



## THE APPLICATION AND IMPLICATION OF COMBINING QUANTITATIVE AND QUALITATIVE DATA IN THE SOCIAL SCIENCES: A THIRD METHODOLOGICAL MOVEMENT IN CONTEXT

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### 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 a Mixed Methods Study. Conducting research and gathering data in the behavioural sciences where the phenomena of investigation are majorly linked to human activities requires that the methodological approach be exhaustive and rich enough to enable valid generalizations. It is in this wise that the paper examines the relevance, applicability, and process of mixing methods and their usefulness in social research. It seeks to familiarize 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. The descriptive approach was utilized for the study methodically and chronologically which ensured an adequate understanding of the subject of interest. The paper concludes that mixed methods research is desirable for superior evidence and valid generalizations. Thus, to add strength to strength and enrich data gathering in a social investigation, a more Mixed Methods Research study is advocated in the social sciences.*

**Keywords:** Mixed Methods Research; Pragmatism; Quantitative Research; Qualitative Research; Third Methodological Movement.

### Introduction

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; Munce et al, 2021). They suggest the term mixed model be employed to distinguish research designs that integrate quantitative and qualitative data from those that only utilize 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

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qualitative data (Sandelowski 2000; Weisner 2005), it is imperative to garner more systematic information on ways of conducting these analytical and transformative designs.

The mixing of research methods connotes a design in research which has evolved through various transformational phases; it is concerned with the collection, analysis, as well as 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 sequence of studies. It is based on the notion that the combination of both quantitative and qualitative approaches produces an enhanced comprehension of the research problems than using only one approach (Creswell, 2003; Linnander et al, 2019; Munce et al, 2021). 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 utilizes multiple worldviews 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 the varied audience (Creswell, 2003; Wilkinson and Staley, 2019).

Three key paradigms of research currently exist in the social and behavioural sciences and 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. There are two main paradigms of mixed research; these are mixed methods and mixed models.

The objective of the paper is to examine the reasons for mixing methods in research, methods of conducting mixed research design and their relevance to social research. The historical and descriptive method was adopted for the study with emphasis on the use of secondary data sources. The data gathered were chronological and systematically organized to ensure an understanding of the phenomenon under examination. The paper has five sections. Section one has the introduction

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while section two deals with the conceptual analysis. Section three discusses the research design and section four examines the strengths and weaknesses of mixed research. The final section has a conclusion.

## **Conceptual Clarifications of Qualitative, Quantitative and Mixed Methods Research**

In an attempt to better comprehend the notion of mixed methods research, it would be appropriate first, to define and analyze the quantitative and qualitative methodologies, and lastly, conceptualize both paradigms in the format of mixed methods.

### **Quantitative Research**

Quantitative research connotes a form of intellectual study where the researcher determines the object of study and 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 analyzed utilizing various statistical techniques and the inquiry is conducted in an objective and unbiased manner. The Post Positivists' notion that deals with singular reality, which is objective and deductive, is often identified with quantitative research (Shulman, 1988; Creswell, 2012).

Quantitative Research Methods are 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; Plano Clark and Ivankova, 2016). Examples of data collection methods include Performance Tests; Personality Measures; Questionnaires (with closed-ended questions or open-ended but transferred to quantitative data) and Content Analysis; the data is generally referred to as hard data (Shulman, 1988; Morgan, 2018).

### **Qualitative Research**

Qualitative Research 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 of text or words. explains and analyzes 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 deals with multiple realities; it is "biased" and inductive. It is more exploratory. Examples of data collection methods include Interviews. Open-ended Questionnaires. Observations Studies. Content Analysis and Focus Groups (Shulman, 1988; Fàbregues et al, 2020).

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## Mixed Methods Research

According to Tashakkori and Teddlie 2010b: 803-804,), the Mixed Methods Research (MMR) 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 have been adopted as the de facto third alternative or third methodological movement

As in all social sciences, it is difficult to get a universally acceptable definition of MMR. According to Johnson et al (2007), twenty-one researchers were asked to define MM and it yielded nineteen responses. All nineteen responses 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. This paper cannot, however, probe into these definitional debates, consequently, some definitions advanced by eminent scholars of mixed methods research are thus, considered.

