Application of Mixed Research Paradigm in the Social Sciences: An orientation

God'stime Osariyekemwen IGIEBOR

Department of Political Science, University of Benin, Benin City, Nigeria

Email: osariyekemwen.igiebor@uniben.edu/ goddyigieb@yahoo.com

Abstract

Scholarly interest has increased in mixed methods research (MMR) which has been christened the third methodological movement. The field of MMR has evolved its own methodological, theoretical, philosophical, analytical and practical basics and constructs for conducting studies. Conducting research and gathering data in the behavioural sciences where phenomena of investigation are mainly linked to human activities require that the methodological approach be exhaustive and rich enough to enable valid generalisations. It is in this wise that this paper examines the relevance, applicability and process of mixing methods and its usefulness in social research. It seeks to familiarise social scientists with the rudiments of mixing both qualitative and quantitative data in a single study, the rationale for mixing, the designs, as well as the steps involved. It also examines the two paradigms in a comparative overview in order to substantiate the case for mixed methods in social research. The paper concludes that mixed methods research is desirable for superior evidence and valid generalisations. Thus, to add strength to strength and enrich data gathering in social investigation, more use of the mixed methods research is advocated. The descriptive approach was utilised for the study in a methodical and chronological manner that ensured adequate understanding of the subject of interest.

Keywords: Quantitative research, qualitative research, mixed methods research, third methodological movement, constructivism, post-positivism, pragmatism.

Introduction

Three key paradigms of research currently exist in the social and behavioural sciences and in education. These include quantitative, qualitative, and mixed methods research. Quantitative research primarily depends on gathering data of quantitative nature; qualitative research depends on gathering data of qualitative nature while mixed research is concerned with paradigmatic or methodological mixing of qualitative and quantitative data.

The mixing of methods is a research design which has evolved through various transformational phases. It is concerned with the collection, analysis, as well as the mixing of both quantitative and qualitative approaches in more than one phase of the research process, starting from the primary theoretical postulations, through to the conclusions drawn. Mixed methods research (MMR) focuses on the collection, analysis and mixing of quantitative and qualitative data in one study or a sequence of studies. It is based on the notion that the combination of both the quantitative and qualitative approaches produces an enhanced comprehension of the research problems than only one approach (Creswell, 2003). Using both approaches provides strengths that compensate for the weaknesses of using either approach separately. The collection of both quantitative and qualitative data provides more inclusive facts for the study problems, provides answers to questions either approach alone cannot answer, and promotes corroboration and collaboration, which mitigates conflicting relations among researchers. The mixed methods (MM) approach utilises multiple world views and serves as a pragmatic research approach. The imperative of MMR today is hinged on the complex nature of research problems and the necessity of gathering various types of data to address varied audiences (Creswell, 2003).

The term, mixed methods, has been used by scholars to explain research designs that mix both quantitative and qualitative methods within or across stages of the processes of research (Johnson and Onwuegbuzie 2004). They suggest the term, mixed model, be employed to distinguish

research designs that integrate quantitative and qualitative data from those that only utilise one of the two types of data (Caracelli and Green 1993; Onwuegbuzie and Teddlie 2003). Though, researchers have explored the usefulness of studies that integrate both quantitative and qualitative data (Sandelowski 2000; Weisner 2005), it is imperative to garner more systematic information on ways of conducting these analytical and transformative designs.

The objective of this paper is to explain the reasons for and methods of conducting the mixed research design, to compare its usefulness and analyse its strengths, weaknesses, benefits, and the challenges of mixing methods in research. The focus of inquiry primarily would be on the conduct of a single study mixed research as against the multiple studies method. Further informed examination and application of these methodologies are expected to be generated.

The paper adopts the historical and descriptive approaches, with emphasis on secondary sources of data collection. The data gathered were chronological and systematically organized to ensure understanding of the phenomenon under examination. The paper has seven sections. The first section is this introduction, while the second contains the conceptual analysis. The third section reviews the history of mixed research; the fourth discusses the major designs of mixed methods research while section five deals with a practical and empirical example of conducting mixed research. Section six examines the strengths and weaknesses of mixed research. The seventh and final section provides the conclusion.

