

## Research Design in Adult Education: Issues and Perspectives

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### ABSTRACT

*In the universities, students and researchers who engage in research writing have continued to find it difficult to understand the concept of research design, its importance and how to apply it in their project works at undergraduate and postgraduate levels. This may not be unconnected to the reasons most of them outsource the process of writing research projects to third parties with attendant consequences on the quality, validity and credibility of their research output. Research in Adult Education is aimed at proffering solutions to educational problems and creating new ideas in the field of education. This paper explored the concepts of research design and its significance in adult education research. The paper used documentary approach in qualitative research methodology to obtain secondary data from scholarly publications to examine the different approaches in design research and highlight the critical issues that students and researchers should acquaint themselves with in their pursuit to produce quality research projects.*

**Keywords:** Research design; Quantitative design; Qualitative design; Mixed-methods design; Adult education.

### 1.0 Introduction

Research design has emerged as a field of study after the Design Method conference in Imperial College London in 1962 and is a critical component of any meaning research project in educational research at both postgraduate and undergraduate levels. Leavy (2017) compared research design to building a structure (Akhtar, 2016) a glue that holds all elements of a research work together (Fagbohunbe, 2010), and the rudder in a boat and knowledge of the type of construction prior to building project in the analogy of De Vaus (2001) in Bouchrika (2020) to show its relative significance in research projects. Research is considered an organized and systematic approach to investigating and finding solutions to a problem that have been identified by a researcher. In this pursuit, there cannot be any research without a design because it is the beacon that guides and directs the researchers in their search for solutions to research problems.

### 2.0 Research Design: Conceptual Clarifications

Research design has been commonly defined by various researchers to mean a strategy or plan

required to execute a research project. Specifically, De Vaus (2001) referred to research design as the overall strategy that the researcher uses to integrate the different components of the study in a logical and sequential order. Saunders et al (2012) in Bouchrika (2020) defined research design as a general plan to answer a research question.

A clarification of the meaning of strategy and its import to research design is instructive to a clearer understanding of the concept. Collins Dictionary defined strategy as either a general plan or set of plans aimed at achieving an objective over a period of time. Cambridge Dictionary, on its own, defined strategy as a detailed plan for achieving an objective in a given situation and cited war, politics, business, industry and sport as such situation but added that it also involves the skill of planning for such situations. This description of strategy or planning which is commonplace with the definition of research design in literature over the years underscores the imperative of design in the understanding of research design.

Typically, a design represents a plan, blueprint or drawing that shows the function or workings of an object before it is produced. It is like a framework or

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prototype. In essence, a research design is conceived as a framework for the methods and techniques of research available for the use of researchers in a research project. It can also be perceived as a plan for a study that accentuates the framework that details the selection of appropriate methodologies, variables, items and procedures for data collection with a view to proffer solution to questions generated.

According to Fagbohunge (2010), it is an action plan that enables the research to find solution to the problem of who to study, what to study, where to study, when to study, where to study and how to generate and analyze the information collated in a research project. Whereas Fagbohunge (2010) appeared simplistic in its outlook, research design has a logical sequence and structure to the inquiries of his 5W1H concept. Interestingly, the concept is an operational phenomenon that gives research project its intrinsic capabilities to create solutions to problems. Therefore, it is able to plan, structure, investigate, anticipates and specifies numerous items and decisions related to the activities of data collection, processing, analysis and presentation in the most logical sequence for decision making. Akhtar (2016) cited Crotty (1998) and stated that a good research design will follow the selection of research topic, an outline of research objectives and framing of hypothesis with the intent of finding answers to these questions:

1. What is the study about, and what type of data is required?
2. What is the purpose of study?
3. What are the sources of needed data?
4. What should be the place or area of the study?
5. What time, approximately, is required for the study?
6. What should be the amount of materials or number of cases for the study?
7. What type of sampling should be used?
8. What method of data collection would be appropriate?
9. How will data be analyzed?
10. What should be the approximate expenditure?
11. What should be the specific nature of the study?

