings so that they can be discussed by researchers and other stakeholders (Shavelson & Towne, 2002).

However, it is noted that more texts have been produced on quantitative research methods than on qualitative research and analysis, even though it is not the intention of this work to add to the argument on the superiority of the quantitative and qualitative approaches (Bogdan & Taylor, 1975; Denzin & Lincoln 2000). Because quantitative research has dominated the social and behavioural sciences since the 1900s, Pyrczak (2003) highlighted that reviewers are generally likely to uncover much more articles reporting quantitative research than qualitative research. Despite these findings, some researchers contend that both quantitative and qualitative methodologies can be vigorously pursued to provide reliable results and are not inherently fundamentally distinct modes of inquiry (Howe & Eistenhart, 1990; King, Keohane & Verba, 1994).

According to Shavelson and Towne (2002), social and behavioural sciences have played a significant role in developing education research, which uses pure quantitative and qualitative design strategies. Moreover, a mixed methods approach would be advantageous for education research due to its nature. However, there aren't many empirical studies that back up this supposition.

2.1 Research Methodologies in Educational Leadership

There are surprisingly few reviews of research on educational leadership. According to Hallinger's (2013) observation, there are fewer than half as many published studies overall. The number of review articles appeared to be increasing as the field gained popularity, but his analysis of 52 years' worth of data in 2014 revealed 35 reviews dispersed across nine peer-reviewed journals. The following section focuses on the most recent studies specific to educational leadership.

2.1.1 Research Approaches

Hallinger and colleagues (2013) reviewed the research on educational leadership and management. In Asia (Hallinger & Bryant, 2013), Latin America (Castillo & Hallinger, 2018), and Africa (Hallinger, 2018), over 70% of published articles were empirical instead of theoretical or commentary (Hallinger & Bryant, 2013). African studies typically use quantitative methods, while Asian and Latin American studies use qualitative ones. In every region, the number of mixed-methods studies was the lowest. It has also been noted, at least in Asia, that quantitative work is

becoming more popular, according to Hallinger and Bryant (2013).

Thomson (2017) conducted a thorough, critical analysis of research methods in educational leadership, management, and administration by looking at three North American and three UK-based educational leadership journals. Only 25% of the data in Thomson's (2017) paper were gathered numerically, and 75% were gathered qualitatively using methods unique to the journal. This information was gathered using simple questions about the different techniques used and the degree (if any) of methodological decision-making. However, there were no papers of any kind that looked at method choices, which left off-field discussions about the development of content knowledge in the dark.

Gumus, Bellibas, Esen, and Gumus (2018) examined more American-centric educational research that focused on leadership models. They found a reduction in both the number of qualitative studies and the quantity of theoretical, non-empirical works, despite the fact that qualitative studies were numerically the most prevalent throughout a 24-year period (1990-2014). On the other hand, there has been an upsurge in quantitative and mixed methods studies on leadership models in education, as was shown in Hallinger and Bryant's (2013) general research on educational leadership in Asia. When Tian et al. (2016) specifically evaluated the idea of distributed leadership in elementary and secondary education across eight publications from 2002 to 2013, they found that the rise in quantitative work observed in these two studies was matched. Contrary to a previous review on the same topic, Tian et al. (2016) discovered that empirical research predominated in the evaluated publications, with a fairly even mixture of qualitative, quantitative, and mixed-method techniques.

Murphy et al. (2007) examined 25 years' worth of publications in the journal Educational Administration Quarterly (EAQ), in contrast to the previously presented evaluations, which either concentrated on a particular area or a specific subject. They discovered that, as opposed to conceptual or theoretical publications, slightly more than half of the articles published in EAQ were empirical, with a slight increase in that proportion in more recent years. Each year, between 45% and 58% of papers were qualitative, followed by 35% to 42% of quantitative papers and 42% of mixed-methods papers.

2.1.2 Research Design

The research design links conceptual research issues to pertinent and doable empirical studies. Procedures are provided with specific instructions in research designs (Creswell, 2014). A researcher follows a step-by-step process before beginning data collection and analysis in order to successfully complete the research objective. Research designs convert research problems into data for analysis in order to provide pertinent answers to research questions at the lowest possible cost. According to Kerlinger (1986), the research design is a plan, structure, and strategy for examining a research question with the intention of controlling variables in the best possible way.

