

USE OF THE ENVIRONMENT AS A TEACHING LABORATORY

BY

[STUDENT'S FULL NAME]

[MATRIC NUMBER]

BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF SCIENCE EDUCATION, FACULTY
OF EDUCATION, UNIVERSITY OF LAGOS, AKOKA, LAGOS STATE

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc.)
DEGREE IN SCIENCE EDUCATION

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Use of the Environment as a Teaching Laboratory" 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

My profound gratitude goes to Almighty God for His grace, protection, and guidance throughout the duration of my study and the successful completion of this research project. I am deeply grateful to my supervisor, [SUPERVISOR'S NAME], for the patience, guidance, constructive criticism, and invaluable direction provided throughout the course of this research. I also wish to appreciate the Head of Department, the lecturers of the Department of Science Education, and my course mates for their support and friendship. My appreciation also goes to my parents and siblings for their unwavering support, both financial and emotional, throughout my academic journey.

ABSTRACT

This study examined use of the environment as a teaching laboratory, 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 use; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with use and environment. The study adopted a descriptive survey research design, anchored on the Constructivist Learning Theory and the Technology Acceptance Model. A sample size of 386 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 374 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 = 3.0). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.566$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 6.6, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.32$, $p > 0.05$). 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 use.

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 Use	14
2.1.2 Concept of Environment	15
2.1.3 Concept of Teaching	17
2.2 Theoretical Framework	19
2.2.1 Constructivist Learning Theory	19
2.2.2 Technology Acceptance Model	20
2.2.3 Cognitive Load Theory	21
2.2.4 Experiential Learning Theory	22
2.3 Empirical Review	23
2.3.1 Early Studies on use	23
2.3.2 Recent Nigerian Evidence on use	25
2.3.3 Use and environment	27
2.3.4 Comparative Perspectives across Africa	29
2.4 Summary of Literature Review	30
CHAPTER THREE: RESEARCH METHODOLOGY	33
3.1 Research Design	33
3.2 Population of the Study	33
3.3 Sample Size and Sampling Technique	34
3.4 Sources of Data Collection	35
3.5 Research Instrument	36
3.6 Validity and Reliability of the Instrument	37
3.7 Method of Data Analysis	38
3.7.1 Administration of the Instrument	39

3.8 Ethical Considerations	39
CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION	42
4.1 Data Presentation	42
4.2 Demographic Characteristics of Respondents	42
4.3 Analysis of Research Questions	43
4.4 Test of Hypotheses	44
4.5 Discussion of Findings	45
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS	50
5.1 Summary	50
5.2 Conclusion	51
5.3 Recommendations	52
5.4 Suggestions for Further Studies	52
REFERENCES	54
APPENDIX	56

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	40
Table 3.2: Validity and Reliability of the Research Instrument	40
Table 4.1: Gender Distribution of Respondents	48
Table 4.2: Age Distribution of Respondents	48
Table 4.3: Educational Attainment of Respondents	48
Table 4.4: Weighted Mean Analysis of Research Question One	49
Table 4.5: Weighted Mean Analysis of Research Question Two	49
Table 4.6: Correlation Summary between the Independent and Dependent Variables	49
Table 4.7: Independent Samples t-test by Gender	49
Table 4.8: Chi-square Test of Association	49

LIST OF FIGURES

Figure 1.1: Conceptual Framework of the Study	13
Figure 3.1: Science Education Research Context	41
Figure 4.1: Gender Distribution of Respondents	48
Figure 4.2: Age Distribution of Respondents	48

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of use of the environment as a teaching laboratory 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.

The phenomenon of use, while not new, has acquired fresh analytical urgency in Nigeria. Public institutions at the federal, state, and local levels have developed programmes that seek to mainstream use into routine governance. Obiora and Chukwu (2020), in a survey of relevant stakeholders, concluded that the benefits of use are unevenly distributed across groups. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Studies conducted within the West African subregion by Oyelaran and Adebayo (2018) reached conclusions broadly consistent with the Nigerian evidence. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

Few subjects attract as much policy interest in contemporary Nigeria as the question of use. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of use. Olawale and Obiora (2020), in a survey of relevant stakeholders, concluded that the benefits of use are unevenly distributed across groups. Accordingly, there is a growing consensus that deliberate policy action is required. A notable study by Osinachi and Olawale (2017) argued that the impact of use is substantially mediated by the quality of institutions. For practitioners, the practical significance of use cannot be overstated, given its demonstrable link with environment. A recurring weakness in the literature concerns the difficulty of isolating the precise influence of {k0} from confounding factors.

In both global and African literatures, use is now regarded as a key index of institutional performance. Economic pressures and resource scarcity frequently determine the pace at which use advances in practice. The work of Osinachi and Olawale (2023) extended earlier analyses by demonstrating that environment reinforces the effects of use. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Comparative work by Adekunle and Kalu (2022) across several states uncovered a consistent pattern linking use with environment. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

A growing corpus of literature draws attention to the pivotal role of use in shaping developmental trajectories. Evidence from national agencies indicates that use has grown considerably in recent times, underscoring the need for systematic inquiry. Studies by Obiora and Salami (2019) largely support the view that use exerts a measurable influence on outcomes of interest. These observations collectively invite a reconsideration of standard assumptions regarding environment. Obiora and Bamgbose (2020), in a survey of relevant stakeholders, concluded that the benefits of use are unevenly distributed across groups. The cumulative effect