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**BOOK CHAPTER**

# PERSPECTIVE ON TERTIARY EDUCATION IN NIGERIA



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**BOOK CHAPTER**

# PERSPECTIVE ON TERTIARY EDUCATION IN NIGERIA

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## CHAPTER FOUR

**MIXED METHODS RESEARCH APPLICATION  
IN TERTIARY INSTITUTIONS**

By

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**Abstract**

Mixed-methods research integrates quantitative and qualitative approaches within a single study to answer complex questions more fully than either approach alone. This chapter introduces mixed-methods principles and designs, explains practical steps for designing and implementing mixed studies, and discusses strengths and limitations with special attention to applications in Nigerian tertiary institutions. After defining core terms and philosophical grounding, the chapter describes primary mixed-methods designs (convergent/parallel 1, explanatory sequential, exploratory sequential, and embedded), and explains practical strategies for integration (connecting, building, merging, embedding) and reporting (joint displays, narrative integration). Implementation steps—framing purposes, choosing designs, sampling, data collection, analysis, integration, validity/legitimation, and reporting—are presented as an operational roadmap. The chapter also summarizes advantages (triangulation, complementarity, contextualization, improved reach) and disadvantages (resource demands, integration complexity, potential bias, need for dual expertise). Finally, the chapter applies mixed-methods reasoning to human resources management problems that hinder effectiveness in Nigerian tertiary institutions (inadequate funding, brain drain, poor incentives, weak training/professional development, politicized appointments), and proposes evidence-based solutions (targeted funding reforms, strategic HRM and retention packages, capacity building, performance-based systems, digital HRM tools, and international partnerships). Practical recommendations for researchers and administrators conclude the chapter.

**Keywords:** Mixed methods; Tertiary education; Human resource management; Nigeria; Integration



## Introduction

Mixed-methods research combines quantitative and qualitative approaches in a single study to answer complex questions more fully than either method alone. By integrating numerical trends with contextual explanations, researchers can corroborate findings and generate actionable insight. In tertiary institutions—where administrators, lecturers, and students face multi-layered challenges such as student engagement, programme quality, and resource allocation—mixed methods are especially useful. They enable, for example, survey-based measurement of outcomes alongside interviews that illuminate mechanisms and lived experience. Throughout this chapter we define core mixed-methods designs, explain how and when to integrate data, and demonstrate practical applications in Nigerian higher education (Creswell & Plano Clark, 2018; Tashakkori & Teddlie, 2010).

Mixed-methods research allows for a more nuanced analysis of complex research topics. By incorporating both quantitative (numeric) and qualitative (textual/observational) data within a single study or a program of inquiry. This method provides a deeper understanding of the subject matter and allows for a more in-depth exploration of different perspectives and interpretations. Furthermore, mixed research method has been found to be more time-efficient and cost-effective compared to conducting separate quantitative and qualitative studies. By combining both methods, researchers can save time and resources as they do not have to repeat the data collection process and can analyze the data more efficiently. The central premise is pragmatic: using each method's strengths to offset the other's weaknesses so that findings are more credible, comprehensive, and actionable (e.g., statistical trends explained by participants' narratives). Pragmatism is commonly advanced as the philosophical foundation for mixed methods because it prioritizes the research question and practical outcomes over strict adherence to a single paradigm (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2010).

*Thus, this chapter is discussed under the following subheadings.*

1. Meaning of Mixed Method
2. Types of mixed method research designs
3. Designing and implementation of mixed method (Steps for Conducting Mixed Methods Research);
4. Advantages of Mixed Methods Research;
5. Disadvantages of Mixed Methods Research;
6. Problems Militating Against Effectiveness of Human Resources Management in Tertiary Institutions in Nigeria;

7. Possible solutions to problems militating against effectiveness of resources management in tertiary institutions in Nigeria

8. Summary

9. Review of Questions

### **Concept of Mixed Method**

Mixed methods research is a great choice when quantitative or qualitative data alone will not sufficiently answer a research question. By collecting and analyzing both quantitative and qualitative data in the same study and more meaningful conclusions is realized. Mixed methods research combines the elements of two types of research: quantitative and qualitative. Quantitative data is collected through the use of surveys and experiments, for example, containing numerical measures such as ages, scores, and percentages while qualitative data involves non-numerical measures like beliefs, motivations, attitudes, and experiences, often derived through interviews and focus group research to gain a deeper understanding of a research question or phenomenon. Mixed methods research is often used in the behavioral, health, and social sciences, as it allows for the collection of numerical and non-numerical data (Dovetail 2023).