The Crotty (1998) questions in Akhtar (2016) mirrored Fagbohunge (2010) 5W1H conceptual definition of research design which involves making decisions about the overall aims and approaches to research project, the research methodology to use, the sampling methods for selecting subjects, the

procedures to collect data and the methods to analyze these data. When the researcher understands and plans research design well, the methods employed in the research project will align with research objectives and data analysis methodology. Be that as it may, the dynamic reality about research design in research project is that De Vaus (2001) argued that the research problem determines the type of design that the researcher may use. However, Bouchrika (2020) opined that design in research will influence the type of data the researcher wants to gather and its results because research design essentially describes how researcher will investigate the problem that has been identified in the research project and define all the other constituent parts such as variables, hypotheses, experiments, methodology and statistical analysis.

### 3.0 Characteristics of Research Design

Fagbohunge (2010) in the light of the conceptual clarifications of the phenomenon of research design listed nine items which he described as the characteristics of research design but which the author will rather consider the intrinsic attributes which researchers should look out for to ensure that they are on track when carrying out a research project.

These attributes which lend their weight to the concept of research design indicate that a good research design will be a framework; specify the type of data to be collected; specify the source from which the data will be collected; define the population and sample of the study; identify the appropriate instrument for data collection (whether primary or secondary sources); specify the data collection procedure; reveal the setting for the research; reveal the statistical tool for the analysis of data collected; and direct investigation (Kothari, 2010).

A good research design should possess certain characteristics which are inherent qualities that will enable researcher achieve the objectives and produce outcomes in a research project. According to Akhtar (2016), a good research design should possess ability to eliminate bias in its collection and analyses of data and should possess the certain characteristics as follows (Bouchrika, 2020; Akhtar, 2016):

1. It should be neutral and objective to enable researcher analyze and interpret data without bias.

2. It should be valid to enable its tools and techniques to measure results appropriately.
3. It should be reliable to engender standardization of data collection and analysis.
4. It should be efficient.
5. It should reflect and be grounded in theories which the researcher is investigating.
6. It should be situational based on the settings of the study.
7. It should be feasible and predictable.
8. It should be redundant and flexible in usage and manipulation.
9. It should be subject to generalization so as to cover every part of the study with accuracy.

#### **4.0 Purpose of Research Design**

It is appropriate to establish the reason research design is needed in a research project in a conceptual discourse that seeks to clarify research design and establish its importance in the field of research. Akhtar (2016) stated that a research design is imperative to establish a rationale for the layout of logical and systematic sequence of procedures that aligns research objectives with outcomes in a consistent, valid and reliable manner. This gives the researcher confidence that the time and resources expended on the research project are justifiable and the solution derived from the problem can be trustworthy and valuable in practice in academia, industry and the society at large.

Research design enables the researcher to plan ahead and determine the methods to adopt for collecting relevant data and techniques which will be used for analysis. This affects the core function of the essence of the research project and associated activities and resources to make the study viable and successful such as time, funds and manpower availability. Research can become a bottomless pit or a failed venture without a research design that guides the study and extract a level of discipline that propels effectiveness on the researcher.

Furthermore, Fagbohungebe (2010) examined the purpose of research design in a research project and stated that it serves the following:

1. Researcher is able to collect, analyze and interpret data through the use of research design.
2. Inference can be drawn accurately by the researcher on the casual relationship among

- variables under investigation towards finding solution to a research problem.
3. Researcher is able through the deployment of research design to determine the existence of a relationship between two variables.
4. Research design allows the researcher to make comparison between groups.
5. Researcher is able to study a single case with the use of research design.
6. Research design enables the researcher to define the degree of generalization that exists in research findings in a particular situation being studied relative to other internal or external situations.
7. Research design enables the researcher to create working solution to real life problems by calibrating the study from abstract to pragmatic scenarios that can be used in the academia and industries in the society.

