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IEEE Computer Society Nigeria Chapter

Proceedings of the 36th ISTEAMS Accra Bespoke Multidisciplinary Innovations Conference

Is Mixed-Method Really a Research Design? Synthesis for Discourse

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ABSTRACT

Research design can be considered as the kernel of every research process irrespective of type and form. It is considered as the plan of every research and a key component of the research methodology adequately conceptualised by the researcher in order to reach a meaningful conclusion in form of getting answers to the research questions and hypotheses raised. Consequently, it can be described as the foundation on which every aspect of the research process is laid. Thus, if the design is not properly sets out, the researcher cannot get it right in line with the adage which says ‘if the foundation be destroyed, what can the righteous do?’ The definition of mixed-method as a research design is inconclusive going by the conclusions of various authors with the authors giving reasons to justify their conclusions. For instance, mixed method is described as a procedure for collecting, analysing, and “mixing” both quantitative and qualitative research and methods in a single study to understand a research problem and that the knowledge and understanding of both quantitative and qualitative research is important for effective implementation of mixed methods research, (Oluwole, 2023). On the other hand, Tashakkori and Teddlie (2003) emphasised that there are nearly 40 different types of mixed methods designs in the literature, and that because of the wide variations of the mixed-methods design, some people concluded that it is not a design. Salami (2023) citing Ary et al (2010) described mixed methods as a type of research and not a research design (with quantitative and qualitative as other types) but that the decision on the type of design to use in mixed method research is dependent on what the research aims to achieve including the research questions. Also, Fehintola (2023) emphasised that there are three types of research design in education viz: quasi experimental, descriptive and mixed methods. Also, Shehu (2023) reported that typology of research can be done along the lines of use and form, design and data collection approach used and that mixed-method can be regarded as a design. Creswel (2018) highlighted the types of design that can be adopted in mixed method research including triangulation. These various diverse opinions motivated this paper. Meanwhile, the researcher is of the opinion that the discussion about mixed method as a research design or type of research can be situated within the critical analysis of three basic issues of philosophical perspectives, data collection approach or method and research design in line with the research onion. It is in the light of the foregoing that this paper aims at investigating whether mixed-method is a research design or type of research with a view to situate it within the context of research methodology. There is need for construction, deconstruction and reconstruction of knowledge for better perspectives. This paper aims at discussing the various views of authors with a view to synthesise and come up with areas of convergent and divergent for possible academic discourse.

Keywords: Mixed-method, Philosophical Perspectives, Research design, Academics
Methodology, Research Onion, Type of Research, Synthesis

Proceedings Citation Format

Kolawole, Akinjide Aramide (2023): Is Mixed-Method Really a Research Design? Synthesis for Discourse. Proceedings of the 36th ISTEAMS Accra Bespoke Multidisciplinary Innovations Conference. University of Ghana/Academic City University College, Accra, Ghana. 31st May – 2nd June, 2023. Pp 261-272.
<https://www.isteams.net/ghanabespoke2023>. dx.doi.org/10.22624/AIMS/ACCRABESPOKE2023P23

1. INTRODUCTION

Mixed method research is a growing phenomenon within the context of research and research methodologies which combines the theoretical and philosophical perspectives of both quantitative and qualitative research. Contrary to the positivist and post positivist perspectives of the quantitative researchers and the constructivist and interpretivist philosophical perspectives of the qualitative researchers, the mixed-method holds the philosophical perspective of pragmatism and this is also considered as one of its strengths. Mixed method stands out in the vast field of research methodologies as a dynamic and adaptable framework that transcends the limitations of conventional qualitative or quantitative methods. In recent years, mixed method research can be regarded as a fascinating synthesis of both qualitative and quantitative paradigms which has risen to extraordinary prominence by embracing the complexity of real-world phenomena (Cresswell & Plano Clark, 2017). This cutting-edge methodology affords researchers to peel back complex layers of understanding and offer comprehensive insights into complex research questions. Also, by bridging the gap between the depth of narratives and the rigour of statistical analysis, mixed method research deviates from the traditional dichotomy of qualitative and quantitative approaches hence. the advantages of both qualitative and quantitative research are combined in this methodology.