Conceptual Clarifications of Qualitative, Quantitative and Mixed Methods Research

In order to better comprehend the notion of mixed methods research, it is appropriate first, to define and analyse the qualitative and quantitative methodologies, and lastly conceptualize both paradigms in the format of mixed methods.

Qualitative research

This connotes a form of education research where the investigator depends upon the notions of respondents (participants), asks general and broad questions, gathers information largely comprising text or words,

explains and analyses the text or words for developing a theme, and carries out the investigation in a biased and subjective manner. Qualitative research is often associated with the constructivists' idea.

> "Constructivism – connotes "multiple realities"; it is "biased"; and "inductive"

There are times we wish to know not how many or how well, but simply how. An example is:

> "What are the factors that influence a graduate students' experience in an online research methods course?"

This method of questioning generally involves listening to the participants' voices and subjecting the data to analytic induction (e.g., finding common themes). This method is more exploratory in nature.

Examples of data collection methods are:

a. Interviews
b. Open-ended questionnaires
c. Observations
d. Content analysis
e. Focus groups (Shulman, 1988, p. 7).

Five main types of qualitative research exist; these are historical research, case study research, phenomenology, grounded theory and ethnography. Though these approaches are distinctive in character, yet they are analogous, since they are all qualitative approaches (Creswell, 2003).

The definitions as well as examples of the different forms of qualitative research are provided hereunder.

a. *Historical research* – researching events that happened in the past. For example, studying the impact of the operation feed the nation programme in Nigeria in the late 1970s.

b. *Case study research* – a type of research that is meant to provide a comprehensive explanation of one or more cases. That is, the study

of everything about something; an example is when you study a new curriculum for technological use for a particular classroom.

c. *Phenomenology* – the focus of this research type is to collect data on the experience of one individual or more about a phenomenon. An example is when you ask twenty widows to describe their experiences on the loss of their husbands in an interview.

d. *Grounded theory* – here the researcher collects data and then generates and develops a theory from it. For instance, some parents may be interviewed on why they pulled out their children from public schools; thus, a school pull-out theory may be developed to explain why and how such phenomenon happened.

e. *Ethnography* – this is the type of research whose focus describes a group of people's culture, that is, their shared values, language, attitudes, norms, practices and material things. An example is when a researcher decides to reside in a community for the purpose of studying their culture and educational activities (Creswell, 2003).

Quantitative research

Quantitative research connotes a form of intellectual study where the researcher determines the object of study; collects data of quantifiable form from the respondents (usually involving a large number of participants) by asking specific and narrow questions. The data gathered are analysed utilising various statistical techniques and the inquiry is conducted in an objective and unbiased manner. The post-positivists' notion is often identified with quantitative research.

Post positivism – singular reality; objective; deductive

Generally attempts to quantify variables of interest; questions must be measureable.

Example: What is the relationship between graduate students' level of interaction, measured by the number of 'hits' in the course, and students' grades in an online research methods course? Generally involves collecting numerical data that can be subjected to statistical analysis.

Examples of data collection methodologies are:

a. Performance tests

b. Personality measures

c. Questionnaires (with closed-ended questions or open-ended but transferred to quantitative data)

d. Content analysis

e. The data is generally referred to as "hard" data" (Shulman, 1988, p. 7- 8).

The quantitative research method is made up of experimental research and non-experimental methods of research. Experimental research involves the study of cause and effect relationships. This has to do with the manipulation of an independent variable which is only applicable to experimental research. In non-experimental research, independent variables are not manipulated (Creswell, 2012).

Mixed methods research

Mixed methods research (MMR) represents an increasing methodological field of interest for a number of researchers across many disciplines. The MM community has:

> … gone through a relatively rapid growth spurt … it has acquired a formal methodology that did not exist before and is subscribed to by an emerging community of practitioners and methodologists across the disciplines. In the process of developing a distinct identity, as compared with other major research communities of researchers in the social and human sciences, mixed methods has been adopted as the de facto third alternative, or third methodological movement (Tashakkori and Teddlie, 2010b: 803-804)

Defining MMR is problematic. Twenty-one researchers were asked to define MM and it yielded nineteen responses. All nineteen definitions presented different points of view in terms of the reason for mixing and motivation of the research, the type of data being mixed, the stage of the

research at which mixing should occur, and the degree of such mixing (Johnson et al., 2007). This paper cannot however probe into these definitional debates, consequently some definitions advanced by eminent scholars of mixed methods research are considered.

