

DESIGN AND PERFORMANCE ASSESSMENT OF BASIC AMPLIFIER CIRCUITS

BY

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DEGREE IN PHYSICS

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Design and Performance Assessment of Basic Amplifier Circuits" 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.

ACKNOWLEDGEMENT

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ABSTRACT

This study examined design and performance assessment of basic amplifier circuits, 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 design; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with design and performance. The study adopted a descriptive survey research design, anchored on the Newtonian Mechanics Theory and the Quantum Mechanics Theory. A sample size of 415 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 381 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 = 3.12). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.471$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 7.27, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.33$, $p > 0.05$). 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 design.

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	7
1.7 Scope and Limitation of the Study	10
1.8 Definition of Terms	12
CHAPTER TWO: LITERATURE REVIEW	14
2.1 Conceptual Review	14
2.1.1 Concept of Design	14
2.1.2 Concept of Performance	15
2.1.3 Concept of Assessment	17
2.2 Theoretical Framework	19
2.2.1 Newtonian Mechanics Theory	19
2.2.2 Quantum Mechanics Theory	20
2.2.3 Electromagnetic Theory	21
2.2.4 Thermodynamics Laws	22
2.3 Empirical Review	23
2.3.1 Early Studies on design	23
2.3.2 Recent Nigerian Evidence on design	25
2.3.3 Design and performance	27
2.3.4 Comparative Perspectives across Africa	28
2.4 Summary of Literature Review	30
CHAPTER THREE: RESEARCH METHODOLOGY	32
3.1 Research Design	32
3.2 Population of the Study	32
3.3 Sample Size and Sampling Technique	33
3.4 Sources of Data Collection	34
3.5 Research Instrument	35
3.6 Validity and Reliability of the Instrument	36
3.7 Method of Data Analysis	37
3.7.1 Administration of the Instrument	38

3.8 Ethical Considerations	39
CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION	41
4.1 Data Presentation	41
4.2 Demographic Characteristics of Respondents	41
4.3 Analysis of Research Questions	42
4.4 Test of Hypotheses	43
4.5 Discussion of Findings	44
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS	49
5.1 Summary	49
5.2 Conclusion	50
5.3 Recommendations	51
5.4 Suggestions for Further Studies	51
REFERENCES	53
APPENDIX	55

LIST OF TABLES

Table 2.1: Summary of the Review of Related Literature	31
Table 2.2: Operationalisation of the Study Variables	31
Table 3.1: Population of the Study and Sampling Technique	39
Table 3.2: Validity and Reliability of the Research Instrument	40
Table 4.1: Gender Distribution of Respondents	47
Table 4.2: Age Distribution of Respondents	47
Table 4.3: Educational Attainment of Respondents	47
Table 4.4: Weighted Mean Analysis of Research Question One	48
Table 4.5: Weighted Mean Analysis of Research Question Two	48
Table 4.6: Correlation Summary between the Independent and Dependent Variables	48
Table 4.7: Independent Samples t-test by Gender	48
Table 4.8: Chi-square Test of Association	48

LIST OF FIGURES

Figure 1.1: Conceptual Framework of the Study	13
Figure 3.1: Physics Research Context	40
Figure 4.1: Gender Distribution of Respondents	47
Figure 4.2: Age Distribution of Respondents	47

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of design and performance assessment of basic amplifier circuits 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, design is now regarded as a key index of institutional performance. Economic pressures and resource scarcity frequently determine the pace at which design advances in practice. Findings reported by Salami and Famuyide (2018) observed that respondents with greater exposure to design recorded markedly different results. These observations collectively invite a reconsideration of standard assumptions regarding performance. Evidence assembled by Aderemi and Bakare (2015) across twelve states underscored the heterogeneity of outcomes linked to design. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. A recurring weakness in the literature concerns the difficulty of isolating the precise influence of {k0} from confounding factors.

design, when examined in relation to performance, reveals complex and often paradoxical dynamics. Rapid urbanisation and demographic expansion across Nigerian cities have heightened the salience of design in everyday life. Studies by Eze and Nnamdi (2019) largely support the view that design exerts a measurable influence on outcomes of interest. Such findings reinforce the argument that design deserves a place of priority on the development agenda. The aggregate picture emerging from Famuyide and Umeh (2023) points to a modest but consistent association between design and the outcomes of interest. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

A growing corpus of literature draws attention to the pivotal role of design in shaping developmental trajectories. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of design. Findings reported by Famuyide and Umeh (2018) observed that respondents with greater exposure to design recorded markedly different results. Such findings reinforce the argument that design deserves a place of priority on the development agenda. Empirical evidence from Bello and Okonkwo (2021) suggests that positive developments in performance are associated with improvements in design. Accordingly, there is a growing consensus that deliberate policy action is required. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

design occupies a prominent position in contemporary debates about performance and national development. Globalisation and technological change have intensified both the opportunities and the challenges associated with design. Evidence assembled by Adeniyi and Nwosu (2015) across twelve states underscored the heterogeneity of outcomes linked to design. Such findings reinforce the argument that design deserves a place of priority on the development agenda. A notable study by Famuyide and Kalu (2017) argued that the impact of design is substantially mediated by the quality of institutions. Such findings reinforce the argument that