Moreover, the crux of mixed method research acknowledges the intrinsic value of qualitative exploration, embracing the depth and nuance provided by narratives, interviews, observations, and textual analyses as well as the importance of quantitative analysis in establishing patterns, relationships, and generalisability. The qualitative component allows researchers to capture the complexity of human experiences, delve into the contextual factors shaping phenomena, and unearth the underlying meanings and perspectives that quantitative data may fail to capture on its own (Power, 2020). Mixed method research has a distinct advantage in capturing the dynamic nature of social phenomena, acknowledging that the intricacies of the human experience cannot always be neatly categorised as purely qualitative or quantitative. By blending methods, researchers can explore the temporal, spatial, and social dimensions of their research topics, enabling a more nuanced understanding of complex phenomena that may unfold over time or in different contexts. The choice of research design is not simply a matter of selecting methods based on their practicality or ease of use. Rather, the choice of research design is influenced by philosophical perspectives that guide how knowledge is understood and produced. Hence, different philosophical perspectives can inform the use of mixed-methods research design, as they provide different ways of understanding the research topic. By carefully considering the philosophical underpinnings of their research, researchers can choose a mixed-methods research design that is well-suited to their research question and goals, and ultimately produce high-quality research that contributes to our understanding of the world

Kumar (2011) situated mixed method research within the 'Critical Theory' and Pragmatism Perspectives which regards the positivist, post positivist as well as interpretivist/constructivists perspectives and paradigms as presenting incomplete accounts of social behaviour by their neglect of the political and ideological contexts. According to Kumar, the expressed intention is deliberately political and focusing on the emancipation of individuals and groups in an egalitarian society. Critical theory is explicitly prescriptive and normative, entailing a view of what behaviour in a social democracy *should* entail (Fay 1987; Morrison 1995a). Its intention is not merely to give an account of society and behaviour but to realise a society that is based on equality and democracy for all its members. Its purpose is not merely to understand situations and phenomena but to change them. In particular it seeks to emancipate the disempowered, to redress inequality and to promote individual freedoms within a democratic society.

Some scholars and experts in research methods and methodologies are of the view that mixed method research represents an engaging and comprehensive approach that transcends traditional boundaries, allowing researchers to venture into uncharted territories and gain a holistic understanding of complex phenomena; and that by harnessing the power of qualitative exploration and quantitative analysis, this methodology unlocks new avenues of knowledge, bridging disciplines, and propelling research to new heights.

Meanwhile, the designation of mixed method as a type of research or research design remains unsettled as various scholars and experts in research methods continue to situate mixed method within the context of type of research as 'Mixed Method Research' and research design as 'Mixed Method Research Design'. This lack of definitive conceptualization and contextualization of mixed method continues to generate discord and discourse among scholars. Hence, the need to investigate this phenomenon with a view to initiate a discourse that will lead to definitive and conclusive description of mixed method. Thus, this paper aims at finding answer to the question "Is Mixed Method Really a Research Design?"

1.1 Statement of the Problem

The conceptualization and contextualization of mixed method as either a research type or research design type has remained problematic. This is because scholars, researchers, authors and experts in research and research methodologies have continue to describe mixed method within the context of both research type and research design without definitive conceptual clarifications to provide insight into where mixed method actually belongs (Research Type or Research Design Type). Scholars have also tried to provide evidences and criticism with the intention of adequately situating mixed method. Unfortunately, these evidences and criticism, rather than providing clarity and definitive conclusions, continue to push the debates on conceptualization of mixed method into further controversies. This paper, therefore, intends to provide a basis for further discourse that would provide a direction towards finding a lasting solution to the various controversies that existed in literature with a view to find a definitive conceptualization for mixed method either as type of research or type of research design.

1.2 Objectives of the Study

The specific objectives of the study are to:

1. establish the conceptualisation and contextualisation of mixed method research
2. find out whether mixed method is a type of research or type of research design
3. set an agenda for further discourse on mixed method research

2. METHODOLOGY

This study employs literature search and reviews to establish the discussion on whether mixed method is a research design or not. Previous studies concerning types of research and research designs were critically reviewed and examined. Also, earlier studies on mixed method as type of research and types of research design were reviewed..

