

EVALUATION OF THE ENERGY EFFICIENCY OF HOUSEHOLD ELECTRICAL APPLIANCES

BY

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DEGREE IN PHYSICS

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Evaluation of the Energy Efficiency of Household Electrical Appliances" 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 evaluation of the energy efficiency of household electrical appliances, 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 evaluation; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with evaluation and energy. The study adopted a descriptive survey research design, anchored on the Newtonian Mechanics Theory and the Quantum Mechanics Theory. A sample size of 408 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 393 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 ($r = 0.582$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 8.43, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.06$, $p > 0.05$). 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 evaluation.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of evaluation of the energy efficiency of household electrical appliances 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 salience of evaluation in national discourse has grown steadily, driven by changing social conditions and technological penetration. Globalisation and technological change have intensified both the opportunities and the challenges associated with evaluation. An examination by Chukwu and Ogunlana (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. Research by Ibrahim and Musa (2021) using mixed methods provided particularly rich insight into the mechanisms connecting evaluation and energy. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

Scholars have long recognised evaluation as a critical determinant of outcomes in physics. National policies and programmes have sought, with varying degrees of success, to respond to the realities of evaluation and energy. Longitudinal research by Bamgbose and Obiora (2016) revealed that sustained attention to evaluation yields appreciable dividends over time. These observations collectively invite a reconsideration of standard assumptions regarding energy. Longitudinal research by Ibrahim and Eze (2016) revealed that sustained attention to evaluation yields appreciable dividends over time. 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.

The phenomenon of evaluation, while not new, has acquired fresh analytical urgency in Nigeria. Rapid urbanisation and demographic expansion across Nigerian cities have heightened the salience of evaluation in everyday life. Studies by Ibrahim and Eze (2019) largely support the view that evaluation exerts a measurable influence on outcomes of interest. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Research by Adebayo and Alade (2021) using mixed methods provided particularly rich insight into the mechanisms connecting evaluation and energy. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Contemporary scholarship increasingly frames evaluation as inseparable from the broader question of energy. Within Lagos State, the country's most populous commercial hub, the dynamics of evaluation are observed in their starkest form. Bamgbose and Ibrahim (2020), in a survey of relevant stakeholders, concluded that the benefits of evaluation are unevenly distributed across groups. Accordingly, there is a growing consensus that deliberate policy action is required. Studies by Adebayo and Oyelaran (2019) largely support the view that