A STATISTICAL ANALYSIS OF THE IMPACT OF CHOICE OF STUDY PROGRAMME, GENDER, AGE AT ADMISSION AND ETHNIC AFFILIATION ON STUDENTS' ACADEMIC PERFORMANCE IN THE UNIVERSITY OF BENIN.

BY

ENAHORO ESTHER EHINOMHEN
PSC2208320

DEPARTMENT OF STATISTICS,
FACULTY OF PHYSICAL SCIENCES,
UNIVERSITY OF BENIN,
BENIN CITY.

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A PROJECTED SUBMITTED TO THE DEPARTMENT OF STATISTICS, UNIVERSITY OF BENIN, BENIN CITY, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc.) DEGREE IN STATISTICS

DEPARTMENT OF STATISTICS,
FACULTY OF PHYSICAL SCIENCES,
UNIVERSITY OF BENIN,
BENIN CITY.

NOVEMBER, 2025

CERTIFICATION

This is to certify that this research work was carried out by **ENAHORO ESTHER EHINOMHEN** with Matriculation Number **PSC2208320** under my supervision. It is adequate and satisfactory, both in scope and content, for the award of Bachelor of Science (B.Sc.) Degree in Statistics of the University of Benin, Benin City, Nigeria.

MR. ODIJIE CYRIL Project Supervisor	**DATE**
PROF. AUGUSTINE IDUSERI Head of Department	**DATE**
EXTERNAL EXAMINER	**DATE**

UNDERTAKING

This is to certify that this project work titled A STATISTICAL ANALYSIS OF THE IMPACT OF CHOICE OF STUDY PROGRAMME, GENDER, AGE AT ADMISSION AND ETHNIC AFFILIATION ON STUDENTS' ACADEMIC PERFORMANCE IN THE UNIVERSITY OF BENIN was carried out by ENAHORO ESTHER EHINOMHEN with matriculation number PSC2208320. I have neither copied nor duplicated the work of any other author(s). All works used have been cited and acknowledged.

ENAHORO ESTHER EHINOMHEN **DATE**
Project Student

DEDICATION

This project is dedicated first and foremost to Almighty God, whose grace, wisdom, and divine guidance have been my source of strength and inspiration throughout this academic journey.

I also dedicate it to my beloved parents for their unwavering love, prayers, and sacrifices, which have laid the foundation for my success. You are my greatest motivation.

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ABSTRACT

This study statistically examined the impact of choice of study programme, gender, age at admission, and ethnic affiliation on students' academic performance in the University of Benin. The main objective was to determine the extent to which these variables influence students' academic outcomes.

A quantitative research design was adopted, and data were collected from undergraduate students across various faculties using structured questionnaires. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) through descriptive statistics, chi-square test of independence and multiple regression analysis.

The results revealed that the first choice of study programme had a significant influence on students' academic performance, indicating that students who were given their first choice performed better than those who were placed in programmes by external influence. However, the demographic variables—gender, age at admission, and ethnic affiliation—did not show statistically significant effects on academic performance. This implies that while demographic characteristics may influence students' experiences, they do not independently determine academic achievement in the University of Benin based on this study. The study concludes that academic performance is more strongly influenced by students' motivation and programme alignment as encapsulated in their first choice course of study than by demographic differences.

CHAPTER ONE
INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The alignment between students' choice of study programmes, the courses offered by universities, and the resulting academic performance has become an increasingly important area of research in the setting of higher education. This is particularly relevant in developing countries such as Nigeria, were structural, economic, and socio-cultural factors play a major role in influencing educational outcomes. Students often find themselves in programmes that neither reflect their initial interests nor align with their career aspirations, either due to limited admission slots, inadequate career guidance, or systemic inefficiencies in the university admission process (Salami, 2013). These misalignments may significantly affect academic performance, motivation, and long-term career satisfaction.

Universities strive to align their academic programmes with contemporary trends and students' and student's expectations; students themselves are faced with complex decisions regarding which study programme to pursue. The study programme chosen by university students plays a crucial role in shaping their academic journey and future career prospects. Across universities worldwide, students are faced with the challenge of choosing from a wide array of academic programmes, each with its unique curriculum structure, course requirements, and potential career pathways. These decisions are often influenced by a combination of personal interests, perceived career opportunities, academic strength, parental guidance, peer pressure, and institutional factors such as course availability and expertise.