The type of analysis required to produce the desired results is always determined by the research design. In a research plan, it is specified what information will be gathered, how it will be analyzed, and how the research questions will be addressed. According to Jongbo (2014), if a researcher gathers data without first considering the research design and the data required to answer the research questions, the conclusions drawn will be weak and unconvincing, and the research objective will not be met. The study design must include a method for interpreting the analyzed data if recommendations or implications are to be based on research findings. There are three distinct types of research designs: mixed methods, study able variables, objectives, and questions. An issue statement, research questions, and research goal that are clearly stated serve as the foundation of a research design. When the researcher is comfortable with the study question and the kinds of theories and ideas that fit it, he should keep reading the relevant literature.

The researcher should be able to choose the most appropriate and pertinent research design based on prior knowledge of the various types of research design, guidance from a careful analysis of the research statement of the problem, research questions, the conceptual or theoretical framework, and analysis of the pertinent literature.

A strong research design develops a strategy that integrates the research problem, research questions, data collection methods, organizational methods, and analysis methods to produce answers to the research questions that are supported by substantial evidence and even persuade users to accept the inferences drawn from them as reasonable ones.

2.1.3 Sampling Techniques

Researchers must thoughtfully consider how they will choose a sample that is representative of the group as a whole to draw accurate conclusions from the study. It is referred to as a sampling method. There are two main kinds of sampling techniques that can be applied in research:

• Probability sampling

• Non-probability sampling

Probability sampling employs a random selection process to allow for the generation of reliable statistical conclusions about the entire group. Each individual in the population has a chance of being chosen when sampling is done using probability. Most often, it is utilized in quantitative research. If the goal is to generate results that are representative of the entire population, probability sampling techniques are the best option. Probability samples are classified into four types:

1. Simple random sample

2. Systematic sample

3. Stratified sample

4. Cluster sample

Non-probability sampling entails non-random selection based on convenience or other factors, making data collection easier. People are chosen for inclusion in a non-probability sample using non-random criteria, so not everyone has the same chance of doing so. Although obtaining this type of sample is easier and less expensive, there is a greater possibility of sampling bias. That means population inferences are weaker than with probability samples, and the conclusions may be more limited. Even if a non-probability sample is used, the researchers should still strive to have as accurate a representation of the population as they can. Exploratory and qualitative research frequently employ non-probability sampling methods. Instead of testing a theory about a large population, the aim of this type of research is to gain a preliminary understanding of a small or understudied population. The following are the four primary categories of probability samples:

1. Convenience sample

2. Purposive sample

3. Snowball sample

4. Quota sample

Sampling strategies for quantitative methods used in mixed methods designs in implementation research are generally well-established and based on probability theory. Comparatively, sampling techniques for qualitative methods in implementation studies are frequently less clear-cut and explicit. Although the samples for qualitative inquiry are generally assumed to be selected purposefully to yield cases that are “information rich” (Patton, 2002), there are no clear guidelines for conducting purposeful sampling in mixed methods implementation studies, particularly when studies have more than one specific objective. Additionally, it is unclear exactly what sampling techniques are best suited for the difficulties of using both quantitative and qualitative techniques in the mixed methods designs used in implementation research. Determining the goals of each methodology is necessary for this consideration, as is evaluating the potential effects of choosing one strategy to achieve one goal on the decision to choose another strategy to achieve a different goal.

2.1.4 Data Collection Methods

Surveys and interviews are the two types of data collection that are most frequently used globally, but other techniques like document analysis and direct observation have also been used (Castillo & Hallinger, 2018). In Latin America, correlational and multivariate statistics were used to analyze more than half of the quantitative and mixed-methods research that was conducted. The most common form of quantitative research in Africa was surveys, with inferential testing used in about half of them and descriptive statistics in the other half (Hallinger, 2018). Tian et al. (2016) discovered that surveys dominated quantitative work while case studies, observations, and interviews were the main methods used to collect data for qualitative work. Few qualitative and quantitative papers, according to Thomson's (2017) research, used critical analytic methods; instead, they tended to take more constructivist stances. Case studies, surveys, and interviews in particular were frequently used as research methods. Murphy et al.'s (2007) analysis of the research presented in EAQ (2007) found that surveys were the main methods used to gather quantitative data. However, they found that only a small proportion of studies employed experimental or quasi-experimental methodologies, and that about a quarter of the studies employed secondary data analysis. Inductive analysis and content analysis were the most frequently used frameworks for qualitative work in EAQ, despite the fact that narrative analysis and phenomenological analysis were two of the many other categories.

2.1.5 Data Analysis

There is no one right way to analyze and present qualitative data, so one should always decide whether the task is appropriate before moving forward. Additionally, because qualitative data analysis heavily relies on interpretation, it is important to keep in mind that there are frequently a variety of possible interpretations. This is both their strength and their downfall.