#### **5.0 Types of Research Design**

There is no consensus among scholars as to the different types of research designs that are available in literature. Sometimes, some authors juxtapose types with methods and approaches with research designs, but their typologies are often predicated on research purpose (Baru, 2018). Robinson (1976 in Fagbohungebe (2010) classified research design into two broad categories of non-experimental design and experimental design and group different designs under each category such as quasi-experimental designs, correlation designs, contrast designs and case study designs under non-experimental research design, and situated one group designs, two group designs, multi-group designs and factorial research design under experimental research design. Robson (2002) in Baru (2018) explained that there are three forms of research design namely exploratory, descriptive and explanatory and based his classification on the different end that research purpose serves. On its part, Europe (2009) in Bouchrika (2020) identified eight types of methods namely experiments, surveys, interviews, questionnaires, case studies, observational trials (using longitudinal and retrospective approaches) and Delphi method.

For clarity and understanding of beginners in the field of research design, this paper will adopt the categorization of research design into approaches and

types. Consequently, four types of approaches in research design namely quantitative research design, qualitative research design, mixed method design and community-based participatory research design for adult education research will be discussed in this paper (Hameed, 2020; Leavy, 2017; Creswell, 2014). The typology of research design will include descriptive, experimental, exploratory, explanatory, correlational and diagnostic research designs (Akhtar, 2016).

## 6.0 Research Design Approaches

Research Design approaches give a general overview on the outlook of design available for selection and applicable to the research problem that researcher is intent on proffering solutions.

### 6.1 Quantitative research design

This approach is rationalistic and is based on the positivist paradigm of the 19th century pioneered by the French Sociologist, Auguste Comte. The description quantitative became common terminology used for this approach in the 1980s (Hammed, 2020). Rationalistic approach in research design is experimental and scientific in nature. It is an inquiry into an identified problem in research project that is premised on the testing of a theory, measurement with numerical values and analysis with the use of statistical techniques through the use of statistical package for social science (SPSS). Quantitative research design seeks to determine the truism in the predictive generalizations of the theory that have been identified in the research project. Experiments, quasi-experiments and surveys are the types of quantitative research design in research methodology. Eyisi (2016) opined that quantitative research design is effective in the management of time and resources and makes generalizations feasible, viable, objective and reliable. The results obtained through this approach in research design can be replicated in future studies. On the flip, quantitative research design creates the syndrome called researcher detachment in literature which affect studies in social sciences and adult education research. There is also the problem of regimentation because the approach is characterized by sequence and structure with predetermined variables, hypotheses and designs.

### 6.2 Qualitative research design

Unlike the quantitative research design, the qualitative research design portends a naturalistic approach to research which is phenomenological, and action based. Adelman et al (1976) in Hammed (2020) described it as an approach where the inquiry in research is premised on an instance of action where the reality or experience of an individual or a group of individuals shapes the nature of a given phenomenon. How this phenomenon was experienced, what was experienced and the contextual meaning of the phenomenon in the subjective experience of the individual or group are the areas of interests of the researcher.

The qualitative research design is a process of inquiry that seeks to understand human or social problems from multiple perspectives particularly from their natural settings without the restrictions of scientific analysis. Problem occurs in specific natural environment independent of manipulations available in quantitative research design and qualitative research design entails the process of building a complex and holistic picture of the phenomenon of interest. This approach is not like systematic like its counterpart, quantitative research design because it also involves a process and sequence of action in a natural setting without experimental manipulations. The general types of qualitative research design available in literature include narrative research, case studies, ethnographic studies and phenomenological studies.

Berg and Howard (2012) in Eyisi (2016) characterized this approach as meanings, a concept, a definition, metaphors, symbols and a description of things. The qualitative research design relies on non-numerical primary data for decision making. In this approach, Eyisi (2016) argued that theory emanated from data. The approach perceives human thought and behaviour within a social context. It uses wide range of phenomena such as interaction, thought, reasoning, composition and norms rather than a single phenomenon to understand human behaviours. In qualitative research design, there is a close relationship between the researcher and participants in the study hence the syndrome of researcher detachment does not exist.