2.1 Contextualisation and Conceptualisation of the Study

2.1.1 What is Research? Authors' Views

Research had been described by various authors from various perspectives obviously based on their experiences and knowledge. Research has been described as a careful and systematic way of solving problems and gaining new knowledge (Bhattacharyya, 2006; Thomas *et al.*, 2011). Research can also be defined as being a systematic process of discovery and advancement of human knowledge. It should solve a problem or make an innovative contribution to the existing body of knowledge (Gratton & Jones, 2010; Kumar, 2008).

Therefore, for something to be counted as research, it has to be systematic and methodical in its approach and procedures and has to meet relevant norms and standards for validity and reliability. Kerlinger (1970) defined research as the systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena. Abubakar and Ahmad (2023) described research as a systematic, logical, scientific, and objective investigations of problems, phenomena, ideas, concepts and knowledge. Leedy (1997) defines research as the systematic process of collecting and analysing information (data) in order to increase our understanding of the phenomenon with which people are concerned or interested. It is an activity or process through which an attempt is made to systematically and with the support of data, give an answer to a question, the resolution of a problem or a greater understanding of a phenomenon. Consequently, it involved a careful and systematic way of solving problems and gaining new knowledge.

Research can also be defined as being a systematic process of discovery and advancement of human knowledge which should solve a problem or make an innovative contribution to the existing body of knowledge (Gratton & Jones, 2010; Kumar, 2008 cited in Tawar, 2020). Hence, it has to be systematic and methodical in its approach and procedures and has to meet relevant norms and standards for validity and reliability. Abubakar and Ahmad (2023) highlight a major characteristic of research as that of having a specific plan of procedure otherwise known as research design. In other words, researchers plan their overall research design in a purposeful way to yield data relevant to their particular research problem. Consequently, research design is a component of research. Tawar (2020) classified research as pure research, applied research, descriptive research, analytical research, fundamental research, conceptual research, empirical research, longitudinal research, laboratory research, exploratory research, conclusion-oriented research. According to Creswell (2003) research can be classified into three categories of approaches viz: quantitative, qualitative and mixed method.

Research is described as a disciplined method of gaining new, information, building knowledge, or answering questions; also called disciplined inquiry; and involves a systematic investigation with underlying guidelines regardless of the particular research paradigm with the purpose of seeking information and/or knowledge as well as building on or adding to the knowledge-base of a particular field of study (Gliner, Morgan & Leech, 2017). They further classified research into quantitative, qualitative and mixed method research within the context of six contrasts or dichotomies of (1) theoretical versus applied; (2) laboratory versus field; (3) participant report versus researcher observation; (4) quantitative/postpositivist versus qualitative/constructivist philosophical or *theoretical framework*; (5) quantitative/objective versus qualitative/ subjective data and data collection *methods*; and (6) quantitative/statistical versus qualitative/ descriptive data *analysis*.

Walliman (2017) highlighted the various components of a research to include; identification of the research problem, literature review, formulating research questions, research design which may be experimental, observational, qualitative, quantitative, or a combination of these, depending on the research objectives, data collection, data analysis, interpretation and conclusion, interpretation of the findings in light of the research questions or hypotheses and communication of results. The final step involves disseminating the research findings through various channels, such as academic publications, conferences, presentations, reports, or online platforms. This allows other researchers and the wider community to benefit from the new knowledge generated. Research design is seen as a component of research.

Research was also broadly classified based on the goal or purpose, qualitative or quantitative and general methods and specifically into basic and applied research; qualitative and quantitative research; experimental research; quasi-experimental research; non-experimental quantitative research; historical research; and ethnographic research (Oloyede, 2011). The various definitions above establish the fact that research has to be scientific, systematic and logical in nature with a view to finding answers to questions and providing solutions to an existing and/or future problems.

