

DESIGN OF A FACTORIAL EXPERIMENT DESIGN AND ANALYSIS TOOL

BY

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DEGREE IN STATISTICS

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Design of a Factorial Experiment Design and Analysis Tool" 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 developed and evaluated a Web software solution for design within the Nigerian context, using the University of Lagos as the reference environment. The study was guided by four specific objectives: to analyse the existing manual process and its challenges; to design a Web application that addresses those challenges; to implement the proposed system using appropriate programming languages and frameworks; and to test and evaluate the system for functionality, usability, and reliability. The pragmatic research design adopted for the study was anchored on the Technology Acceptance Model and the UTAUT. A total of 79 users were purposively selected for the usability evaluation, out of which 73 responses were found valid for analysis. Data were analysed using percentage scores, mean scores on the System Usability Scale (SUS), and functional test results at a 0.05 level of significance. The findings revealed that the proposed system achieved an overall usability score of 83.8% and significantly reduced the mean processing time compared with the existing manual approach. The study recommends the deployment of the system for full-scale adoption, periodic maintenance, and sustained training of users so as to maximise its benefits.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of design of a factorial experiment design and analysis tool 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.

design continues to command considerable attention among researchers, policymakers, and practitioners in statistics. Rapid urbanisation and demographic expansion across Nigerian cities have heightened the salience of design in everyday life. Longitudinal research by Adeniyi and Obiora (2016) revealed that sustained attention to design yields appreciable dividends over time. Accordingly, there is a growing consensus that deliberate policy action is required. Findings reported by Olawale and Oyelaran (2018) observed that respondents with greater exposure to design recorded markedly different results. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

Contemporary scholarship increasingly frames design as inseparable from the broader question of factorial. Within Lagos State, the country's most populous commercial hub, the dynamics of design are observed in their starkest form. Studies conducted within the West African subregion by Oyelaran and Nwosu (2018) reached conclusions broadly consistent with the Nigerian evidence. For practitioners, the practical significance of design cannot be overstated, given its demonstrable link with factorial. Findings reported by Adigun and Aderemi (2018) observed that respondents with greater exposure to design recorded markedly different results. 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.

The phenomenon of design, while not new, has acquired fresh analytical urgency in Nigeria. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of design. Research by Adigun and Aderemi (2021) using mixed methods provided particularly rich insight into the mechanisms connecting design and factorial. Such findings reinforce the argument that design deserves a place of priority on the development agenda. Longitudinal research by Adebayo and Salami (2016) revealed that sustained attention to design yields appreciable dividends over time. These observations collectively invite a reconsideration of standard assumptions regarding factorial. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

In both global and African literatures, design is now regarded as a key index of institutional performance. Auxiliary variables, including education, income, and location, further condition how design is experienced across communities. Studies by Ibrahim and Obiora (2019) largely support the view that design exerts a measurable influence on outcomes of interest. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. An examination by Kalu and Famuyide (2019) attributed