ASSESSMENT OF RADIATION SHIELDING EFFECTIVENESS OF SELECTED MATERIALS

BY

[STUDENT'S FULL NAME]

[MATRIC NUMBER]

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

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

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Assessment of Radiation Shielding Effectiveness of Selected Materials" 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.

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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 Physics, 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 assessment of radiation shielding effectiveness of selected materials, 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 assessment; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with assessment and radiation. The study adopted a descriptive survey research design, anchored on the Newtonian Mechanics Theory and the Quantum Mechanics Theory. A sample size of 410 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 399 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 = 3.06). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.531$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 9.2, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.24$, $p > 0.05$). 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 assessment.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of assessment of radiation shielding effectiveness of selected materials 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.

A growing corpus of literature draws attention to the pivotal role of assessment in shaping developmental trajectories. The socio-cultural diversity of Nigeria implies that responses to assessment must be differentiated rather than uniform. Comparative work by Adeniyi and Osinachi (2022) across several states uncovered a consistent pattern linking assessment with radiation. Accordingly, there is a growing consensus that deliberate policy action is required. An examination by Ekwueme and Dauda (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. 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 assessment, while not new, has acquired fresh analytical urgency in Nigeria. Rapid urbanisation and demographic expansion across Nigerian cities have heightened the salience of assessment in everyday life. Studies conducted within the West African subregion by Adebayo and Aderemi (2018) reached conclusions broadly consistent with the Nigerian evidence. Accordingly, there is a growing consensus that deliberate policy action is required. Bakare and Nnamdi (2020), in a survey of relevant stakeholders, concluded that the benefits of assessment are unevenly distributed across groups. 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 relationship between assessment and radiation has been the subject of sustained academic interest across several disciplines. Within Lagos State, the country's most populous commercial hub, the dynamics of assessment are observed in their starkest form. Empirical evidence from Bakare and Nnamdi (2021) suggests that positive developments in radiation are associated with improvements in assessment. Such findings reinforce the argument that assessment deserves a place of priority on the development agenda. Research by Chukwu and Obiora (2021) using mixed methods provided particularly rich insight into the mechanisms connecting assessment and radiation. Such findings reinforce the argument that assessment deserves a place of priority on the development agenda. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

Contemporary scholarship increasingly frames assessment as inseparable from the broader question of radiation. National policies and programmes have sought, with varying degrees of success, to respond to the realities of assessment and radiation. Longitudinal research by Oyelaran and Bakare (2016) revealed that sustained attention to assessment yields appreciable dividends over time. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Empirical evidence from Umeh and