MMR is an approach in research where qualitative and quantitative data are collected, analysed and integrated in one study or in a continuous long-term programme of investigation to address research questions. MMR connotes all procedures used for the collection and analysis of data that are qualitative and quantitative contextually in one single study (Tashakkori and Teddlie, 2003a).

Creswell and Clark (2007: 5) provided a more comprehensive definition of MMR:

> Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches, in combination, provides a better understanding of research problems than either approach alone.

MMR is further defined as:

> The broad inquiry logic that guides the selection of specific methods and that is informed by conceptual positions common to mixed methods practitioners (e.g., the rejection of "either-or" choices at all levels of the research process) ... this definition of methodology distinguishes the MMR approach to conducting research from that practiced in either the QUAN or QUAL approach. (Teddlie and Tashakkori, 2010: 5)

According to Creswell (2012), MMR design is a process which involves the collection, analysis and "mixing" of qualitative and quantitative methods of research in one study to comprehend a research problem. The

effective utilization of this design depends on the amount of both qualitative and quantitative research knowledge acquired.

Two main forms of mixed research are distinguished – mixed method and the mixed model.

Mixed method research – involves research in which the investigator utilises the quantitative research paradigm in one stage of a study and a qualitative research paradigm in another stage of the study. An example is when an investigator conducts an experiment, a quantitative approach and then conducts an interview study (a qualitative approach) with participants to find out their opinion about the study phenomena from the perspectives of both paradigms.

Mixed model research – on the other hand, involves a study in which the investigator mixes quantitative and qualitative research approaches in one or more phases of the research process. An example is when an investigator decides to use a questionnaire instrument composed of quantitative type or multiple closed-ended questions and a qualitative type or series of open-ended questions. Another example is when a researcher tries to quantify a primarily collected qualitative data set (Creswell, 2012).

From the various conceptualizations of MMR, it can be concluded that MMR involves the mixing of quantitative and qualitative research methods in one study, and that this mixing can take place at any stage of the research process. Once both types of data sets are collected, analysed (whether merged or separated) and used to interpret and report a research result in one study, then we can call such a research MMR.

Brief Historical Context

For proponents, a historical overview of mixed methods studies helps to enrich the enduring debates in rationalizing and providing a philosophical basis for using this design. The history of MMR can be classified into four, often overlapping time periods – formative, paradigm debate, procedural developments and recent indicators of interest periods.

Formative period

The formative era started in the 1950s and persisted until the 1980s. The early interest in adopting more than one research method in a study

evolved during this period. The approach got the impetus in the 1950s, via the work of Campbell and Fiske (1959), when they made a case for the gathering of several types of quantitative data in studying the validation of psychological traits. The multi-trait and multi-method matrix was designed by the scholars to attribute individual differences in personality scale scores to the trait itself instead of the method adopted to measure it. Also during this period, some scholars combined both qualitative and quantitative data (Sieber, 1973; Jick, 1979), and the issue that arose was the possibility of combining the two types of data that came from diverse standpoints (see Cook and Reichardt, 1979).

Paradigm debate period

The 1970s and 80s witnessed contentions by researchers of the qualitative paradigm that the qualitative and quantitative approaches present different assumptions and foundations for research (see Guba and Lincoln, 1989; Smith, 1983). The argument basically on whether it was possible to combine the two paradigms. Because mixed methods required combining paradigms, some researchers argued that MMR was not tenable (Smith, 1983). Bryman, in 1988, contended that an apparent association between the two paradigms exists. To date, some qualitative researchers shun MMR due to the unsuitability of paradigms mixing (Creswell, 2003). These scholars who avoid mixing paradigms were referred to as purists by Rossman and Wilson (1985); those who adapted their methodology to the situation were referred to as situationalists. Those who supported using multiple paradigms to address problems of research they called pragmatists. Even though the debate on reconciling the paradigms still exist, pragmatism as the optimum philosophical foundation for MMR has been advocated (see Greene and Caracelli, 1997; Tashakkori and Teddlie, 2003a).