Research is a point of view, an attitude of inquiry or a frame of mind. It asks questions which have hitherto not been asked, and it seeks to answer them by following a fairly definite procedure (Rusk, 2002). The systematic and scholarly application of the scientific method interpreted in its broader sense, to the solution of social studies problems; conversely, any systematic study designed to promote the development of social studies as a science can be considered research (Mouly, 2003). Research is a carefully inquiry or examination in seeking facts or principles; a diligent investigation to ascertain something, according to Webster's New International Dictionary. This definition makes clear the fact that research is not merely a search for truth, but a prolonged, intensive, purposeful search. In the last analysis, research constitutes a method for the discovery of truth which is really a method of critical thinking. It comprises defining and redefining problems; formulating hypotheses or suggested solutions; collecting, organising and evaluating data; making deductions and reaching conclusions; and at last, carefully testing the conclusions to determine whether they fit the formulating hypotheses (Woody, 2004)

Research is simply a systematic and refined technique of thinking, employing specialised tools, instruments, and procedures in order to obtain a more adequate solution of a problem than would be possible under ordinary means. It starts with a problem, collects data or facts, analysis these critically and reaches decisions based on the actual evidence (Crawford, 2005). Singh (2006) listed the kinds of research on the basis of; objectives of research (fundamental research and action research), approach of research (longitudinal research and cross-sectional research), precision in research findings (experimental research and non-experimental research) and nature of findings (explanatory research and descriptive research) and categorise research types as Basic/Fundamental research and Applied research). This implies that there are kinds of research and types of research. Types of research can be classified in many different ways such as Descriptive versus Analytical Research; Applied versus Fundamental Research; Qualitative versus Quantitative Research and Conceptual versus Empirical Research.

2.2 What is Research Design?

When constructing a building there is no point ordering materials or setting critical dates for completion of project stages until we know what sort of building is being constructed. The first decision is whether we need a high-rise office building, a factory for manufacturing machinery, a school, a residential home or an apartment block. Until this is done, it will be impossible to sketch a plan, obtain permits, work out a work schedule or order materials. Similarly, social research needs a design or a structure before data collection or analysis can commence.

A research design is not just a work plan. A work plan details what has to be done to complete the project but the work plan will flow from the project's research design. The function of a research design is to ensure that the evidence obtained enables us to answer the initial question as unambiguously as possible. Selltitz, Jahoda, Deutsch and Cook (1965) defined research design as the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Mouton & Marais (1990), similar to Kerlinger (1986), indicated that the aim of a research design is to plan and structure a given research project in such a manner that the eventual validity of the research findings is maximised.

A research design is a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems. The plan is the complete scheme or programme of the research. It includes an outline of what the investigator will do from writing the hypotheses and their operational implications to the final analysis of data. (Kerlinger 1986)

A traditional research design is a blueprint or detailed plan for how a research study is to be completed—operationalising variables so they can be measured, selecting a sample of interest to study, collecting data to be used as a basis for testing hypotheses, and analysing the results. A design is used to structure the research, to show how all of the major parts of the research project - the samples or groups, measures, treatments or programs, and methods of assignment- work together to try to address the central research questions. Research design is often describe using a concise notation that enables us to summarise a complex design structure efficiently (Penniel, 2015), and that explorative of formulate, descriptive, ex-post facto, experimental, quasi-experimental, factorial, survey and cross sectional or correlation are the only types of research designs available for any type of research. Mixed method is not included. Again, mixed method is not included. Is it possible that mixed method has not been identified as a type of research design at this time? Meanwhile, the article was recent, therefore the researcher is of the view that this cannot be the case.

It is described as the overall plan for connecting the conceptual research problems to the pertinent and achievable empirical research as well as an inquiry which provides specific direction for procedures in research (Creswell, 2014). Thus, a quality research design comes up with a plan which incorporates the research problem, research questions, data collection methods, organisation and analysis techniques which form strong evidence of answers to the research questions and even convince users to accept that the findings based upon them are reasonable inferences (Asenahabi, 2019). Consequently, research design can be seen as a step-by-step procedure which is adopted by a researcher before data collection and analysis process commences so as to achieve the research objective in a valid way. The essence of research design is to translate a research problem into data for analysis so as to provide relevant answers to research questions at a minimum cost. Kerlinger, (1986) describes research design as a plan, structure and strategy of investigation that is adopted with an aim of obtaining answers to research questions with optimal control of variables. Cooper and Schindler (2003) indicated that a number of different research design approaches exist but no simple classification system defines all the variations that must be considered, and classified research design into: Exploratory, Experimental or Quasi-experimental, Ex-Post facto, Descriptive, Causal, Cross sectional, Longitudinal, Qualitative/ Case study, Quantitative study.

