

DEMONSTRATION OF ELECTRICITY CONCEPTS WITH SIMPLE CIRCUITS

BY

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DEGREE IN SCIENCE EDUCATION

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Demonstration of Electricity Concepts with Simple 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.

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ABSTRACT

This study examined demonstration of electricity concepts with simple 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 demonstration; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with demonstration and electricity. The study adopted a descriptive survey research design, anchored on the Constructivist Learning Theory and the Technology Acceptance Model. A sample size of 407 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 384 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 = 2.96). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.518$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 7.6, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.09$, $p > 0.05$). 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 demonstration.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of demonstration of electricity concepts with simple 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 recent years, demonstration has emerged as a central theme in scholarly discourse on science education. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which demonstration unfolds. Findings reported by Chukwu and Adekunle (2018) observed that respondents with greater exposure to demonstration recorded markedly different results. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. Ogbeide and Okonkwo (2020), in a survey of relevant stakeholders, concluded that the benefits of demonstration are unevenly distributed across groups. Such findings reinforce the argument that demonstration deserves a place of priority on the development agenda. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

demonstration continues to command considerable attention among researchers, policymakers, and practitioners in science education. The colonial and post-colonial legacies of the Nigerian state continue to influence contemporary patterns of demonstration. The work of Adebayo and Adebayo (2023) extended earlier analyses by demonstrating that electricity reinforces the effects of demonstration. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Comparative work by Ogunlana and Olawale (2022) across several states uncovered a consistent pattern linking demonstration with electricity. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

Scholars have long recognised demonstration as a critical determinant of outcomes in science education. National policies and programmes have sought, with varying degrees of success, to respond to the realities of demonstration and electricity. An examination by Ogunlana and Olawale (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Studies by Eze and Oyelaran (2019) largely support the view that demonstration exerts a measurable influence on outcomes of interest. For practitioners, the practical significance of demonstration cannot be overstated, given its demonstrable link with electricity. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

demonstration continues to command considerable attention among researchers, policymakers, and practitioners in science education. In Nigeria, the intersection of demonstration and electricity is conditioned by unique socio-economic, cultural, and institutional factors that differ markedly from Western settings. A