Procedural developments

During the 1980s, attention started to shift from the debate about the possibility of combining the two paradigms toward the development of methods for designing a mixed methods (MM) study. Three evaluation research scholars, Greene, Caracelli, and Graham, in 1989 published an article which laid the foundation for designing a mixed methods study. The article analysed fifty- seven (57) evaluation studies and developed a six-type classification system, which other scholars emulated to identify classification systems (Creswell and Plano, 2011). During this period, Brewer

and Hunter (1989) (sociologists) linked multi-method research to steps in the research process which involves problems formulation, sampling, and data collection. In 1991, a notation system was designed by Morse (a research nurse) to suggest the implementation methods for both the qualitative and quantitative elements of a study. Consequently, researchers began to build on these classifications and notations by discussing specific forms of mixed methods designs (Creswell and Plano, 2011). Creswell (1994,) for instance, produced a frugal three-type set MMR design and established studies that exemplified each category. Furthermore, a decision matrix was provided by Morgan (1998) for determining which form of design to employ, while books by Tashakkori and Teddlie (1998) and Newman and Benz (1998) started outlining the procedures for mixed methods; laying special emphasis on issues of validity and inferences.

Major Designs of Mixed Methods Research

There exist three major MMR basic designs as well as three major advanced MMR designs. These are the Convergent Parallel Design, the Explanatory Sequential Design and the Exploratory Sequential Design (as shown in figure 1); and the Intervention Mixed Methods Design, the Social Justice Design and the Multistage Evaluation Design (as shown in figure 2). However, the focus in this study is on Basic designs. These designs are diagrammatically highlighted hereunder.

The convergent parallel design

In using this design, the researcher gathers both qualitative and quantitative data concomitantly; conducts a separate analysis for both sets of data, then mixes both databases by analysing the two data sets separately and finally mixes the databases by integrating the results either during data analysis or during interpretation.

The explanatory sequential design

The researcher using this design first gathers and analyses quantitative data, then gathers and analyses qualitative data in the second stage as a follow-up to the quantitative results. Both stages are then linked by employing the quantitative results to form the qualitative research questions, sampling procedures as well as data collection methodology.

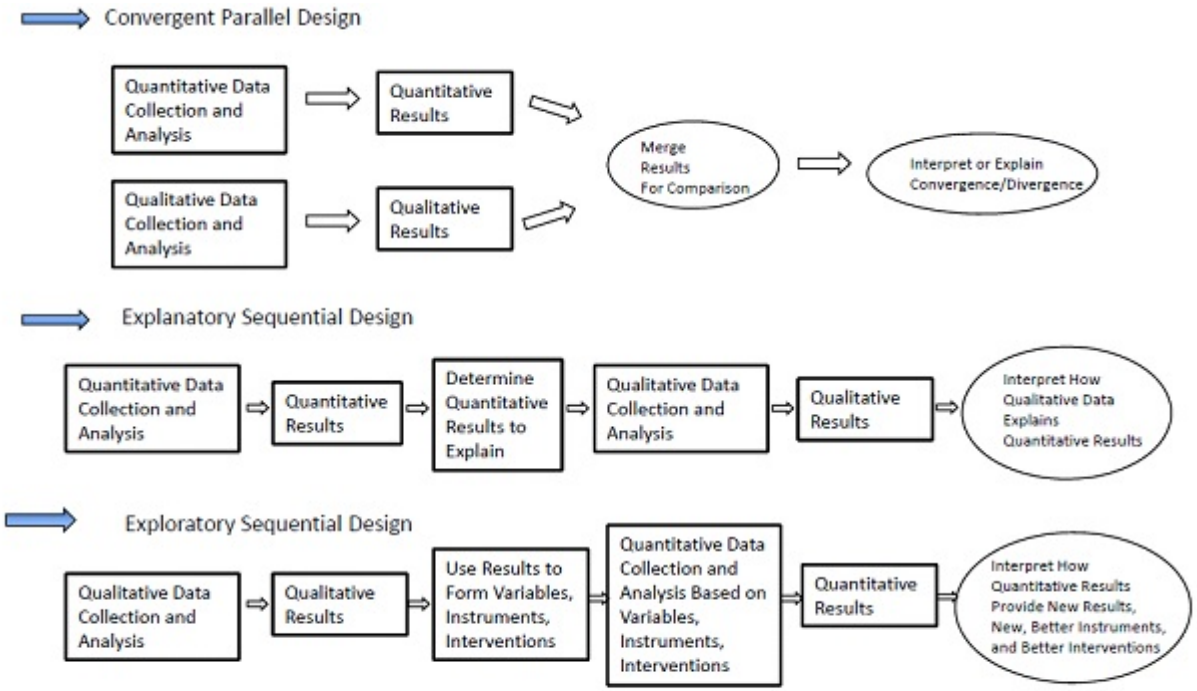

Figure 1. Basic mixed methods designs.

