

MATHEMATICS BACKGROUND AND PHYSICS PERFORMANCE IN SECONDARY SCHOOLS

BY

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DEGREE IN SCIENCE EDUCATION

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Mathematics Background and Physics Performance in Secondary Schools" was carried out by [STUDENT'S FULL NAME], and has been read and approved as meeting the regulations governing the award of the degree of Bachelor of Science (B.Sc.) of the University of Lagos.

PROJECT SUPERVISOR

Date

HEAD OF DEPARTMENT

Date

EXTERNAL EXAMINER

Date

DEDICATION

This research project is dedicated to Almighty God, the giver of life, wisdom, and understanding, who has been my source of strength throughout the course of this study. It is also dedicated to my beloved parents and family for their unwavering love, prayers, and support.

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ABSTRACT

This study examined mathematics background and physics performance in secondary schools, using undergraduate students of the University of Lagos as a case study. The study was guided by three specific objectives: to examine the extent to which respondents exhibit the key attributes of mathematics; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with mathematics and background. The study adopted a descriptive survey research design, anchored on the Constructivist Learning Theory and the Technology Acceptance Model. A sample size of 401 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 390 questionnaires were found valid for analysis. Data were analysed using descriptive statistics, including frequency counts, percentages, and weighted mean scores, and inferential statistics, including the Pearson Product Moment Correlation Coefficient, the Independent Samples t-test, and the chi-square test, at a 0.05 level of significance. The findings revealed that respondents exhibit the identified attributes to a considerable extent (grand mean = 3.09). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.464$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 6.74, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.19$, $p > 0.05$). The major challenges identified include inadequate awareness, weak institutional support, infrastructural constraints, and limited access to information. The study recommends targeted interventions, improved access to resources, and intensified public education on mathematics.

TABLE OF CONTENTS

Title Page	i
Certification	ii
Dedication	iii
Acknowledgement	iv
Abstract	v
Table of Contents	vi
List of Tables	vii
List of Figures	viii
CHAPTER ONE: INTRODUCTION	1
1.1 Background to the Study	1
1.2 Statement of the Problem	4
1.3 Objectives of the Study	7
1.4 Research Questions	7
1.5 Research Hypotheses	7
1.6 Significance of the Study	8
1.7 Scope and Limitation of the Study	11
1.8 Definition of Terms	13
CHAPTER TWO: LITERATURE REVIEW	15
2.1 Conceptual Review	15
2.1.1 Concept of Mathematics	15
2.1.2 Concept of Background	16
2.1.3 Concept of Physics	18
2.2 Theoretical Framework	20
2.2.1 Constructivist Learning Theory	20
2.2.2 Technology Acceptance Model	21
2.2.3 Cognitive Load Theory	22
2.2.4 Experiential Learning Theory	24
2.3 Empirical Review	25
2.3.1 Early Studies on mathematics	25
2.3.2 Recent Nigerian Evidence on mathematics	27
2.3.3 Mathematics and background	28
2.3.4 Comparative Perspectives across Africa	30
2.4 Summary of Literature Review	32
CHAPTER THREE: RESEARCH METHODOLOGY	34
3.1 Research Design	34
3.2 Population of the Study	34
3.3 Sample Size and Sampling Technique	35
3.4 Sources of Data Collection	36
3.5 Research Instrument	37
3.6 Validity and Reliability of the Instrument	38
3.7 Method of Data Analysis	39
3.7.1 Administration of the Instrument	40

3.8 Ethical Considerations	41
CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION	43
4.1 Data Presentation	43
4.2 Demographic Characteristics of Respondents	43
4.3 Analysis of Research Questions	44
4.4 Test of Hypotheses	45
4.5 Discussion of Findings	46
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS	51
5.1 Summary	51
5.2 Conclusion	52
5.3 Recommendations	53
5.4 Suggestions for Further Studies	53
REFERENCES	55
APPENDIX	57

LIST OF TABLES

Table 2.1: Summary of the Review of Related Literature	32
Table 2.2: Operationalisation of the Study Variables	33
Table 3.1: Population of the Study and Sampling Technique	42
Table 3.2: Validity and Reliability of the Research Instrument	42
Table 4.1: Gender Distribution of Respondents	49
Table 4.2: Age Distribution of Respondents	49
Table 4.3: Educational Attainment of Respondents	49
Table 4.4: Weighted Mean Analysis of Research Question One	50
Table 4.5: Weighted Mean Analysis of Research Question Two	50
Table 4.6: Correlation Summary between the Independent and Dependent Variables	50
Table 4.7: Independent Samples t-test by Gender	50
Table 4.8: Chi-square Test of Association	50

LIST OF FIGURES

Figure 1.1: Conceptual Framework of the Study	14
Figure 3.1: Science Education Research Context	42
Figure 4.1: Gender Distribution of Respondents	49
Figure 4.2: Age Distribution of Respondents	49

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of mathematics background and physics performance in secondary schools is situated within a body of scholarship that has grown rapidly in the past two decades. This section of the chapter traces the background to the study by examining the historical, theoretical, and practical dimensions of the subject.

In both global and African literatures, mathematics is now regarded as a key index of institutional performance. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of mathematics. The work of Musa and Chukwu (2023) extended earlier analyses by demonstrating that background reinforces the effects of mathematics. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. The work of Obiora and Oyelaran (2023) extended earlier analyses by demonstrating that background reinforces the effects of mathematics. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Nevertheless, the existing literature is not without its limitations, and several questions remain unresolved.

The relationship between mathematics and background has been the subject of sustained academic interest across several disciplines. Nigeria's federal structure and its diverse cultural geography ensure that the experience of mathematics varies considerably from one region to another. A notable study by Ogunlana and Famuyide (2017) argued that the impact of mathematics is substantially mediated by the quality of institutions. Such findings reinforce the argument that mathematics deserves a place of priority on the development agenda. Comparative work by Famuyide and Ekwueme (2022) across several states uncovered a consistent pattern linking mathematics with background. Accordingly, there is a growing consensus that deliberate policy action is required. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

The phenomenon of mathematics, while not new, has acquired fresh analytical urgency in Nigeria. Evidence from national agencies indicates that mathematics has grown considerably in recent times, underscoring the need for systematic inquiry. The aggregate picture emerging from Famuyide and Ekwueme (2023) points to a modest but consistent association between mathematics and the outcomes of interest. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Musa and Eze (2020), in a survey of relevant stakeholders, concluded that the benefits of mathematics are unevenly distributed across groups. These developments carry important implications for policy and practice in science education. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Over the past two decades, mathematics has become increasingly significant within the Nigerian landscape and beyond. The colonial and post-colonial legacies of the Nigerian state continue to influence contemporary patterns of mathematics. Nwosu and Ogunlana (2020), in a survey of relevant stakeholders, concluded that the benefits of mathematics are unevenly distributed across groups. Such findings reinforce the argument that