

Procedural Issues in a Mixed Methods Research: A Phenomenological Study of a Doctoral Student in Lesotho

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Abstract - This paper narrates some lived experiences of a doctoral student in using a mixed-methods sequential explanatory design. Study was conducted to layout the procedural issues followed in a mixed method research from the researcher's point of view. Data was first collected and analysed quantitatively using and followed by collecting and analysing qualitative data in two consecutive phases within one study or in a single study. Drawing from this paper, definition of a mixed methods approach followed by outlined procedural issues or mixed methods dimensions in using the mixed methods sequential explanatory design are discussed. These procedural issues include: 1) implementation (timing) of mixed methods approach, which is the sequence in which data was collected 2) rationale for using mixed-methods approach 3) priority or weight given to an approach for analysis, 4) the stage of integration in the research process at which the quantitative and qualitative data are consolidated. Finally, this paper offers a comprehensive explanation of challenges of adapting the mixed-methods sequential explanatory design. It is hoped that this paper is used to enrich the understanding of researchers and students on philosophical underpinnings that help in adapting mixed methods in their own studies.

Keywords: sequential explanatory, integration, priority, weight, mixed-methods, quantitative approach, qualitative approach, implementation.

I. INTRODUCTION

As a formally recognized field of inquiry, mixed methods approach has been around since the late 1980s, when researchers began to operationalize data integration (Guest & Fleming, 2015). It has become increasingly common and continues to expand, both theoretically and in practice in those decades and it is currently boasted in a number of books (Creswell & Plano Clark, 2011; Greene, 2007; Hesse-Biber, 2010; Morse & Niehaus, 2009; Teddlie & Tashakkori, 2009). There is a host of varying definitions of what is mixed methods approach refers to, that vary in scope and detail. Virtually all these definitions refer to some form of integration or consolidation of qualitative and quantitative research methods in a single study (Creswell 2014). Conducting a

mixed methods study does not only imply carrying out two separate studies to address a specific issue, rather one study employing different methods to answer a specific research question, seeking for rich and comprehensive information (Creswell & Creswell 2018).

II. PURPOSE OF THE STUDY

This paper seeks to present the reflective experiences and challenges of a doctoral student in conducting a mixed methods design. It focuses particularly on the procedures followed in effectively using a mixed methods approach. The researcher assumes to achieve this purpose through the objectives mentioned below:

Objectives /Research Questions

- To decide on which timing -sequential (quantitative followed by qualitative)
- To Give the rationale for using mixing (explain quantitative)
- To show which method is given priority/weight (given to qualitative)
- To give the stage of integration (at discussion stage)
- Challenges of carrying out mixed methods approach

Definition of a mixed-methods approach

There is a quick movement from the adaption of a single approach research to an adaption of a mixed methods approach in the recent times by many researchers. As academic world has increased the use of a mixed methods approach the adaption of a mixed methods approach is becoming common among doctoral students. A mixed-methods approach is defined as the combined use of both qualitative and quantitative approaches within a single research (Bryman & Creswell: 2004). On the other hand, Ivankova, Creswell and Stick (2006:2) define mixed-methods approach as a procedure for collecting, analysing and mixing or integrating both quantitative and qualitative data at some stage of the research process within a single study for the purpose of gaining a better understanding of the research problem. The rationale for mixing both kinds of data within one study is grounded in the fact that neither quantitative nor

qualitative methods are sufficient by themselves, to capture the trends and details of a situation when used independently (Wyk 2015). Hence, both quantitative and qualitative methods are combined in a single study to complement each other and allow the researcher a stronger analysis, taking advantage of the strengths of each method or approach which would not be possible when only one approach was used. This mixed-methods approach helped the researcher to have a deeper understanding of a phenomenon of interest than the use of either a quantitative or qualitative approach alone, especially because the phenomenon is complex itself and for the researcher. The researcher learned that mixed methods is recommended when one of the four following scenarios is evident: 1) When very little is known about a new concept, a qualitative approach can be used before a quantitative approach; 2) when findings from a research approach can be better interpreted by using findings from the other approach; 3) when a sole approach is not sufficient to generate meaningful findings; and 4) when quantitative findings can be enriched by qualitative findings. For the purpose of this paper, it was used to interpret the results of the first approach using the second one, qualitative approach.

Dimensions of mixed methods / Procedural issues in a mixed methods study

Implementation (Timing)

For this study, a sequential explanatory mixed method design is used to collect and analyse data first through quantitative approach and then qualitative data, the second in two consecutive phases within one study (Ivankova et al (2006). The researcher adopted the mixed-methods sequential explanatory design consisting of two distinctive phases. The first phase consists of collecting data through quantitative approach followed by qualitative approach (Ivankova et al. 2003). In this design, a researcher first collected and analysed the quantitative (numeric) data. The rationale for this approach is that the quantitative data and their subsequent analysis provide a general understanding of the research problem. Then, qualitative (text) data are collected and analysed second in the sequence and help explain or elaborate on the quantitative results obtained in the first phase. The second phase, qualitative, builds on the first, quantitative phase and lastly, the two phases are connected in the intermediate stage in the study. In a sequential explanatory design, the qualitative approach was used to refine and explain those statistical results by exploring participants' views in more depth (Creswell 2003). This is because it includes straightforwardness and opportunities for the exploration of the quantitative results in more detail. This design is especially useful to explain significant and non-significant results from the first phase (Morse 1991). In this study I used both same

group of people in a study, and in this case the same teachers that participated in the quantitative phase are the ones who participated in the qualitative phase. The difference with the sample is that the quantitative approach uses a smaller sample while quantitative phase uses larger population.