Source: (Creswell, 2013).

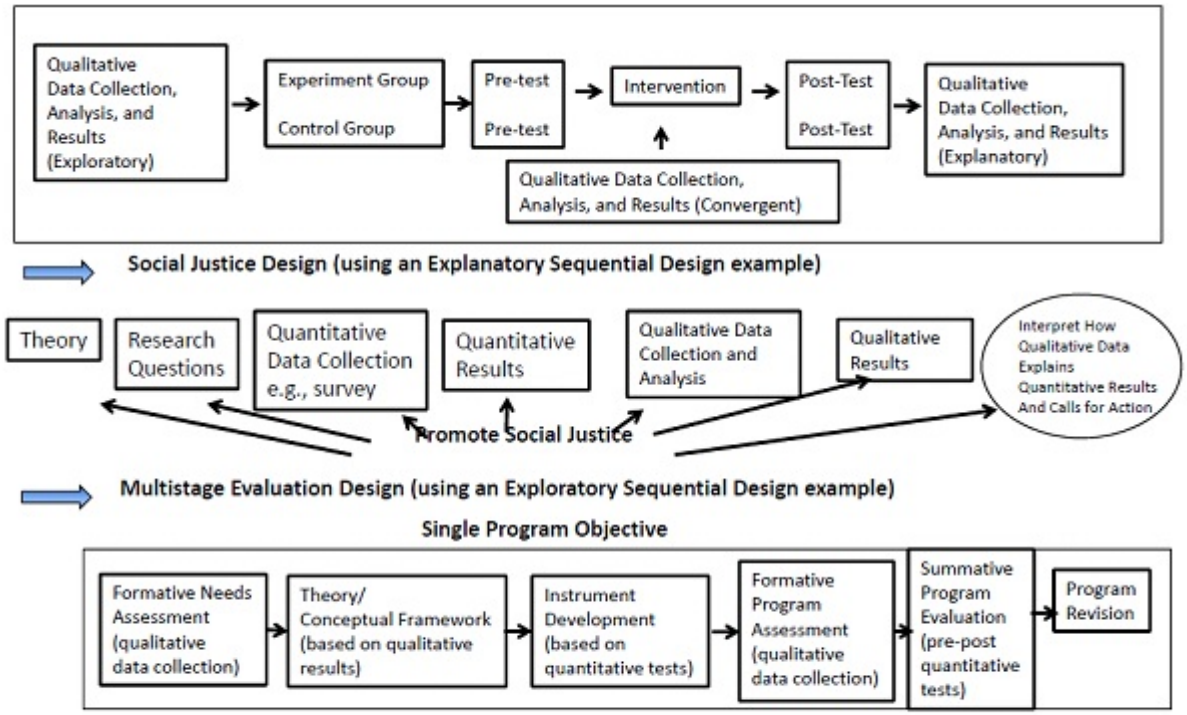

Figure 2. Advanced mixed methods designs.

Intervention Mixed Methods Design (Experimental study)

Source: (Creswell, 2013).

The Exploratory Sequential Design

The researcher in this design first gathers and analyses qualitative and then quantitative data; the qualitative data is analysed and the results utilized to build on the following quantitative stage. Both stages are thus linked by utilizing the results of the qualitative study to form the quantitative stage which helps in stating the research typology, variables, research questions and developing an instrument.

Significance of Mixing the Qualitative and Quantitative Approaches

Several factors account for the evolution of MMR. First, the complex nature of research problems necessitates data that transcends simply figures quantitatively or words qualitatively. The mixture of qualitative and quantitative methods enhances the comprehension of research problems as against using only one approach. This mixture helps to analyse the problems comprehensively. Hence, numbers can be situated contextually using participants words while investigators can frame participants' words using numbers and results of statistics. Scholars that are quantitatively inclined recognized the role of qualitative data in quantitative studies; similarly, advocates of qualitative studies realize that the results of a qualitative study involving a few participants may not allow generalization to a larger population. Audiences in areas of applied research, practitioners and policy makers need multiple data types to address the problems of research (Denzin and Lincoln, 2005).