The type of analysis that is conducted will depend on the objective of the data analysis, so the researcher must be certain of it in order to uphold the principle of fitness for purpose. Choosing the purpose is important since it will influence the type of analysis done on the data. Consequently, this will affect how the analysis is written. The data analysis will also be influenced by the kind of qualitative study being done. For instance, it might be best to write a biography or case study as a descriptive narrative that frequently follows a chronological order and raises issues throughout. An ethnography doesn't have to follow a strict timeline of events; it can be written as a narrative or as a collection of anecdotes with problems highlighted. The description, analysis, interpretation, and defense of a group or culture's salient traits are also included. A grounded theory and content analysis will proceed through a methodical set of studies, including coding and categorization until a theory emerges that either explains the events under study or can be used for prediction. The quantity of data sets and the number of subjects from whom data were collected will also affect the analysis. Although qualitative data often focuses on fewer people than quantitative data, the data is typically rich and comprehensive. For instance, researchers will need to decide whether to move forward by working within a largely established analytical framework of concerns that crosses the persons concerned, or whether to present data individually before, if desired, combining major issues that emerge across the individuals.

Some qualitative studies (e.g., Ball 1990; 1994a; Bowe et al. 1992) deliberately focus on people and the responses of important players in a particular scenario, frequently quoting verbatim responses in the final account; others are content to summarize issues without necessarily identifying exactly from whom the specific data were derived. In some studies, many verbatim interviews are used, whereas, in others, less verbatim data is used. Direct conversations can be very in-depth and information-rich. Ball (1990) and Bowe et al. (1992), in their "research transcription," admit that they "rarely thoroughly transcribed more than a few interviews for any of their research investigations," in part because the transcription process required a lot of time. Practically, qualitative research produces massive amounts of data quickly. The early analysis highlights crucial areas that ought to be the center of future research, which helps to alleviate the issue of data overload. According to Miles and Huberman (1984), a crucial step in data reduction and selection is careful data display. The method of gathering data with a wide-angle lens, sorting it, going over it, and making comments on it until the essential components of the situation become clear was described as "progressive focusing" by Parlett and Hamilton in 1976. This serves as the strategy for subsequent focus. The strategy resembles a funneling process from wide to narrow.

An important aspect of qualitative research from a theoretical perspective is the fact that analysis frequently starts early in the data collection process so that theory development can be done. The fundamental components of the phenomenon should be outlined by researchers. In order to create a logical whole, they should then join groups or blocks of data together. By comparing, aggregating, matching, and organizing the notes they took, they should then carefully analyze their field notes. The objective is to move from description to justification and theory development.

2.2 The Importance of Ethics in Research Practice

The expansion of pertinent literature and the appearance of regulatory codes of research practice developed by various agencies and professional groups demonstrate the awareness of ethical issues in research. In order to balance the demands placed on them as professional scientists seeking the truth with the rights and values of the subjects the research may harm, researchers must overcome a significant ethical challenge. Frankfort-Nachmias and Nachmias (1992) use the term "costs/benefits ratio" to explain the basics of this idea. When researchers shift from the general to the specific and from the abstract to the practical, unanticipated ethical issues may appear.

The types of issues that social scientists look into and the techniques they employ to get accurate and trustworthy data may give rise to ethical concerns. This suggests that ethical issues are brought up at every stage of the research process. They could be a result of the research's purpose (e.g., racial differences in intelligence), the setting (a remand home), the procedures to be used (producing high levels of anxiety), the data collection methods (covert observation), the participants (emotionally disturbed adolescents), the type of data collected (highly personal and sensitive information), and the intended use of the data (publishing in a way that could lead to participation).

Researchers' actions cannot and shouldn't be subject to a procrustean code of ethics. Each situation frequently presents a number of options when it comes to resolving a specific moral conundrum. It is crucial to keep in mind

that morality is about right and wrong, good and bad and that procedural ethics by themselves are insufficient. Instead, one should consider how the research's objectives, subject matter, approach, reporting, and conclusions comport with ethical norms and practices.

2.2.1 Triangulation and Ethical Issues in Research

Validity and credibility are two factors integral to practical research. Triangulation, therefore, enhances validity and credibility by mitigating research bias. Any research will benefit from a strategy that incorporates triangulation and mixed methods. When multiple strict research measures are combined, it clarifies inconsistent results by putting them in conversation with one another (Mertens and Hesse-Biber, 2012), thus offering a more comprehensive analysis. Cross-checking the evidence is possible for researchers by combining the two fundamental approaches to social phenomena. A greater level of confidence can be obtained in research findings that reflect reality by combining data from multiple sources (data triangulation), methods (methodological triangulation), investigators (investigator triangulation), or theories (theory triangulation).