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

A more comprehensive definition of MMR is provided by Creswell and Clark (2007: 5):

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.

Teddlie and Tashakkori, (2010: 5) further defined MMR as:

The broad inquiry logic guides the selection of specific methods and is informed by conceptual positions common to mixed methods practitioners

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(e.g., the rejection of “either-or” choices at all levels of the research process). For us, this definition of methodology distinguishes the MMR approach to conducting research from that practiced in either the QUAN or QUAL approach.

According to Creswell (2012), MMR design is a process that 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.

There exist two major types of mixed research- mixed method and mixed model research.

1. Mixed Method Research – involves research where the investigator utilizes 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 opinions about the study phenomena from the perspectives of both paradigms (Creswell, 2012; Wilkinson and Staley, 2019).
2. Mixed Model Research – on the other hand, involves a study where 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 a 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; Shorten and Smith, 2017).

From the above discussion of MMR, it is obvious 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, analyzed (whether merged or separated), and used to interpret and report a research result in one study, then we can call such a study MMR.

### **Significance of Mixing the Qualitative and Quantitative Approaches**

Several factors account for the evolution of MMR; these include the following.

First, MMR offers better facts (data) for the study of the research problems than either approach alone. Investigators can utilize all available data collection tools as against using only those tools

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related typically to either approach. MMR supplies answers to questions that quantitative or qualitative approaches alone cannot answer. For instance, the question of whether the results from standardized instruments and respondents' interview opinion correlate or otherwise, typifies a mixed study question. Furthermore, questions like "What factors explain the results of quantitative research?" (Explaining quantitative results with qualitative data) (Tashakkori and Teddlie, 2003a: Shorten and Smith, 2017).

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

Third, 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 analyze 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 few participants may not allow generalization to a larger population. Audiences in areas of applied research, practitioners, and policymakers need multiple data types to address the problems of research (Denzin and Lincoln, 2005; Shorten and Smith, 2017).

Fourth, 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 quantitative and qualitative methods (Tashakkori and Teddlie, 2003a: ix). It is of interest to note, however, that practically every piece of literature in research would end up being mixed even if that was not intended; the reason being that research literature would usually have some elements of quantitative and qualitative research studies (Tashakkori and Teddlie, 2003a).

Fifth, 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. The respondents' voices are not also heard directly in quantitative studies. Also, Quantitative Research Scholars' biases and interpretations are rarely noticeable; hence, these weaknesses are enhanced by qualitative research. Conversely, qualitative studies are

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viewed as deficient as a result of the investigator's interpretations which results in bias, and the problem of generalizing a study of a 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; Creswell and Plano Clark, 2018).

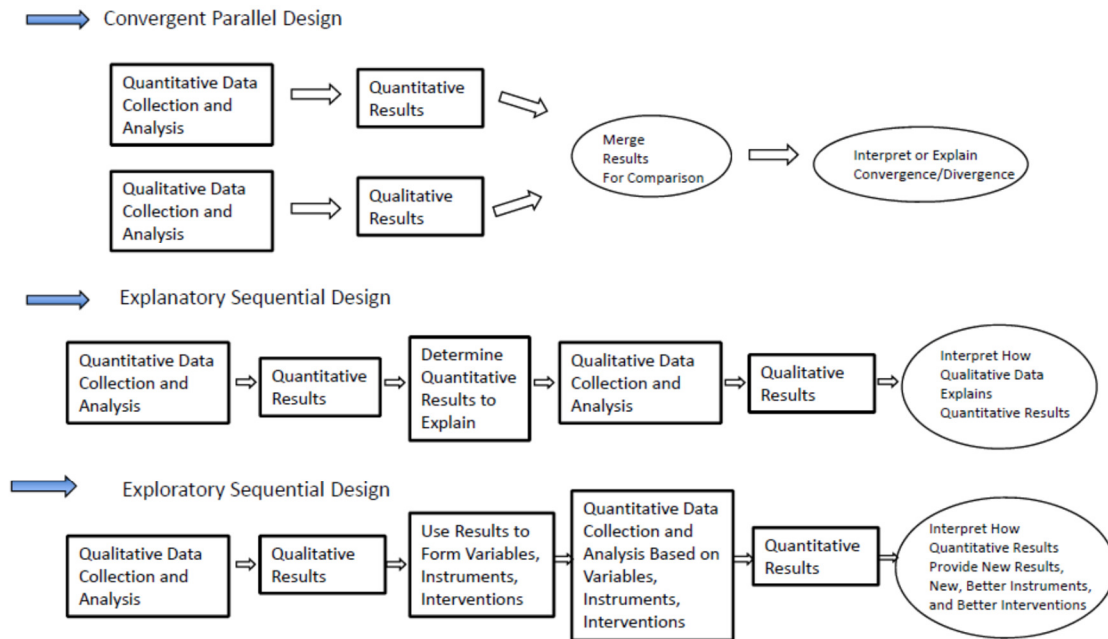
Finally, MMR enables both qualitative and quantitative investigators to work together despite their somewhat opposing stances. All investigators belong to the human, behavioural and social sciences; a restriction to either qualitative or quantitative approach would only limit the methods and partnership to an inquiry (Shorten and Smith, 2017).