The mixed methods research definition is a design that utilizes both quantitative (numeric) and qualitative (descriptive) research elements to gain a conclusion for a study. A mixed methods study is likely to utilize several data collection practices and evaluation processes that are appropriate for both quantitative and qualitative approaches. Mixed methods research can most easily be identified by the following characteristics:

- Collection and analysis of both quantitative and qualitative data
- Integration of the data during the collection process
- Theoretical model(s) serving as a research framework

A mixed methods research design is most often used when there is an interest both in testing theories or integrating a specific theoretical perspective while also exploring a better understanding of an experience or process. If the research question cannot be answered just by analyzing qualitative or quantitative data alone, it would be best to use a mixed methods approach. This type of research is most often done in behavioral and health settings since both usually involve completed situational research from a large sample size. A mixed methods research design is best used when the research question cannot be answered using just one method. When using mixed methods, the researcher must be sure that the quantitative and qualitative methods will complement each other; one method should not dominate the other in the study. The mixed methods research

design works well with *explanatory, exploratory, convergent, and embedded* research processes (Study.com 2024).

Mixed methods research is a great choice when quantitative or qualitative data alone will not sufficiently answer a research question. By collecting and analyzing both quantitative and qualitative data in the same study, you can draw more meaningful conclusions. It is important to note that mixed methods research does not only mean collecting both types of data. Rather, it also requires carefully considering the relationship between the two and method flexibility. When designing a mixed methods study, it is important to consider research approach, research questions, and available data. The researchers should think about how you can use different techniques to integrate the data to provide an answer to your research question (Dovetail 2023).

Mixed method market research refers to the use of more than one data collection method to gather information from research participants. It is also referred to as hybrid market research, mixed-mode research, and multimethodology research. This approach allows a mixed-mode market research company such as Drive Research to gather both numerical data (quantitative) and descriptive data (qualitative), which can then be analyzed and synthesized to draw more robust and nuanced conclusions. Qualitative research methods such as focus groups, ethnographic observation, or in-depth interviews (IDIs) help to gather in-depth insights into consumer attitudes, behaviors, and motivations while quantitative research methods, on the other hand, typically involve the collection of numerical data through online surveys or experiments. Therefore, in mixed-method research, qualitative and quantitative methods are often used in combination (Eisenhauer, 2023).

From the above, mixed methods research is a research method that combines and integrates qualitative and quantitative research methods in a single research study. It involves collecting and analyzing qualitative and quantitative data to understand a phenomenon better and answer the research questions. The central premise of using mixed methods research is that it makes the most of the strengths of each data type while neutralizing their weaknesses. Researchers combine qualitative and quantitative methods to expand their evidence, improve the credibility of their findings, and illustrate the results from one method with the results from the other one.

### Types of Mixed Methods Research Designs

Mixed methods designs are commonly grouped into four families:

Researchers often struggle to put mixed methods research into practice, as it is challenging and can lead to research bias. Although mixed methods research can reveal differences or conflicting results between studies, it can also offer method flexibility. Designing a mixed methods study can be broken down into four types: convergent parallel, embedded, explanatory sequential, and exploratory sequential.

### **Convergent (parallel) design**

Quantitative and qualitative data are collected concurrently, analyzed separately, and then merged to compare and combine results. Useful when time is limited and when triangulation or complementary findings are desired (Creswell & Plano Clark, 2018).