In addition to helping to make up for flaws in one method, the combination of complementary methods helps to ensure that the research is measuring what it is supposed to measure. However, it is asserted that this strategy may be problematic due to potential imbalances in epistemological presumptions based on the data types. The rationale for using triangulation must therefore be incorporated into the design (Mertens and Hesse-Biber, 2012).

In order to advance the conversation, it is important to note that using two different methodologies to look into the same phenomenon places more responsibility on researchers to take any potential ethical concerns into consideration. As an illustration, a researcher must ensure that the methods and tools used do not infringe upon the subjects' rights to privacy, anonymity, and confidentiality. The research protocol as well as broader guidelines and codes of conduct must also be carefully followed by researchers. Healthy research ethics prioritize safeguarding the investigator(s), study participants, and sponsoring organizations. For example, ethical standards aid in ensuring a high level of public accountability. If people are to have confidence in the calibre and integrity of the research, issues of research misconduct, conflicts of interest, and human subject protection must be addressed (Resnik, 2020).

3. Discussion

Despite the predominance of qualitative work projects using mixed and quantitative methodologies also stood out. Quantitative data was mostly collected through single-time surveys, whereas qualitative data was more varied. There are fewer alternative sources of data in quantitative research than in qualitative research, though qualitative research is more varied. Quantitative research still relies largely on one-off surveys that frequently use convenience sampling, despite the widespread use of big data and social media. Technology has impacted qualitative and mixed-methods research in addition to video blogs, social media posts, and photos. There aren't many longitudinal studies, and the methods used aren't very diverse, according to Thomson's (2017) and Hallinger's (2018) reviews of research methods. Particularly, Thomson (2017) drew attention to the conservative choice of methods, which used surveys and interviews almost exclusively. Another trend that has been noticed is the inconsistent documentation of data related to methodological design choices. This unexpected lack of information about the methods used is consistent with Hallinger's (2014) finding that even reviews of research occasionally forget to mention their own procedures. The procedures and analysis steps, as well as the discussions of sample participants and references, are only briefly described methodologically.

This review demonstrated the diversity of approaches used in practitioner scholarship. In the qualitative articles, some authors referred to their papers as empirical research by using a particular methodological description, such as autoethnography or action research. Although other researchers conducted similar research on their own teaching, their papers did not contain explicit language about methods and were not framed in this manner, despite containing elements of action research, scholarship of teaching research, and pragmatic practitioner research (Osterman, Furman, & Sernak, 2014). Sometimes the authors provided descriptions that resulted in the separation of articles that were similar; however, it was not always clear whether or not they were empirical research. This resulted in the inclusion of papers in the sampling frame primarily based on how authors described their practitioner-scholarship research, the frame in which they framed their study, and the inclusion of method-related details in the articles, rather than significant differences in methods used. With the help of a discussion about how the field defines and promotes the scholarship of teaching, practitioner-scholars may be able to engage with this type of research as a methodology and examine how this crucial type of work can be structured so that it will remain valuable to educational leaders and professors of educational leadership.

A more advanced quantitative study in educational leadership is likely to be needed to support causal statements (Hallinger, 2018), but the ability to tell stories about innovative interventions and move policy through rich descriptive case studies should not be overlooked. (Kowalski, 2009; Thomson, 2017) There should also be a strong emphasis on theoretical debates and philosophical debates in the literature (Kowalski, 2009; Thomson, 2017). Due to the requirement for methodological richness (Bowers, 2017), educational leaders have to stay current with current research methodologies and analytical techniques. Methodological discussion in the methods section will allow researchers to debate how knowledge is produced because there are no absolutes in research.

4. Conclusion

Research into educational issues most commonly uses the quantitative method, according to this study. Quantitative research appears to be more common than qualitative and mixed methods research for a variety of reasons, including the quantitative method's historical dominance, the belief that "if it's not quantitative research, it's not research," a dearth of expertise in qualitative and mixed methods research, and others.

The struggle between quantitative and qualitative methods seems to be coming to an end, and the lines between disciplines are fuzzier than ever. It is crucial to provide students with access to a variety of research methods and to help them develop their skills so they can choose the right ones based on their research orientations and the type of inquiry they are conducting. This is because research combining multiple disciplines is becoming more and more common in today's world. Having a balanced perspective on research methods provides opportunities for researchers.

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