### **Designs in Mixed Methods Research**

There exist three major MMR basic designs as well as three major advanced MMR designs; these include the Convergent Parallel Design, the Explanatory Sequential Design and the Exploratory Sequential Design for the former; and the Intervention Mixed Methods Design, the Social Justice Design and the Multistage Evaluation Design for the later (Creswell, 2013). For the purpose of this study, the Convergent, Explanatory and Exploratory Designs which are the basic designs are diagrammatically highlighted and discussed hereunder.



**Figure 1**  
**Basic mixed methods designs**



Source: (Creswell, 2013).

The above diagrammatically presented Designs are highlighted below

### The Convergent Parallel Design

The researcher in the Convergent Parallel Design gathers both qualitative and quantitative data concomitantly. conducts a separate analysis for both sets of data and then mixes both databases by analyzing the two data sets separately. The researcher then mixes the two databases by integrating the results either during data analysis or during interpretation. The purpose of using the design is to obtain a more comprehensive understanding of two databases. verify the results of a study from different methods. and relate various stages within a system

The Convergent Parallel Design is adopted when it is necessary to gather both quantitative and qualitative data in a single field study. It can also be utilized when the two types of data possess

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the same value for comprehending the research problem. and when the researcher possesses the skills for mixed methods study. The strength of the Convergent Design is that it is intuitive, efficient and encourages teamwork. However, the weakness of the design is that it is difficult to gather two sets of data and a substantial amount of expertise is required to conduct the study (Creswell, 2012; Creswell and Plano Clark, 2018).

### **The Explanatory Sequential Design**

In the Explanatory Sequential Design, the researcher first gathers and analyzes quantitative data, then gathers and analyzes 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. This design is adopted to enable researchers to use qualitative data to explain quantitative results that require more exploration and also to use the quantitative result to purposefully select the best respondents to participate in a qualitative study (Creswell, 2012; Creswell and Plano Clark, 2018).

The Explanatory Sequential Design can be used when the investigator and research problem have a quantitative orientation. when useful variables and instruments are accessible. when there is enough time to carry out two phases of study, when the participants are accessible for the collection of secondary data. and when the resources at the disposal of the investigator are limited. The design can also be utilized when it is necessary to gather and analyze one type of data at a time and when novel questions originate from quantitative results.

The strength of the design lies in its appeal to researchers' quantitative orientation the fact that the two phases of implementation are straightforward the research report can be written in two phases, and it can lend itself to new methods. The weakness of the Explanatory Sequential Design is that it is difficult to decide the criteria for the selection of participants. it is not easy to contact participants and get them for the second round of data collection and implementation of the two phases takes a long time to achieve (Creswell, 2012; Creswell and Plano Clark, 2018).