While universities offer a wide range of programmes across faculties and departments, the distribution of students across these programmes is often uneven. Some courses experience overwhelming student demand, while others struggle with low enrollment. This imbalance often raises questions about how the range and design of courses offered by the university may either attract or deter students from selecting specific study paths. Moreover, it also brings into focus how the academic structure of a programme influences the academic performance and success rates of students.

Academic performance remains a key metric in evaluating the success of students and the effectiveness of educational programmes. A growing body of literature suggests that when students enroll in programmes that reflect their interest and strengths, they tend to perform better

academically. However, academic performance is typically influenced by a variety of factors including course difficulty, the relevance of teaching material, student motivation, learning environment and support systems. Therefore, it becomes essential to investigate whether there is a statistically significant relationship between a student's choice of programme and their academic outcomes.

It is also of interest in the study to investigate whether specific demographic variables also influence students' academic performance. The demographic variables involved in this case include the student's gender, age at admission, and ethnic affiliation. Gender is a focus in educational research due to persistent differences in learning patterns, motivation, and societal expectations. In Nigeria, female students are often faced with challenges such as family responsibilities, gender-based stereotypes and social barriers that may influence their academic experience. However, there are instances where the female students outperform their male counterparts. This study investigates whether a statistically significant difference exists in academic performance between male and female students at the University of Benin.

The age of a student at admission plays a crucial role in shaping academic success. Students who gain admission shortly after secondary school (aged 16-19) may still be in the process of developing emotional maturity and independence. Conversely, those admitted at an older age (20 years and above) may have better life experience, better time management skills, clearer academic goals which gives them an advantage. On the other hand, older students may face some constraints such as financial burdens, jobs, or family commitments. This study will assess whether the age at admission significantly influences academic performance.

In a multicultural society like Nigeria, ethnic affiliation can influence academic life through language proficiency, cultural expectations, access to preparatory education, and sense of belonging in the university's environment. Students from a certain ethnic group are known to have a shallow academic background while others may be firmly rooted in educational activity. This study examines whether academic performance varies across ethnic affiliations.

1.2 AIM OF THE STUDY

The aim of this study is to analyze the relationship between university students' choice of study programmes, gender, age at admission and ethnic affiliation and the impact of these factors on their academic performance.

1.3 THE OBJECTIVES OF THE STUDY

The objectives of the study include:

1. to know if there is a statistical relationship between a student's choice of study programme and their academic performance

2. to examine the factors that influence university students' choice of study programme.

3. To examine the nature of relationship between students' academic performance and each of the demographic variables: gender, age at admission and ethnic affiliation.

1.4 RESEARCH QUESTIONS

The predominant problem in this study is "to determine the relationship between student choice of study programme and their academic performance". The study is thus guided by the following research questions:

1. Is there a statistical relationship between a student's choice of study programme and their academic performance?

2. Does the choice of student programme have a significant impact on student academic performance?

3. What factors influence university students when selecting their choice of study programme?

4. Does gender play a significant role in determining academic success? 5. Are there significant differences in academic performance among students of different ethnic affiliations?

1.5 STATEMENT OF HYPOTHESES

Hypothesis Set 1

H_0(Null hypothesis): There is no association between the choice of study programme and academic performance among students in the University of Benin.

H_1 (Alternative hypothesis): There is an association between the choice of study programme and academic performance among students in the University of Benin.

Hypothesis Set 2

H_0(Null hypothesis): There is no significant association in academic performance between male and female students in the University of Benin.

H_1(Alternative hypothesis): There is a significant association in academic performance between male and female students in the University of Benin.

Hypothesis Set 3

Ho(Null hypothesis): There is no significant association in academic performance of students based on age at admission in the University of Benin.

H_1(Alternative hypothesis): There is a significant association in academic performance of students based on age at admission in the University of Benin.

Hypothesis Set 4

H_0(Null hypothesis): There is no significant association in academic performance of students based on ethnic affiliation in the University of Benin.

H_1(Alternative hypothesis): There is a significant association in academic performance of students based on ethnic affiliation in the University of Benin.

1.6 SCOPE OF THE STUDY

The study was carried out in the University of Benin across different faculties. The data comprises of undergraduate students with a total of 43,446 full time undergraduate students of the 2024/2025 session.

1.7 STRUCTURES OF THE STUDY

The project comprises five chapters. Chapter one comprises of the introduction and background of the study, aim and objectives of the study, research questions, statements of the hypotheses, scope of the study and definition of terms. Chapter two contains the literature review relating to this study while chapter three presents the methodology employed in the study. Chapter four contains the data presentation and analysis obtained with the use of the Statistical Package for the Social Sciences (SPSS) and chapter five contains the summary of the study as well as the conclusion and recommendation(s).

