

APPLICATION OF MATRICES TO THE SOLUTION OF SYSTEMS OF LINEAR EQUATIONS

BY

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DEGREE IN MATHEMATICS

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Application of Matrices to the Solution of Systems of Linear Equations" 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 application of matrices to the solution of systems of linear equations, 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 application; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with application and matrices. The study adopted a descriptive survey research design, anchored on the Polya's Problem-Solving Theory and the Mathematical Modelling Theory. A sample size of 405 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 378 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 = 3.01). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.55$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 8.22, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.11$, $p > 0.05$). 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 application.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of application of matrices to the solution of systems of linear equations 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.

application occupies a prominent position in contemporary debates about matrices and national development. National policies and programmes have sought, with varying degrees of success, to respond to the realities of application and matrices. Research by Aderemi and Adekunle (2021) using mixed methods provided particularly rich insight into the mechanisms connecting application and matrices. For practitioners, the practical significance of application cannot be overstated, given its demonstrable link with matrices. Nwosu and Musa (2020), in a survey of relevant stakeholders, concluded that the benefits of application are unevenly distributed across groups. These observations collectively invite a reconsideration of standard assumptions regarding matrices. Nevertheless, the existing literature is not without its limitations, and several questions remain unresolved.

In recent years, application has emerged as a central theme in scholarly discourse on mathematics. In Nigeria, the intersection of application and matrices is conditioned by unique socio-economic, cultural, and institutional factors that differ markedly from Western settings. Research by Adekunle and Musa (2021) using mixed methods provided particularly rich insight into the mechanisms connecting application and matrices. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. Field evidence gathered by Salami and Bamgbose (2016) suggested that stakeholder engagement materially improves the results achieved in matters of application. 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.

Few subjects attract as much policy interest in contemporary Nigeria as the question of application. National policies and programmes have sought, with varying degrees of success, to respond to the realities of application and matrices. An examination by Salami and Bamgbose (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. Longitudinal research by Eze and Adigun (2016) revealed that sustained attention to application yields appreciable dividends over time. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. A recurring weakness in the literature concerns the difficulty of isolating the precise influence of {k0} from confounding factors.

application, when examined in relation to matrices, reveals complex and often paradoxical dynamics. Economic pressures and resource scarcity frequently determine the pace at which application advances in practice. Evidence assembled by Ekwueme and Eze (2015) across twelve states underscored the heterogeneity