The convergent parallel design is when data collection and analysis of both quantitative and qualitative data occur simultaneously and are analyzed separately. This design aims to create mutually exclusive sets of data that inform each other. For example, you might interview people who live in a certain neighborhood while also conducting a survey of the same people to determine their satisfaction with the area (Dovetail 2023). Delve., & Limpaecher, (2022a, March 23) noted that convergent design is a type of mixed methods research in which you collect quantitative and qualitative data simultaneously and analyze them separately. After the analysis, researchers then combine or compare the results to draw a conclusion. Convergent design is used when there is a need to compare statistical results with qualitative findings to understand the research problem better. Researchers also use this mixed qualitative and quantitative research methods design to validate and illustrate qualitative findings with quantitative results.

### **Embedded design**

One method (often qualitative) is nested within a larger design oriented to the other method (often quantitative), to provide supplementary insight without full parity of strands (Tashakkori & Teddlie, 2010).

The embedded design is when the quantitative and qualitative data are collected simultaneously, but the qualitative data is embedded within the quantitative data. This design is best used when you want to focus on the quantitative data but still need to understand how the qualitative data further explains it. For instance, researchers may survey students about their opinions of an online learning platform and conduct individual interviews to gain further insight into their responses (Dovetail 2023).

### **Explanatory sequential design**

Quantitative data are collected and analyzed first; qualitative follow-up explains or elaborates on quantitative results. This is ideal when a research problem is primarily quantitative but requires interpretation (Fetters et al., 2013).

In an explanatory sequential design, quantitative data is collected first, followed by qualitative data. This design is used when researchers want to further explain a set of quantitative data with additional qualitative information. An example of this would be if researchers surveyed employees at a company about their satisfaction with their job and then conducted interviews to gain more information about why they responded the way they did (Dovetail 2023). Explanatory sequential design is a type of mixed methods research in which researchers first collect and analyze

quantitative data and then follow the results up with a qualitative phase. In this approach, researchers implement the qualitative phase to explain initial quantitative results in more depth (Delve, & Limpaecher, 2022a, March 23).

### Exploratory sequential design

Qualitative phase comes first to explore phenomena and build instruments or hypotheses for a subsequent quantitative phase. Useful when constructs are nascent or measurement tools are undeveloped (Creswell & Plano Clark, 2018).

### Designing and Implementing Mixed Methods (Steps)

There is no clear-cut procedure for conducting a study using mixed methods. However, researchers can conduct mixed methods research by following the steps below according to Delve, & Limpaecher, 2022a, March 23): A practical step-wise approach includes:

1. **Clarify the research question(s) and purpose.** Determine whether the question requires corroboration, complementarity, development, or expansion (Creswell & Plano Clark, 2018).
2. **Select an appropriate design.** Choose convergent, explanatory sequential, exploratory sequential, embedded, or multistage design, aligned to purpose, timeline, and resources. Select the most appropriate design out of the three types of mixed methods research designs.
  - **Convergent design** is suitable when researchers need both qualitative and quantitative data, have limited time to collect the data, and must gather the required data in one visit.
  - **Explanatory design** is appropriate if the research problem is quantitatively oriented and the variables and instruments required for the research are available.
  - **Exploratory design** is best when the variables are unknown and the instruments needed are not available. This is also the best mixed methods research approach to use if there is no guiding theory for the study (Tashakkori & Teddlie, 2010).
3. **Specify sampling strategies.** Quantitative strands typically use probability sampling; qualitative strands use purposive or theoretical sampling. Integration requires clear linkage (Johnson & Onwuegbuzie, 2004).
4. **Develop instruments and protocols.** Ensure rigor for both surveys/experiments and interviews/focus groups (Creswell & Plano Clark, 2018).
5. **Collect data with attention to timing and sequencing.** Document whether strands are concurrent or sequential and how one informs the other (Fetters et al., 2013).

6. **Analyze each strand separately.** Use appropriate statistical tests and qualitative analytic techniques such as thematic or grounded analysis (Tashakkori & Teddlie, 2010).
7. **Integrate results.** Use connecting, building, merging, embedding, and joint displays (Fetters et al., 2013).
8. **Address quality and legitimation.** Employ triangulation, member checking, and validity checks to strengthen findings (Johnson & Onwuegbuzie, 2004).
9. **Report findings with integration clarity.** Use narrative weaving and joint displays to show how strands informed conclusions (Fetters et al., 2013).