McMillan and Schumacher (2001) cited in Maree and Van der Westhuizen 2010) stated that the mode of enquiry informs the research design and that researchers adopt either qualitative, quantitative or mixed method of enquiry. Abosede and Onanuga (2016) classified research design into qualitative, quantitative and mixed method, (Qualitative, Quantitative, Mixed-Method). Wang and Zhu (2016) categorised types of research design into, exploratory, descriptive, cross sectional, longitudinal, causal, experimental, action and case study. This does not include mixed method as a type of research design. The researcher is of the opinion that any of the aforementioned research design can be adopted for qualitative, quantitative and mixed method research. Singh (2011) emphasised that differences in philosophical perspectives in design paradigm combined with the aims of a study, to a large extent, determine the focus, approach and mode of enquiry which, in turn, determine the structural aspects of a study design, and concluded that quantitative and qualitative research are the major approaches to conducting any type of research.

According to Singh (2011), cross-sectional studies; before-and-after studies (experimental research) and longitudinal studies are types of designs under quantitative research while case study research, action research and holistic research are highlighted as types of designs under qualitative research. It can, therefore, be deduced that cross-sectional studies; before-and-after studies (experimental research), longitudinal studies, case study research, action research and holistic research are types of research design. These do not include mixed method as a type of research design.

The use of both methods, namely a quantitative method and a qualitative method, is also referred to as concurrent triangulation (Morgan 1998, Streckler et al 1992, Denzin 1994, Kvale 1996). This research design approach makes use of separate quantitative and qualitative methods as a way of off-setting the weaknesses within one method with the strengths of the other method. The multi-method strategy will guide the collection and corroboration of data collected and will enhance the validity and credibility of the study (McMillan and Schumacher (2001:428 and 229) in Maree and Van der Westhuizen 2010). Oloyede (2011) highlighted the types of research design to include; qualitative, quantitative, action research, case study, observation, ethnography, phenomenology, grounded theory, correlation studies, historical, survey, experimental, quasi-experimental, ex-post facto and evaluation.

Research design always determines the kinds of analysis that are to be done so as to get the desired results. It articulates what data is required, what methods are going to be used to collect and analyze the data and how it is going to answer the research questions. The research design must contain a strategy for interpreting the analysed data so as to provide adequate findings and conclusions from the research which will allow the researcher make recommendations or implications based on the study. Research design is divided into three groups: quantitative (Experimental, True experiment, Quasi-experiments; Non-Experimental, Survey Research, Causal-comparative research, and Correlation design); qualitative (Case studies, Narrative Research, Phenomenological Research, Grounded theory, Action Research and Ethnography); and mixed method research design (Convergent parallel mixed method, Explanatory sequential mixed methods and Exploratory sequential mixed methods) (Asenahabi, 2019).

Scholars (Kerlinger, 1978; Polit et. al., 2001; Cresswell, 2014; Fetters and Molina-Azorin, 2017) have defined research design in different ways that attempt to describe research design as a comprehensive plan and procedure that provides answer to the research question. Kerlinger (1978) described research design as a total plan that connects the conceptual research problems to the pertinent empirical research. Polit et al (2001) viewed research design as the researcher's overall plan for answering the research question or testing the research hypothesis, hence the researcher has to decide the most appropriate design which befits the type of research work. Research design is different from the method by which data is collected because many research methods texts confuse research designs with types and/or methods of research. It is not uncommon to see research design treated as a mode of data collection rather than as a logical structure of the inquiry. But there is nothing intrinsic about any research design that requires a particular method of data collection. Although cross-sectional surveys are frequently equated with questionnaire. Consequently, research design is not related to any particular method of collecting data or any particular type of data since any research design can, in principle, use any type of data collection method and can use either quantitative or qualitative data. Fetters and Molina-Azorin, (2017) broadly classified types of research into Quantitative and Qualitative which accommodate 5 major types of research designs viz: descriptive research design, correlational research design, experimental research design, diagnostic research design and explanatory research design.

