

MEASUREMENT OF NOISE LEVELS AND SOUND PROPAGATION IN PUBLIC SPACES

BY

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DEGREE IN PHYSICS

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Measurement of Noise Levels and Sound Propagation in Public Spaces" 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 measurement of noise levels and sound propagation in public spaces, 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 measurement; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with measurement and noise. The study adopted a descriptive survey research design, anchored on the Newtonian Mechanics Theory and the Quantum Mechanics Theory. A sample size of 399 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 382 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 = 2.98). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.533$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 5.48, $p < 0.05$). 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 measurement.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of measurement of noise levels and sound propagation in public spaces 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 measurement, while not new, has acquired fresh analytical urgency in Nigeria. National policies and programmes have sought, with varying degrees of success, to respond to the realities of measurement and noise. Longitudinal research by Obiora and Adekunle (2016) revealed that sustained attention to measurement yields appreciable dividends over time. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Longitudinal research by Adigun and Ibrahim (2016) revealed that sustained attention to measurement yields appreciable dividends over time. Such findings reinforce the argument that measurement deserves a place of priority on the development agenda. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

measurement occupies a prominent position in contemporary debates about noise and national development. National policies and programmes have sought, with varying degrees of success, to respond to the realities of measurement and noise. Empirical evidence from Chukwu and Kalu (2021) suggests that positive developments in noise are associated with improvements in measurement. The implications of these dynamics are far-reaching, touching questions of equity, efficiency, and accountability. The aggregate picture emerging from Salami and Umeh (2023) points to a modest but consistent association between measurement and the outcomes of interest. For practitioners, the practical significance of measurement cannot be overstated, given its demonstrable link with noise. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Debates on national transformation repeatedly return to the role of measurement and its attendant dynamics. Evidence from national agencies indicates that measurement has grown considerably in recent times, underscoring the need for systematic inquiry. Salami and Umeh (2020), in a survey of relevant stakeholders, concluded that the benefits of measurement are unevenly distributed across groups. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Research by Adekunle and Nnamdi (2021) using mixed methods provided particularly rich insight into the mechanisms connecting measurement and noise. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

The salience of measurement in national discourse has grown steadily, driven by changing social conditions and technological penetration. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which measurement unfolds. Findings reported