

# **STUDENTS' PERFORMANCE IN STOICHIOMETRY CALCULATIONS IN SENIOR CHEMISTRY**

BY

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BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF SCIENCE EDUCATION, FACULTY  
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IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc.)  
DEGREE IN SCIENCE EDUCATION

[MONTH, YEAR]

## CERTIFICATION

This is to certify that this research project titled "Students' Performance in Stoichiometry Calculations in Senior Chemistry" 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

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Date

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Date

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EXTERNAL EXAMINER

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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 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 students' performance in stoichiometry calculations in senior chemistry, 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 students; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with students and performance. The study adopted a descriptive survey research design, anchored on the Constructivist Learning Theory and the Technology Acceptance Model. A sample size of 393 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 = 3.01). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ( $r = 0.571$ ,  $p < 0.05$ ) and a significant dependent association on the chi-square test (chi-square = 9.26,  $p < 0.05$ ). No statistically significant difference was found between male and female respondents ( $t = 1.34$ ,  $p > 0.05$ ). 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 students.

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## CHAPTER ONE: INTRODUCTION

### 1.1 Background to the Study

The study of students' performance in stoichiometry calculations in senior chemistry 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 students and its attendant dynamics. Auxiliary variables, including education, income, and location, further condition how students is experienced across communities. Longitudinal research by Kalu and Osinachi (2016) revealed that sustained attention to students yields appreciable dividends over time. Such findings reinforce the argument that students deserves a place of priority on the development agenda. Empirical evidence from Oyelaran and Osinachi (2021) suggests that positive developments in performance are associated with improvements in students. These developments carry important implications for policy and practice in science education. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

Scholars have long recognised students as a critical determinant of outcomes in science education. Within Lagos State, the country's most populous commercial hub, the dynamics of students are observed in their starkest form. An examination by Okonkwo and Bamgbose (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. These developments carry important implications for policy and practice in science education. Comparative work by Adeniyi and Ekwueme (2022) across several states uncovered a consistent pattern linking students with performance. 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 relationship between students and performance has been the subject of sustained academic interest across several disciplines. Within Lagos State, the country's most populous commercial hub, the dynamics of students are observed in their starkest form. A notable study by Adeniyi and Ekwueme (2017) argued that the impact of students is substantially mediated by the quality of institutions. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Empirical evidence from Nwosu and Nwosu (2021) suggests that positive developments in performance are associated with improvements in students. Such findings reinforce the argument that students deserves a place of priority on the development agenda. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

The salience of students in national discourse has grown steadily, driven by changing social conditions and technological penetration. Globalisation and technological change have intensified both the opportunities and the challenges associated with students. Studies by Okonkwo and Bello (2019) largely support the view that students exerts a measurable influence on outcomes of interest. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Evidence assembled by Nwosu and