SAFETY RULES IN BASIC SCIENCE LABORATORIES

BY

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

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[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Safety Rules in Basic Science Laboratories" 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.

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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 safety rules in basic science laboratories, 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 safety; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with safety and rules. The study adopted a descriptive survey research design, anchored on the Constructivist Learning Theory and the Technology Acceptance Model. A sample size of 397 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 377 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 = 3.08). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.494$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 6.29, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.02$, $p > 0.05$). 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 safety.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of safety rules in basic science laboratories 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.

Debates on national transformation repeatedly return to the role of safety and its attendant dynamics. Public institutions at the federal, state, and local levels have developed programmes that seek to mainstream safety into routine governance. Evidence assembled by Adeniyi and Eze (2015) across twelve states underscored the heterogeneity of outcomes linked to safety. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. An examination by Oyelaran and Obiora (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. For practitioners, the practical significance of safety cannot be overstated, given its demonstrable link with rules. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

The phenomenon of safety, while not new, has acquired fresh analytical urgency in Nigeria. Rapid urbanisation and demographic expansion across Nigerian cities have heightened the salience of safety in everyday life. Aderemi and Ogbeide (2020), in a survey of relevant stakeholders, concluded that the benefits of safety are unevenly distributed across groups. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Adebayo and Kalu (2020), in a survey of relevant stakeholders, concluded that the benefits of safety are unevenly distributed across groups. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

Contemporary scholarship increasingly frames safety as inseparable from the broader question of rules. Public institutions at the federal, state, and local levels have developed programmes that seek to mainstream safety into routine governance. Empirical evidence from Adebayo and Kalu (2021) suggests that positive developments in rules are associated with improvements in safety. Such findings reinforce the argument that safety deserves a place of priority on the development agenda. Research by Obiora and Bakare (2021) using mixed methods provided particularly rich insight into the mechanisms connecting safety and rules. Accordingly, there is a growing consensus that deliberate policy action is required. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

The relationship between safety and rules has been the subject of sustained academic interest across several disciplines. National policies and programmes have sought, with varying degrees of success, to respond to the realities of safety and rules. Studies by Osinachi and Umeh (2019) largely support the view that safety exerts a measurable influence on outcomes of interest. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. Longitudinal research by Bello and Bakare (2016) revealed that sustained attention to safety yields appreciable dividends over time. These observations collectively invite