### **The Exploratory Sequential Design**

The researcher in Exploratory Sequential Design first gathers and analyzes qualitative and then quantitative data. the qualitative data is analyzed and the results are utilized to build on the following quantitative stage. Both stages are thus linked by utilizing the results of the qualitative

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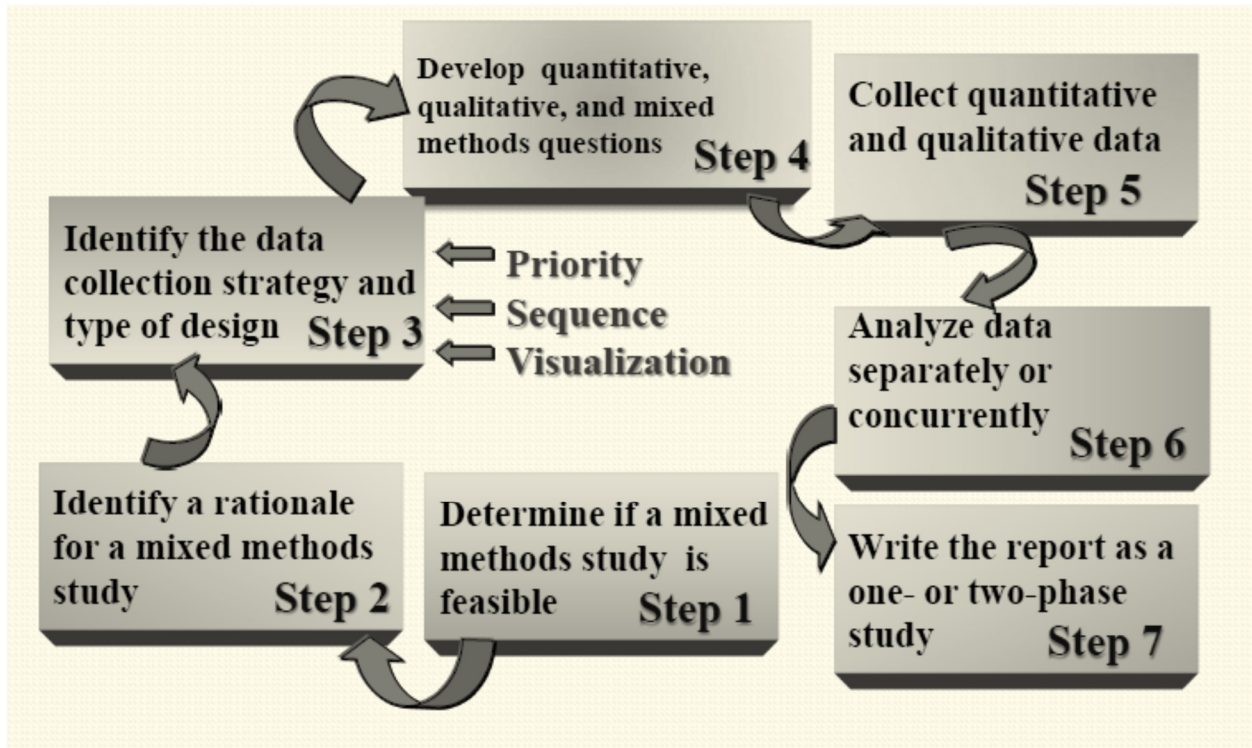


study to form the quantitative stage which helps in stating the research typology, variables, research questions, and developing an instrument. The design is useful to help explore novel variables, theories and hypotheses. develop an instrument or typology that is unavailable. as well as assessing the possibility of generalizing qualitative themes to a given population. The design can be adopted when there is enough time to do a two-phase study. when there are limited resources. when useful variables are unknown and it is necessary to analyze one type of data at a time. when research instruments are unavailable and the investigator and research problem are qualitatively inclined; and when novel questions originate from qualitative results (Creswell, 2012; Creswell and Plano Clark, 2018).

The strength of the Exploratory Sequential Design lies in its simplicity, implementation and report. It helps the researcher to produce a research instrument. helps the quantitative biased audience to accept the study because of its qualitative component, and offers itself to new approaches. The design is associated with the following weaknesses: It takes a long time to implement the two phases and the processes of developing valid and reliable instruments are challenging. It is also difficult to decide the qualitative outcomes to use for the quantitative phase (Creswell, 2012; Creswell and Plano Clark, 2018).