Second, MMR studies make up for the inherent weaknesses in quantitative and qualitative studies. It has been argued that quantitative studies are lacking in comprehending the settings in which respondents express themselves. Respondents' voices are not also heard directly in quantitative studies. In addition, quantitative research scholars' biases and interpretations are rarely noticeable; hence, these weaknesses are enhanced by qualitative research. Conversely, qualitative studies are viewed as deficient as a result of the investigator's own interpretations which result in bias, and the problem of generalizing a study of few individuals to a larger population. The quantitative paradigm is not lacking in this regard. Thus, a combination of both paradigms can make these weaknesses disappear (Jick, 1979).

Third, MMR offers better facts (data) for the study of the research problems than either approach alone. Investigators are able to utilise all available data collection tools as against using only those tools related typically to either approaches. MMR supplies answers to questions that quantitative or qualitative approaches alone cannot answer. For instance, the question whether the results from standardized instruments and respondents' interview opinion correlates or otherwise, typifies a mixed study question. Furthermore, questions like "What factors explain the results of a quantitative research?" (Explaining quantitative results with qualitative data) (Tashakkori and Teddlie, 2003a).

Fourth, MMR enables both qualitative and quantitative investigators to work together despite the somewhat opposing stance they take. All investigators belong to the human, behavioral and social sciences; a restriction to either qualitative or quantitative approach would only limit the methods and partnership to inquiry.

Fifth, MMR promotes the utilisation of several paradigms or worldviews instead of separate patterns (paradigm) for qualitative and quantitative research. It thus enables the use of various research paradigms like pragmatism that covers both paradigms.

Finally, the need for more superior facts leads to the gathering of both qualitative and quantitative data. MMR has been termed the "third methodological movement" following after quantitative and qualitative methods (Tashakkori and Teddlie, 2003a: ix). It is of interest to note however, that practically every literature in research would end up being mixed even if that was not intended; reason being that any research literature would usually have some elements of quantitative and qualitative research studies (Tashakkori and Teddlie, 2003a).

Presented below is an example of how mixed methods research is conducted.

Topic: Logistic Activities and Electoral Efficiency in Nigeria: A study of the 2012 gubernatorial election in Edo State

Introduction

Logistic arrangement is central to the electoral or voting system as efficient planning and execution would, to a great extent,

determine the overall efficiency, credibility and acceptability of the electoral process. The scope of this study is limited to electoral logistic activities in the 2012 governorship election in Edo State.

Research Problem

The conduct of elections in Nigeria has always faced a lot of challenges. Right from the 1922-1954 Colonial Elections, to the Independent Elections from 1960-1964, Second Republic Elections 1979, the ill-fated 1993 presidential election and the ongoing political dispensation (Fourth Republic), none has proven otherwise. It has been documented that elections in Nigeria constantly include tales of political violence and electoral fraud, thuggery, post-election violence and general lack of party internal democracy (Okorie, 2016; Oluwole and Azeamalu, 2016; Sahara Reporters, 2016). Logistics challenges have also been a central feature in Nigeria's elections. The following points are identified as critical issues in electoral administration in Nigeria:

(1) Inadequate personnel training – Technical capacity of ad hoc staff

(2) Late arrival of registration materials

(3) Late distribution of registration materials

(4) Late arrival of electoral materials at the voting centre

Research Objectives

- To determine the effect of logistics planning on voting efficiency in the governorship election of 2012 in Edo State.
- To determine the impact of election day logistics on voting efficiency in the governorship election of 2012 in Edo State.
- To give useful suggestions towards addressing the challenges observed.

Research questions (quantitative, qualitative, and mixed)

From the above information, the following research questions are raised.

Quantitative: What is the relationship between electoral logistics management and voting efficiency?

Qualitative: What impact does electoral logistics management have on voting efficiency?

Mixed: To what extent do the quantitative and qualitative data converge? How and why?