However, qualitative research design as an approach in research project is not without its criticisms in literature. There are problems of particularization and replicability of research

findings. Since the human and social problems are premised on phenomena and experiences with multidimensional explanations based on the researcher's interpretation, the probability of human error and bias in research outcome is relatively high. Some scholars criticize qualitative research design as subjective because of its non-numeric procedure of analysis and conclude that the approach cannot report reliable and consistent data comparatively to quantitative research design.

Quantitative and qualitative research design represent the two sides of a coin in research project and Hammed (2020) citing Guba (1982) illustrated the axiomatic differences between the two approaches in a diagrammatic form as follows:

**Table 1: Axiomatic Differences Between Quantitative and Qualitative Research Design**

| Subject                         | Quantitative (rationalistic) | Qualitative (naturalistic)     |
|---------------------------------|------------------------------|--------------------------------|
| Reality                         | Tangible, fragmentable       | Multiple, holistic, intangible |
| Researcher-subject relationship | Independent                  | Interrelated                   |
| Nature to truth statements      | Context-free generalizations | Context-specific hypotheses    |
| Explanation of action           | Real causes, manipulable     | Interactive, non-manipulable   |
| Relation of values to inquiry   | Value-free                   | Value-bound                    |

*Source: Hammed, 2020*

**Table 2: Features of Quantitative, Qualitative and Mixed Methods Research**

| Feature                      | Quantitative   | Qualitative  | Mixed Methods   |
|------------------------------|--|--|---|
| Type                         | Experimental designs, Surveys  | Phenomenology, ethnography, case studies, grounded theory, textual analysis  | Convergent parallel, explanatory sequential, exploratory sequential   |
| Sampling Methods             | Probability; random, stratified random, cluster, multistage  | Purposive, theoretical, snowball, convenience  | Pragmatic knowledge claims, sequential, concurrent, transformative  |
| Data Collection and Analysis | Postal/telephone/online questionnaires, Likert scales<br><b>Data analysis:</b> Descriptive and inferential statistics. Coded data entered into statistical packages such as Microsoft Excel, R, SPSS and SAS | Participant/non-participant observation, open-ended, unstructured, semi-structured interviews, focus group interviews, diaries, testimonies, archived documents, records, notes.<br><b>Data Analysis:</b> transcription, verbatim, content and thematic analysis | Both open- and closed-ended questions, both emerging and predetermined approaches, and both quantitative and qualitative data and analysis.<br><b>Data Analysis:</b> collects both quantitative and qualitative data; develops a rationale for mixing; integrates the data at different stages of inquiry |
| Confidence                   | Validity and Reliability   | Trustworthiness, confirmability, transferability and credibility   | Integration, Triangulation, Convergence, Validity and Reliability   |
| Presentation of Findings     | Numerical format tables, graphs and figures to summarize some data for clarity and understanding   | Verbatim quotes, categories, themes, metaphors and conceptual frameworks for better understanding  | Presents visual pictures of the proceedings in the study<br>Employs the practices of both quantitative and qualitative research   |

*Source: (Adapted from Addo & Eboh, 2014; Creswell, 2014)*

### 6.3 Mixed methods research design

Creswell (2014) argued that the field of mixed methods research design is relatively new concept which traced its development to middle to late 1980s but with origins in Campbell and Fisk use of multiple methods to study psychological traits in 1959. It combines the integration of both qualitative and quantitative research design and data analysis in research project.

Prof Kehinde Kester of the Department of Adult Education in the University of Ibadan is a strong advocate of the mixed methods research design in research study. He surmised that there is no perfect method in any research design and the synthesis of both quantitative and qualitative data helps the researcher to minimize the bias and weaknesses inherent the multiple research methods available in literature. Creswell (2014) identified six primary models of mixed methods research design namely convergent parallel mixed methods, explanatory sequential mixed methods, exploratory sequential mixed methods, transformative mixed methods, embedded mixed methods and multiphase mixed methods.

Leavy (2017) argued that the mixed methods research design engenders comprehensive understanding of the phenomenon that the researcher sets out to investigate because of the integration of quantitative and qualitative data. Although its usage has been applied in social and behavioural science research, there is a limited use in adult education hence advocacy amongst scholars in the field of adult education because of its propensity to engender community transformation and social action in adult learning (Leavy, 2017).