**Figure 2**  
**Steps for Conducting Mixed Methods Study**



**Source:** (Creswell, 2012).

## Strengths and Weaknesses of Mixed Research

### Strengths

The Mixed Methods Study has the following advantage among others:

1. MMR enables the collection of rich broad data through the merging of both datasets. For instance, 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).
2. MMR promotes the interaction of scholars from several disciplines such as quantitative, qualitative, and mixed methods scholars.

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3. MMR helps to obtain superior evidence through the achievement of comprehensiveness and corroboration of results.
4. MMR ensures that participants' standpoints and experiences are reflected in the study's findings.
5. 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).
6. MMR enables flexibility of methods since it is adaptable to several designs like randomized trials and observational studies and helps to reveal more detailed information than only one approach can obtain.
7. MMR enables a comparison of both datasets and helps in the understanding of contradictions between qualitative findings and quantitative results (Wilkinson and Staley, 2019).

## Weaknesses

According to David et al (2007), it is not easy to carry out Mixed Methods Study. To him, Researchers usually possess training in only one method of investigation- quantitative or qualitative- and it is necessary to possess the knowledge of both approaches for a mixed-method study.

Also:

1. MMR is both time and resource-consuming; they are also labour-intensive compared to one single study. Analyzing, code, and integrating structured with unstructured data is a difficult process. (Roberts 2000).
2. 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, and the sequence and the plan for merging data must be carefully described. Merging data during analysis is a very challenging activity for researchers.
3. Conducting quality mixed methods studies is dependent on a multidisciplinary research team of experts with adequate knowledge of the various paradigms of research. Maintaining the various standards rigours and ensuring the suitable quality of every component of mixed research is usually difficult (Wisdom, et al., 2011; Wilkinson and Staley, 2019).
4. Scholars of the qualitative paradigm aver that quantifying qualitative data leads to a loss of depth and flexibility. During analysis, the qualitative codes can provide insights into several 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

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predetermined before data collection. They are not amenable to changes in the face of fresh insights into the analysis. Reducing qualitative data to variables makes them dimensional and inflexible (Bazeley 2004: Wilkinson and Staley, 2019).

### **Mixing Methods in the Social Sciences: A Prototype**

This section exemplifies the conduct of Mixed Methods Research with a Survey on Electoral Logistics in the 2012 Governorship Election in Edo State employing the Convergent Parallel Design. The section was adopted from Igiebor (2018: 30-36).

The research problem, research questions, methodology and computation of mixed methods research are presented below.

### **Research Problem**

The logistic arrangement is central to the electoral or voting system as its efficient planning and execution would to a great extent/determine the overall efficiency, credibility, and acceptability. The scope of the study is limited to electoral logistic activities in the 2012 governorship election in Edo State.

There are a lot of challenges with the conduct of elections in Nigeria right from 1922-1954 Colonial Elections, Independent Elections from 1960-1964, Second Republic Elections 1979, the ill-fated 1993 presidential election and the ongoing political dispensation (Fourth Republic) have not proven otherwise. It has been documented that elections in Nigeria are constant tales of political violence and electoral fraud, thuggery, post-election violence, and a general lack of party's internal democracy (Okorie, 2016; Oluwole and Azeamalu, 2016; Sahara Reporters, 2016). Logistic challenges have also been a central feature in Nigerian elections. The following points are identified as critical issues in Nigerian electoral administration:

- (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 Centres.

### **Research Objectives**

1. To determine the effect of logistic planning on voting efficiency in the governorship election of 2012 in Edo state.

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2. To determine the impact of Election-Day-Logistics on voting efficiency in the Governorship Election of 2012 in Edo state.

### Research questions (quantitative, qualitative, and mixed)

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

**Quantitative:** What is the relationship between Electoral Logistic Management and voting efficiency?

**Qualitative:** What impact does Electoral Logistic Management have on voting efficiency?

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

### The rationale for gathering both Quantitative and Qualitative data in one single study

Quantitative and Qualitative data were utilized 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 involved: the electorates who participated or observed the election process and the Independent National Electoral Commission (INEC) which 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 the semi-structured interview to elicit more in-depth responses from the INEC officials; the essence is to see whether the data converge comprehensively enough to generalize findings. The adoption of Mixed Methods is thus, aimed at developing sufficient comprehension of the problem from the perspective of two databases and corroborating results to suggest an effective remedy.