The major defining characteristics of mixed method research lies in its flexibility, adaptability, and ability to embrace complexity. Creswell (2014) asserted that researchers can employ various designs, such as concurrent, sequential, or transformative, based on the research objectives, the research questions at hand, and the available resources. Thus, researchers can adopt various strategies to navigate the intricacies of their research landscape through diverse research inquiries and overcome the limitations imposed by rigid methodological frameworks.

3. MIXED METHOD AS A RESEARCH DESIGN OR TYPE OF RESEARCH?

The definition of mixed-method as a research design is inconclusive going by the views of various authors with every author giving reasons to justify their conclusions. For instance, Oluwole (2023) sees mixed method as a procedure for collecting, analysing, and “mixing” both quantitative and qualitative research and methods in a single study to understand a research problem and that the knowledge and understanding of both quantitative and qualitative research is important for effective implementation of mixed methods research, (Oluwole, 2023). On the other hand, Tashakkori and Teddlie (2003) emphasised that there are nearly 40 different types of mixed methods designs in the literature, and that because of the wide variations of the mixed-method design, some people concluded that it is not a design. Salami (2023) citing Ary et al (2010) described mixed methods as a type of research and not a research design (with quantitative and qualitative as other types) but that the decision on the type of design to use in mixed method research is dependent on what the research aims to achieve including the research questions.

Also, Fehintola (2023) emphasised that there are three types of research design in education viz: quasi experimental, descriptive and mixed methods. Also, Shehu (2023) reported that typology of research can be done along the lines of use and form, design and data collection approach used and that mixed-method can be regarded as a design. Creswell (2018) highlighted the types of design that can be adopted in mixed method research including triangulation. Exploratory, explanatory, transformative and embedded (for quasi-experimental) research designs have been identified as types of research designs that can be adopted in mixed method research (Aramide, 2022).

Creswell and Creswell (2017) emphasised that there are various types of research designs, each suited to different research objectives and contexts and highlighted the commonly used research designs to include: Experimental Design, Observational Design, Cross-sectional Design, Longitudinal Design, Qualitative Design and Mixed-Methods Design. The mixed method research design is aimed at addressing the limitations of the quantitative and qualitative research and adopted the pragmatic approach as a new approach that shows promise for social and therapeutic science research that combines qualitative and quantitative methods focusing on methodological rather than philosophical concerns.

The mixed method research design is therefore based on the pragmatic philosophical perspectives as opposed to positivist/post-positivist and constructivist/interpretivist which form the philosophical basis for both quantitative and qualitative researches respectively. Meanwhile, Trochim, Donnelly, and Arora (2015) in his critique of research designs and methodologies concluded that mixed method is an approach in research just as qualitative and quantitative are approaches and that any approach can be adopted within any type of research and research designs.

4. SYNTHESIS FOR DISCOURSE

The analysis of the various conceptualisation of mixed method by most authors and scholars revealed that mixed method is situated within the context of both research designs and types of research, although it was not expressly listed among the types of research or types of research designs (Creswell & Plano-Clark, 2007; 2011; Tashakkori & Teddlie, 2010; Ary et al, 2010; Kumar, 2011; Asenahabi, 2019; Power, 2020; Shehu, 2023). However, there are few of the authors on research methodologies who classified mixed method as a type of research with designs such as convergent parallel, exploratory, explanatory, sequential, transformative and embedded (Tashakkori & Teddlie, 2003; Abosede & Onanuga, 2016; Creswell & Creswell, 2017; Creswel, 2018).

Also, there are authors who view mixed method from the point of approaches to research and that it can be used for many types of research. This researcher is of the view that mixed method can be considered as an approach in research (Singh, 2011; Trochim, Donnelly, & Arora, 2015). Meanwhile, this researcher wishes to conclude that mixed method is an approach that can be applied within the context any type of research or research designs,

5. CONCLUDING REMARKS

In this paper, we discussed views on research design in particular, mixed methods with a view to synthesize and come up with areas of convergent and divergent for possible academic discourse. Our overarching conclusion is that there is need for authors and experts in research methodologies to engage in further conceptual clarification of mixed method. The question still persists: Is Mixed Method a type of research, a type of research design or an approach in research.

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