Rationale for gathering both quantitative and qualitative data in one single study

Quantitative and qualitative data were utilised in this study. The paper examined the effect or impact of logistic activities on voting efficiency in the governorship election of 2012 in Edo State. Two points of view are presented: the electorate who participated or observed the election process and the Independent Electoral Commission (INEC) who executed the election. Thus, in generating data for the study, it became necessary to sample the views of the general population (of which the INEC officials are a part) via a survey and to use a semi- structured interview to elicit more in-depth responses from the INEC officials. The essence was to observe whether the data converge comprehensively enough to generalise findings. The adoption of mixed methods is thus aimed at developing sufficient comprehension of the problem from the perspective of two databases and to corroborate results so as to suggest effective remedy.

Methodology

Study population/Sample size and technique

Quantitative: The target population included Oredo and Ikpoba-Okha local government areas with populations of 374,515 and 372,080 respectively. The sample size comprised 1,200 people selected from the two local government areas using the stratified random sampling technique. Six hundred and twenty- nine (629) were selected from Oredo and five hundred seventy- one (571) from Ikpoba- Okha. Out of the 1,200 questionnaires distributed 1,174 were successfully completed and returned.

Qualitative: The population included all staff of the INEC office at Ikpoba Hill totaling thirty-five (35), which formed an initial part of the population of the quantitative study. The purposive sampling technique was utilised in selecting six (06) officials of INEC.

Type of data and instruments

Both quantitative and qualitative data sets were collected for the study concomitantly.

Quantitative: For the quantitative paradigm, the questionnaire instrument was used to elicit responses from respondents. The quantitative data were analysed using the simple percentage and chi square statistical technique to measure the strength and direction of association of variables.

Qualitative: The semi- structured interview instrument was utilised for the qualitative paradigm. The qualitative data were analysed using analytical tables.

Type of mixed methods design

The convergent parallel or concurrent design was adopted for the study (using triangulation to compare information on outcomes and impact from different independent sources).

Rationale for adopting the design: Adopting this design enables sufficient comprehension of the study phenomenon from two databases and makes it possible to corroborate outcomes from different methods. The two data sets were merged during the interpretation of the results/findings.

Data Analysis and Interpretation

Quantitative computation

In testing the quantitative research question on whether a relationship exists between electoral logistics management and voting efficiency? The following responses and hypothesis were generated.

Response	Male	Female	Total
Agree	237	87	**324**
Disagree	398	199	**597**
Undecided	46	207	**253**
Total	**681**	**493**	**1174**

Computation of X^2

Cell	f^0	f^e	$f^0 - f^e$	$(f^0 - f^e)^2$	$\frac{(fo - fe)2}{fe}$
A	237	187.9	49.1	2410.8	12.8
B	87	136.1	-49.1	2410.8	17.7
C	398	346.3	51.7	2672.9	7.7
D	199	250.7	-51.7	2672.9	10.7
E	46	146.8	-100.8	10160.64	69.2
F	207	106.2	100.8	10160.64	95.7

$X^2 = 213.8$

Quantitative result

Research result: The calculated chi-square of calculated X^2 of 213.8 and gamma of 0.6 shows that a significant and positive relationship exists between the variables.

Interpretation: There exists a positive relationship between electoral logistics and voting efficiency in Oredo and Ikpoba-Okha local government areas. That means that poor management of electoral logistics can hamper the efficiency and credibility of the voting processes and vice versa.

Qualitative result

From the in-depth interview results, all six (06) respondents of INEC agreed that poor management of election logistics hampered the 2012 governorship election in Edo State. They gave varying reasons ranging from:

(1) Inadequate Personnel Training: From the interactions during the interview at the INEC headquarters, it was easy to identify that this was due to problems related to:

(a) Late arrival of training materials and inadequate equipment for practical training of both the permanent and ad hoc staff of INEC.

(b) Insufficient time for training of both the permanent and ad hoc staff of INEC before the exercise, which did not allow for proper assessment of personnel before deployment to the field.

(2) Late arrival of materials at voting centres due to traffic challenges.

(3) Late access to funds led to delay in the payment of ad hoc staff entitlements thus, delaying the early movement and arrival of electoral materials and officials to voting venues.

(4) Inadequate provision of vehicles for some local government areas which stemmed from the inability of the commission to quickly access the funds allocated for the exercise.