## Methodology

### Study Population/Sample Size and Technique

**Quantitative:** The target population includes Oredo and Ikpoba-Okha Local Government Areas in Edo State with a population of 374, 515 and 372, 080 respectively (Nigeria Data Portal, 2006). The sample size of 1,200 was selected from the two local governments using the stratified random sampling technique. Households were selected from the Local Governments Areas using the Systematic Sampling Technique. The study questionnaires were administered to adult respondents from each selected household. Oredo had six hundred and twenty-nine (629) of the sample .while Ikpoba- Okha had five hundred and seventy-one (571). Out of the 1, 200 questionnaires distributed 1,174 were completed and returned.

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**Qualitative:** The population includes all staff of the Independent National Electoral Commission (INEC) Office at Ikpoba Hill totaling thirty-five (35) which formed an initial part of the population of the quantitative study. The judgmental sampling technique (that enabled the selection of personnel with expert opinion) was utilized in selecting six (06) officials of the 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 analyzed using the simple percentage and chi-square statistical technique to measure the strength and direction of the association of variables.

**Qualitative:** The semi-structured interview instrument was utilized for the qualitative paradigm. The qualitative data were analyzed using analytical techniques.

### **Type of Mixed Methods Design**

The Convergent Parallel or Concurrent Design was adopted for the study (using triangulation to compare information on outcomes and impacts from different independent sources).

### **The rationale for adopting the design**

The adoption of the Convergent Parallel Design makes it possible to obtain sufficient comprehension of the study phenomenon from two databases and to corroborate outcomes from different methods. The two data sets were merged during the interpretation of the results or findings.

### **Data Analysis and Interpretation**

#### **Quantitative Computation**

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





Response	Male	Female	Total
Positive opinion	237	87	<b>324</b>
Negative opinion	398	199	<b>597</b>
Undecided	46	207	<b>253</b>
<b>Total</b>	<b>681</b>	<b>493</b>	<b>1174</b>

### Computation of $X^2$

Cell	$f^0$	$f^e$	$f^0 - f^e$	$(f^0 - f^e)^2$	$\frac{(f^0 - f^e)^2}{f^e}$
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 213.8 and Gamma of 0.6 show 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 voting processes and vice versa.

### Qualitative result

From the in-depth interview results, all six (06) respondents of the 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 the voting centres due to serious traffic challenges.
- (3) The late access of funds led to a delay in the payment of the 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 Electoral Body to quickly assess the funds allocated for the exercise.

### **Interpretation (merging of Quantitative and Qualitative Data during interpretation)**

The result of the quantitative study showed that electoral logistic issues, if not well managed can affect the efficiency of elections. It showed that in the 2012 governorship election in Edo State, logistic arrangement was poorly handled by the INEC leading to the 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 Ad Hoc 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 insight not only into the dismal performance of the INEC but also revealed the possible reasons for the failure of the INEC to properly manage logistic activities. For example, the lack of technical capacity was due to the late arrival of training materials and insufficient time for training, while the late arrival of electoral materials and officials was attributed to serious traffic congestions and inadequate provision of vehicles for some local government areas.

The result of the study showed that both data converged significantly since both gave similar reasons and agreed that the INEC failed dismally in the 2012 governorship election in Edo State regarding logistic arrangement.

### **Concluding Comments**

The concept of mixed methods research and its usefulness in social investigation was thoroughly examined in the paper. It discussed the significance, applicability and methods of conducting a mixed study. It also analyzed the strengths and weaknesses of a mixed-methods study, suggesting that the weaknesses inherent in mixed methods cannot preclude the necessity for adopting mixed methods study since these weaknesses are manageable. It is expected that mixed methods study

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approach would be considered for adoption by social researchers for the collection of better facts or data and to enable generalizations that are valid social phenomena.

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