Addo and Eboh (2014) and Creswell (2014) illustrated the features of quantitative and qualitative research and mixed methods research respectively which can be adapted for quantitative, qualitative and mixed methods research design in clarifying their uses in typology and the process of sampling, data collection, analysis and presentation of findings as follows:

### 6.4 Community-based participatory research design

Leavy (2017) opined that this research design is participatory and action-oriented and entails collaborative partnerships between researchers and nonacademic stakeholders in a community-based

environment. The approach has its roots in the community self-surveys in the 1940s and 1950s that laid the foundation for the principle of community-based participatory research approach in practice today (Torre and Fine, 2011 in Leavy, 2017). It simply means that the researcher partners with established community-based organizations (CBOs) to involve the communities that they aim to serve in the process of the study.

This spans the identification of the problem to the discussion of the research findings to give the community a sense of ownership in the implementation of real-life solutions to the identified problem. The principles of community-driven development such as felt-need and participatory community engagement processes are synthesized with this collaborative and problem-centred approach to drive community change in the community. This is an inside-out approach that uses qualitative, quantitative research and mixed-methods research designs. The process of community-based participatory research design is unique, flexible and adaptive. It is individualized and situational to the particular problem, community and resources for the research study.

### 6.5 Format of research design

Whilst the outline and location of research design in research project may vary from faculty to faculty and university to university, there are general template which may help researchers in their quest to gain mastery in research design. Generally, research design in any research project in Adult Education is situated under Methodology in Chapter Three. For the purpose of this study, the following unpublished two postgraduate and two published doctoral research projects were reviewed to illustrate the format of research design:

- Ajanaku, J. F. (2021). Assessment of Staff Development Programmes in the University of Ibadan, 2010 to 2019

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*Qualitative research has been explained as descriptive research that seeks to explain something that can be observed but not measured (McLeod, 2019). The goal of qualitative research is to explain the social realities of individuals, groups, and cultures (McLeod, 2019). The purpose of qualitative research is to explain how and why a*

*phenomenon or behavior exists within the context of how people live and feel (McLeod, 2019). This study employed the phenomenological method of qualitative research design.*

**Research design approach used: Qualitative research design**

- Hall, T. (2020). Perceptions of Co-teaching in Secondary Inclusion Classrooms

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*The purpose of this mixed methods research study was to identify secondary teacher perceptions of co-teaching and determine the extent preservice and in-service training affects those perceptions. A mixed methods approach was used, allowing the 38 researchers to gather both quantitative and qualitative data to determine results related to training and teacher perceptions. Creswell, Plano Clark, Gutmann, and Hanson (2003) provided an example of a visual presentation of procedures as identified by Steckler, McLeroy, Goodman, Bird, and McCormick (1992). A variety of procedures may guide a mixed methods study; however, this researcher used a procedure where both quantitative and qualitative measures were used concurrently.*

**Research design approach used: Mixed method design**

## 7.0 Conclusion

More often than not, researchers and particularly student researchers struggle with this aspect of research project. They are bemused about how to understand and choose the appropriate research design for their projects. To navigate the writer's mental block and progress with the research project, the writer should apply the knowledge of research design in in Adult Education research. The researcher should think of the research design as the same time the topic and research problem are being framed. The consideration of any research design in a project work begins with the selection of a topic and appropriate research methodology. Researchers should be mindful of the type of research design that

will be suitable for their topic and research methodology. Inability to visualize the research design from the beginning will weaken the conceptualization of the research problem and jeopardize the validity of the study.

The research design should provide a framework for the overall strategy that will bring together the different components of the research project in a logical manner. Researchers should think through their choice of research design as they frame their topic, research problems and research methodology. In essence, the problem that the researchers intend to solve should determine the type of design they will use. Readers should get an idea of the type of research design that researchers intend to use from reading the introduction of the project because it should have been incorporated in this section of the work from the onset.

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