Interpretation (merge during interpretation)

From the result of the quantitative study, it showed that electoral logistics issues, if not well managed can affect the efficiency of elections. It showed that in the 2012 governorship election in Edo State, logistic arrangements were poorly handled by INEC leading to late arrival of electoral materials and officials at the voting venues. This resulted in late accreditation of voters, voting as well as other electoral activities. The technical capacity of the recruited staff was also called to question as they initially could not handle the electoral equipment. This further delayed the process of voting which, to a great extent, undermined the efficiency and credibility of the election. The qualitative result corroborated the quantitative findings; it further gave an insight not only into the dismal performance of INEC but also the possible reasons for the failure of INEC regarding logistics management. For example, the lack of technical capacity was due to late arrival of training materials and insufficient time for training while late arrival of electoral materials

and officials was attributed to serious traffic congestion and inadequate provision of vehicles for some local government areas.

The result of the study showed that both data converged since both agreed that INEC failed dismally in the 2012 governorship election in Edo State regarding logistics arrangements.

Conclusion

Thus, the adoption of both data sets has not only revealed the failure of INEC but has also given deeper insight into the internal mechanisms responsible for the failure. This gives a better understanding of the phenomenon of investigation than from one standpoint.

Strengths and Weaknesses of Mixed Research

Strengths

Some of the gains of adopting a mixed methods study are outlined hereunder.

MMR enables comparison of both datasets and helps in the understanding of contradictions between qualitative findings and quantitative results.

MMR ensures that participants' standpoints and experiences are reflected in the study's findings.

MMR promotes interaction of scholars from several disciplines such as quantitative, qualitative and mixed methods scholars.

MMR enables flexibility of methods since it is adaptable to a number of designs like randomized trials and observational studies and helps to reveal more detailed information than only one approach can obtain.

MMR enables the collection of rich broad data through merging of both datasets; for instance, a football sports results can integrate quantitative information such as scores or numbers of fowls with qualitative information like the descriptions and highlights of events. This ensures a more comprehensive report than using only one approach (PCMH, 2013).

MMR helps to obtain superior evidence through the achievement of comprehensiveness and corroboration of results.

MMR helps to balance a set of outcomes with another set; it is also used to increase a set of outcomes or to find out information that the use of either approach would not have noticed (Wisdom et al., 2011).

Weaknesses

In spite of the significance of conducting MMR, it is not an easy exercise. It introduces contradictions in the research processes and the readers may be unable to identify the various procedures except they are methodically and clearly presented. Also, researchers usually possess training in only one method of investigation – quantitative or qualitative – and it is necessary to possess knowledge of both approaches for a mixed methods study (Driscoll et al., 2007).

Furthermore, MMR increases the difficulty of assessment and is not easy to plan and conduct. All aspects of research, including the sample for quantitative and qualitative parts – whether parallel, embedded or identical, the sequence and the plan for merging data must be carefully described. Merging data during analysis is a very challenging activity for researchers.

Conducting a quality mixed methods study is dependent on a multidisciplinary research team of experts with adequate knowledge of the various paradigms of the research. Maintaining the various standards, rigours and ensuring suitable quality of every component of a mixed research is usually difficult (Wisdom et al., 2011).

Scholars of the qualitative paradigm aver that quantifying qualitative data leads to loss of depth and flexibility. During analysis, the qualitative codes can provide insights into a number of interconnected themes or subjects. On the other hand, quantitative data are preset like one-way traffic and comprise only one set of responses which represents a category of concept predetermined before data collection. They are not amenable to changes in the face of fresh insights in analysis. Reducing qualitative data to variables makes them one-dimensional and inflexible (Bazeley, 2004).

MMR is both time and resource consuming; it is also labour intensive compared to a one method study. To analyse, code and integrate structured with unstructured data is a difficult process (Roberts, 2000).

Concluding Comments

The paper exhaustively discussed the concept of mixed methods research and its usefulness in social investigation. It examined the relevance, applicability, methods and steps in the conduct of a mixed study. It showed the significance of mixed research in a comparative overview of the two paradigms (qualitative and quantitative); espousing the need for merging. The strengths and weaknesses inherent in a mixed methods study were also analysed, revealing that the inherent weaknesses in mixing data and methods cannot obviate the need for mixed research since these weaknesses can be managed. It is thus the expectation of the author that mixed methods study would be accorded more consideration by social investigators for the purpose of gathering enriched data, superior evidence and for making valid generalisations about objects of study or social phenomena.

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