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Use of research questions and hypothesis on mixed methods approach: An analysis with special reference to research designs

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Abstract

This paper sought to guide researchers as to the use of research questions and hypothesis during a research process. This paper argues that research design must be used as a tool

to justifying the use of research questions and or hypothesis or both.

Keywords: Convergence Research Design, Sequential Explanatory, Sequential Exploratory

1. Introduction

Researchers are prone to think their work is the outcome of a play of free intelligence over logically formulated problems. They may acknowledge that their ideas have been influenced by their reading and the teaching which they were wise enough to choose, but they seldom realise that their free intelligence has been moulded by circumstances in which they have grown up in, that their minds are social products, that cannot in any serious sense transcend their environment. To realise this about themselves is important if researchers are to become properly self-critical, that is, if they are to realise the limits to which their vision is subject. But, it is, exceedingly difficult for a mind which has been shaped by a given environment not to take that environment as a matter of course, or to see that it is, itself the product of transitory conditions and so subject to variety of limitations. It is, therefore, the hope of this paper that it would transform would be researchers and already researchers to conduct their researches with informed justifications.

In fact, recall that mixed methods is a research approach, popular in the social, behavioural, and health sciences, in which researchers collect, analyse, and integrate both quantitative and qualitative data in a single study or in a sustained long-term program of inquiry to proffer solutions to the phenomenon being studied. Although different research authors provided path breaking research analysis, there is need for a clearer discussion on the options researchers have when using mixed method approach. This paper ought, in fact, to come to the assistance of researchers who are not well acquainted on the position of whether a researcher using mixed methods approach should adopt either researcher questions or research hypothesis or both in the determination of reality.

2. Background of the Paper

Now, it may appear strange to hear that the use of research questions and or hypothesis has been adopted by many researchers as an institutional and or popularised tendency, bearing no scholarly backing. Some researchers would use research questions, hypothesis or both in the same research. The question that follows from this mix-up is? ...what is the ideal position that should inform researchers?

The authors of this paper may have contributed little to the research body of knowledge, but this paper strongly believes that justifications that have presented, have credence for consideration in forming lasting contribution to research body of knowledge. To that end, the paper invokes research design as a tool to justifying the use of research questions and or hypothesis or both.

2.1 Research Design

Remember, research design is the conceptual blueprint within which research is conducted. Arguably, a research design is informed by research approaches, as well as the type of evidence required to answer the problem which the research seeks to proffer solutions.

In accordance with the wishes of would be readers of this paper, Figure 2.1 below presents research designs for mixed methods approach.

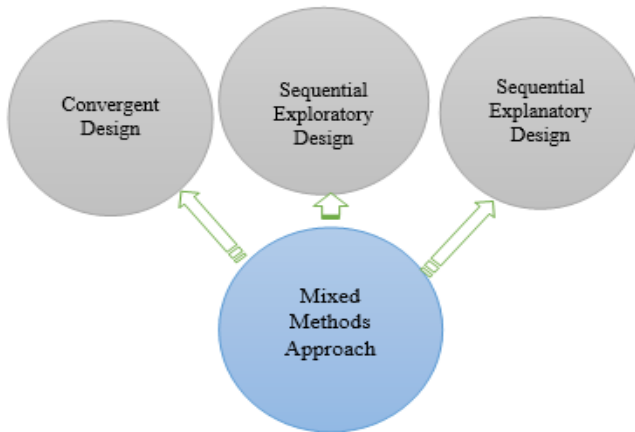


Fig 1: Mixed Methods Approach and Research Designs: Adapted from Zenger (2014)

2.1.1 Convergent Research Design

Remember, the design requires that the data collection timing be done concurrent, with emphasis placed on quantitative and qualitative research approaches being equal. In fact, the quantitative and qualitative research approaches are integrated from during the time of studying results. Furthermore, the number of phases required in the implementation of convergent research design is one. The researcher obtain complementary data on the same topic and compare datasets.

2.1.2 Sequential Explanatory Research Design

Recall, the design requires that the data collection timing be done first with quantitative research approach. Emphasis is placed on quantitative research approach. In fact, the researcher is required to explain quantitative results and further use quantitative results to enhance determination of reality qualitatively. The integrated starting point is during the time when the researcher collects data for the study. Furthermore, the number of phases required in the implementation of sequential explanatory research design is two.

2.1.3 Sequential Exploratory Research Design

Remember, the design requires that the data collection timing be done first with qualitative research approach. Emphasis is placed on qualitative research approach. In fact, the researcher is required to explain qualitative findings and further use qualitative findings to enhance determination of reality quantitatively. The integrated starting point is during the time when the researcher collects data for the study. Furthermore, the number of phases required in the implementation of sequential exploratory research design is three.

2.2 Research Questions and Hypothesis

Recall, a hypothesis is an educated guess, while a research question is simply the researcher wondering about the world. Hypothesis are part of the scientific research method, whilst research questions are part of heuristic research methods used in many fields of research. These terms are usually found in the chapter one of the research document, or to put it lucidly, in the earliest pages of the research document. From the two descriptions given on hypothesis and research questions there are two expressions to note and these are ‘...scientific research method and heuristics research methods’.

2.2.1 Scientific Research Method

In brief, scientific method involves making estimates, deriving predictions from them by carrying out experiments or empirical tests. What this suggests is that reality is arrived at through the use of experiments and testing.

2.2.2 Heuristics Research Methods

Heuristics research methods involves a systematic way of discovering; a way of self-inquiry and dialogue with others aimed at finding reality of a phenomenon being studied based on human experiences.

These two expressions, therefore, suggests that research questions are informed by human experiences, whilst hypothesis is informed by empirical testing.

The question, therefore, is should one use research questions, hypothesis or both under the mixed methods approach. The answer to this question was answered in the context of the research design that informs mixed methods approach.

2.3 Convergent Research Design

A convergent design entails that the researcher concurrently conducts the quantitative and qualitative elements in the same phase of the research process, weighs the methods equally (QUAN-QUAL), analyses the two components independently, and interprets the results together. Basing on this, this paper posits that researcher includes ‘both research questions and hypotheses in the study.’

2.4 Sequential Explanatory Research Design

In the sequential explanatory design, the data are collected over the period of time in two consecutive phases. Thus, a researcher first collects and analyses the quantitative data. Qualitative data are collected in the second phase of the study and are related to the outcomes from the first, quantitative phase. What it means is that quantitative research approach dominates the study, aided by qualitative research approach (QUAN-qual). It follows, therefore, that ‘research hypotheses’ should be adopted in the mixed methods research approach.

2.5 Sequential Exploratory Research Design

The exploratory sequential mixed methods design is characterized by an initial qualitative phase of data collection and analysis, followed by a phase of quantitative data collection and analysis, with a final phase of integration or linking of data from the two separate strands of data. What it means is that qualitative research approach dominates the study, aided by quantitative research approach (QUAL-quan). It follows, therefore, that ‘research questions’ should

be adopted in the mixed methods research approach.

3. Conclusion

This paper, therefore, concludes by stating that the use of research questions and or hypotheses is informed by different research designs. Researchers are, therefore, reminded that they should not adopt research designs unconsciously, lest unintended results and or findings are obtained. Therefore, due diligence should be made when linking research questions and hypotheses to different research designs.

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