## Advantages and Disadvantages of Mixed Research Methods

### Advantages of Mixed-Methods Research

There are many benefits of mixed research method. Some of them includes;

#### 1. Complementary strengths

By combining quantitative and qualitative research methods, mixed research can capitalize on the complementary strengths of each method. That's because, common forms of quantitative research are good at providing statistical data and generalizability, while qualitative methods are useful for understanding the context and complexity of human behavior. Therefore, mixed-method research can provide a more comprehensive understanding of a research question than either method could alone. As researchers, we all know that different data collection methods have strengths and weaknesses, and combining them can help mitigate those shortcomings and improve the quality of data collected (Eisenhauer, 2023). Paterra (2020) opined that mixed methods allow for a more thorough exploration of complex issues. For instance, when assessing the impact of economic policies on household spending, quantitative data might reveal trends in spending patterns, while qualitative interviews could uncover the reasons behind those changes. This combination provides a more complete understanding of the issue at hand.

#### 2. Triangulation

Mixed-method research also allows for triangulation, which is the use of multiple sources of data to confirm or refute research findings. By using several data sources, you can increase the validity and reliability of the researchers' results. Triangulation can also help identify inconsistencies or contradictions in the data, which can be addressed through further investigation (Drive research 2023). Through a mixed methods approach, researchers could more easily compare and contrast their results to better understand the phenomenon as a whole (Dovetail 2023). Using both qualitative and quantitative data helps validate findings through triangulation. For example, if a study on unemployment trends shows a rise in jobless rates (quantitative data) and interviews with



affected individuals highlight the reasons for job loss (qualitative data), the research is more likely to produce accurate, reliable results (Pattera 2020).

### **3. Flexibility**

Mixed-method research is more flexible than using a single method of research. Researchers can adapt your approach to fit the needs of the research question and the data collected. For example, if the data collected using quantitative methods are not providing enough information, researchers can use qualitative methods to provide more context and detail. This flexibility can help you get a more accurate and complete picture of your research question (Eisenhauer, 2023). Mixed methods research designs according to (Dovetail 2023) combine the strengths of qualitative and quantitative data, deepening and enriching qualitative results with quantitative data and validating quantitative findings with qualitative data. This method offers more flexibility in designing research, combining theory generation and hypothesis testing, and being less tied to disciplines and established research paradigms. Take the example of a study examining the impact of exercise on mental health. Mixed methods research would allow for a comprehensive look at the issue from different angles. Pattera (2020) noted that mixed methods offer the flexibility to address different aspects of a research question. For example, studying the effects of a new education policy on student performance could involve standardized test scores (quantitative) as well as focus groups with teachers and students (qualitative) to understand the policy's real-world impact

### **4. Contextualize online survey metrics**

Mixed-mode market research can also involve using qualitative data to help interpret and contextualize the results of quantitative analysis. For example, if a survey reveals that a large proportion of consumers prefer a particular product feature, researchers can use qualitative data to gain a deeper understanding of why consumers value that feature and what it means to them (Eisenhauer, 2023). Overall, mixed methods research designs offer a range of advantages for studying complex phenomena. They can provide insight into different elements of a phenomenon in ways that are not possible with either qualitative or quantitative data alone. Additionally, they allow researchers to integrate data from multiple sources to gain a deeper understanding of the phenomenon in question (Dovetail 2023).

### **5. Increased response rates**

Mixed-mode research can help increase survey response rates as participants can choose the data collection method that suits them best. Respondents may prefer online surveys to telephone interviews or face-to-face interviews, and giving them the option to choose can lead to a higher response rate (Eisenhauer, 2023). Mixed methods research is useful when there are conflicting or differing results in different studies. By combining both quantitative and qualitative data, mixed methods research can offer insights into why those differences exist. For example, if a quantitative

survey yields one result while a qualitative interview yields another, mixed methods research can help identify what factors influence these differences by integrating data from both sources (Dovetail 2023).