Rationale for using mixed-methods approach

Literature reviewed argues that some of the research methods are perhaps better thought of as methods of data analysis, because of their distinctive approaches to sampling or capturing data, therefore, quantitative approach was adapted as a research method since it captures data from a large a number of people (Bryman 2006). There are four scenarios that are recommended for mixed methods recommended evident as follows: 1) When very little is known about a new concept, a qualitative approach can be used before a quantitative approach; 2) when findings from a research approach can be better interpreted by using findings from the other approach; 3) when a sole approach is not sufficient to generate meaningful findings; and 4) when quantitative findings can be enriched by qualitative findings. Therefore, the researcher had to consider in some instances, a specialist to help me with understanding and performing some aspects of this approach. In this study, the undertaking and validation of the analyses and interpretation of quantitative data was performed with the aid of a statistical consultant, and a combination of quantitative and qualitative findings was done through consultation with a mixed methods expert (Bryman 2006).

As a matter of complementing data (specifically significant and non-significant data) from the first phase, the researcher has decided to mix the two approach in order to provides a fuller understanding of a research problem than a single or mono-method approach (Creswell and Plano Clark 2011) since such data cannot easily be understood by non-statisticians. They further point out that, the use of mixed methods design strengthens the weaknesses of the other approach as it can provide more comprehensive and convincing evidence, such selecting participants for both phases. The researcher also used this design to answer certain questions that a single method could not answer. This design permitted me to use multiple techniques and approaches that best address the research question. I further, adapted the mixed-methods approach because of its central premise of combining or integrating both quantitative and qualitative results in a single study which is to provide a better understanding of research problems than either approach alone (Creswell & Plano Clark 2011). For triangulation purposes, I adapted a mixed-methods design to validate the findings of the phase, the quantitative, in that the same sample, were then interviewed to provide a rich breadth of information which

subjective in nature their views in depth. It was also used for development where I sought to use the results from one quantitative method to help develop or inform the qualitative method, where development is broadly construed to include sampling and implementation, as well as measurement decision. The use of a mixed methods approach minimized the weaknesses of qualitative and quantitative approaches when each is used alone because it complements these two approaches. A mixed methods research approach was used to ensure methodological triangulation, trustworthiness, validity and reliability of the research findings.

This study undertakes the sequential approach where the quantitative phase (numbers) is followed by the qualitative phase (personal experience) (Creswell, 2013); where the qualitative findings are used to contextualize the quantitative data (Creswell, Plano-Clark, Gutmann and Hanson, 2003). Qualitative data can also enhance and enrich the findings (Taylor and Trumbull, 2005; Mason, 2006) and, help generate new knowledge (Stange, 2006).

Priority / weight

The sequential explanatory indicates the priority of the sequence of the data collection, the priority of either method, and the connecting and mixing points of the two approaches within a study. It also helps a researcher understand where, how, and when to make adjustments and/or seek to augment information. In addition, it facilitates comprehending a mixed-methods study by interested readers, including prospective funding agencies. In this study the researcher chose to give more weight or priority on qualitative approach at the discussion stage of the study. This was influenced by my interest towards the audience of this study, for not can easily understand significant and insignificant results (statistical and numerical). Hence, these results were explained through qualitative approach, since the statistical results only show the teachers' ability to select appropriately the teaching methods and strategies, the qualitative approach explained reasons for their selection. Researchers who choose to conduct a mixed-methods sequential explanatory study have to consider certain methodological issues. Weight attribution refers to the definition of priority given to the quantitative or the qualitative research of the study (Armitage 2006). The same weight can be given to data arising from both approaches or either one can be emphasized, according to the interest of the researcher.

Integration (consolidation)

Several writers have pointed out that quantitative and qualitative research can be combined at different stages of the research process: formulation of research questions; sampling; data collection; and data analysis (Bryman 2006). For this study it is combined at the discussion stage. The basic premise

of this methodology is that such integration permits a more complete and synergistic utilization of data than do separate quantitative and qualitative data collection and analysis.

Challenges

Despite its popularity and straight-forwardness, this mixed-methods design is not easy to implement. There are challenges that a researcher faced while conducting it. These challenges are discussed hereafter. The first is that of skills - it is critical that researchers must possess or be aware of their skills sets and whether they are able to cope with the demands of utilising a mixed methods approach (Creswell & Clark, 2011). The researcher also faced this challenge but solved it by engaging an expertise, that is, a person skilled in statistics to help me with the software, entering data into this software, SPSS and how to use it calculate numerical statistics. The second, and in many ways the most pressing challenge, is that of deciding which mixed method research design is most appropriate for a particular study as it is time-consuming in nature and the risk that participants might not be willing/able to participate in both phases, as a result of the second phase not being planned well enough in advance. But with this study, the researcher, since she has beliefs that knowledge is both subjective and objective, it became easier to adapt the mixed methods design, though it was consuming and needed more resources (Creswell & Clark, 2011).

Therefore, it was also a must for me to consider in some instances, a specialist to help me with understanding and performing some aspects of this approach. In this study, the undertaking and validation of the analyses and interpretation of quantitative data was performed with the aid of a statistical consultant, and a combination of quantitative and qualitative findings was done through consultation with a mixed methods expert (Bryman 2006: 109).

III. CONCLUSION

This study aimed at understanding the researcher's experiences of conducting a mixed methods approach in a single study. It focused particularly on, its definition, reasons for adapting it, as well as attributes or dimensions of a mixed methods approach. Such attributes are priority, implementation and weight. It also presented the challenges of carrying out a mixed methods approach study in a study.

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