## **6. Better reach**

Combining different data collection methods helps researchers to reach a wider audience. Not everyone has access to the Internet, and some may prefer to communicate via telephone or in person. Combining different methods ensures that everyone can participate in the research, leading to a more diverse and representative sample (Eisenhauer, 2023). Researchers could begin by collecting quantitative data through surveys to get an overall view of the participants' levels of physical activity and mental health. Qualitative interviews would follow this to explore the underlying dynamics of participants' experiences of exercise, physical activity, and mental health in greater detail (Dovetail 2023).

## **Disadvantages of Mixed Methods**

### ***1. Resource Demands***

Combining both qualitative and quantitative approaches requires more resources in terms of time, effort, and money. A study analyzing global trade impacts, for instance, might involve extensive surveys and interviews with business leaders, economists, and policymakers, making it a complex and resource-intensive endeavor.

### ***2. Complexity in Data Integration***

Integrating findings from both methods can be challenging, especially when trying to present a cohesive narrative. In a study on housing markets, for instance, aligning quantitative price data with qualitative information from real estate professionals requires careful synthesis to avoid conflicting interpretations.

### ***3. Risk of Bias***

Qualitative data interpretation can be subjective, potentially leading to bias. For example, if qualitative data from interviews with industry insiders disproportionately influences the conclusions of an economic study, it might skew the overall findings in favor of specific perspectives.

### ***4. Need for Expert Involvement***

Effectively conducting mixed methods research requires expertise in both qualitative and quantitative analysis. Without an expert to guide the research process, there's a risk of misinterpreting data, applying improper techniques, or failing to integrate the findings coherently. For example, a novice might struggle to reconcile conflicting data points from a large-scale economic study, leading to inaccurate conclusions.



### Problems Militating Against Effective HRM in Nigerian Tertiary Institutions

Challenges include chronic underfunding and irregular allocations, brain drain of academics, poor remuneration and incentive structures, inadequate professional development, politicized hiring and promotion practices, frequent industrial actions, weak HR digital systems, and poor infrastructure. These issues reduce staff morale, retention, and productivity, undermining quality teaching and research (World Bank, 2025; UNESCO IICBA, n.d.; Igiri et al., 2021).

### Possible Solutions to HRM Problems

- **Strategic funding:** Diversify funding and ensure transparent use (World Bank, 2025).
- **Retention packages:** Competitive compensation, research grants, sabbaticals, and promotion based on productivity (UNESCO IICBA, n.d.).
- **Capacity building:** Continuous professional development and mentorship to strengthen academic pipeline (Igiri et al., 2021).
- **Digital HR systems:** Use HRM information technology for transparent recruitment and performance appraisal (World Bank, 2025).
- **International partnerships:** Research collaborations and mobility programs to reduce isolation (UNESCO IICBA, n.d.).
- **Governance reforms:** Meritocratic recruitment, institutional autonomy, and accountability (Igiri et al., 2021).

### Summary

Mixed research method offers numerous benefits that make it a valuable tool in academic research. By combining quantitative and qualitative techniques, this method provides a more comprehensive understanding of research topics, increases the credibility and validity of findings, and is highly adaptable to fit the specific needs of each research project. Mixed research methods allow for a more nuanced analysis of data, enabling researchers to uncover potential underlying factors and connections that may have been overlooked through a singular approach. Therefore, the implementation of mixed research methods in tertiary institutions in Nigeria is essential for the advancement of knowledge and the improvement of the education system in the country. Mixed methods can significantly enhance the depth and reliability of survey research by combining the strengths of both qualitative and quantitative approaches. However, the challenges they present, such as resource demands and the potential for bias, must be carefully managed. When applied thoughtfully, mixed methods can provide a richer, more nuanced understanding of complex research questions, making them a valuable tool in the researcher's arsenal.

In Nigeria, mixed methods can link institutional indicators (e.g., staffing ratios, research outputs) with staff and student perspectives, thereby generating actionable solutions for HRM and educational quality improvement (Creswell & Plano Clark, 2018; Feters et al., 2013).

### Review Questions

1. Define mixed-methods research and state when it is appropriate.
2. Identify and describe three mixed-methods designs.
3. List five practical steps in conducting a mixed-methods study.
4. Discuss four advantages and four disadvantages of mixed methods.
5. Identify three HRM challenges in Nigerian tertiary institutions and propose solutions.

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