1.8 DEFINITION OF TERMS

Academic Performance: This refers to the measurable achievement of a student in their coursework, often evaluated through GPA (Grade Point Average) or similar grading systems.

Study Programs: This is a structured set of courses and requirements defined by a department or faculty that leads to a degree.

Choice of Study Programme: This refers to the particular course or academic discipline a student selects for study in the university. It may be based on personal interest, ability, career aspiration, or external influence such as parental or societal expectations.

Gender: Gender refers to the social and biological distinction between male and female students. It is considered in this study to assess whether academic performance differs between male and female students in the University of Benin.

Age at Admission: This refers to the chronological age of a student at the time of gaining admission into the university. It is examined to determine whether maturity or age differences influence academic performance.

Statistical Analysis: This refers to the use of statistical tools and methods, such as regression analysis and descriptive statistics, to examine the relationships between the independent variables (choice of programme, gender, age, and ethnicity) and the dependent variable (academic performance).

Demographic Variables: These are characteristics of individuals used to classify or describe populations. In this study, they include gender, age at admission, and ethnic affiliation.

Cumulative Grade Point Average (CGPA): This is a standardized measure of a student's overall academic performance across all semesters. It is used as a quantitative indicator of academic achievement in this research.

Program Choice: The decision made by a student regarding which academic field or discipline to pursue.

Student: This is someone who is engaged in learning, typically in an educational institution, and is actively pursuing knowledge or skills in a specific subject, field or discipline.

Regression Analysis: A statistical method used to examine how one or more independent variables affect a dependent variable.

Hypothesis Testing: A process in statistics used to test assumptions or claims about a population.

CHAPTER TWO
LITERATURE REVIEW

2.1 INTRODUCTION

The academic performance of students in higher education is a multidimensional construct that reflects not only students' intellectual capacity and effort but also the interplay of a wide range of social, demographic, and institutional factors. Across the globe, education researchers have continued to investigate the determinants of academic performance with the aim of improving teaching methods, curriculum design, student support systems, and institutional policies. In the Nigerian context, these investigations are even more relevant given the country's ethnicly diverse population, varied educational backgrounds, and socio-economic disparities.

This chapter presents a comprehensive review of existing literature relevant to the core variables under investigation: students' choice of study programmes, gender, age at admission, and ethnic affiliation, and how these factors influence academic performance. It discusses the theoretical frameworks, previous empirical studies, and identified research gaps, which justify the relevance of this study in the context of the University of Benin. The focus is to contextualize these variables in relation to academic achievement within the Nigerian university system.

2.2 CONCEPT OF ACADEMIC PERFORMANCE

Academic performance refers to the extent to which a student achieves educational goals. It is a multidimensional concept that reflects students' success in formal education, usually measured through Grade Point Average (GPA), examination scores, and degree classifications. According to Yuan et al. (2025), the academic development and performance of university students is the joint result of external (teacher support) and internal factors (resilience).

Zhao et al. (2024) emphasized the intricate interaction of numerous factors, such as how effective and interested a student is in their own academic performance, shapes their potential for academic achievement.

In the university setting, academic performance is often used to assess students' knowledge acquisition, skills development, and readiness for the labour market. Institutions rely on performance data for quality assurance, policy development, and accreditation purposes.

Researchers have examined the impact of demographic characteristics such as gender, age, ethnicity, and educational choices on students' academic outcomes.

2.2.1 ACADEMIC PERFORMANCE METRICS IN THE NIGERIAN UNIVERSITY CONTEXT

While GPA and exam scores remain the dominant metrics, other dimensions such as course completion rates, dropout rates, and class participation increasingly play a role in assessing performance. These alternative indicators are especially relevant in Nigeria, where systemic challenges like inconsistent academic calendars and faculty strikes affect learning outcomes. The absence of a cohesive framework for understanding academic achievement poses a barrier to effective (Banihashem et al., 2024). Standardization of these metrics across universities, however, remains elusive. Also, Adebayo & Omotosho (2020) argue that meaningful comparison of GPA across institutions is problematic due to variation in grading rigor and academic resources.

2.3 CHOICE OF STUDY PROGRAMME AND ACADEMIC PERFORMANCE

Several recent studies show that programme-related factors—curriculum difficulty, pedagogical approaches, available resources, and alignment between student interest and programme—are strong predictors of academic outcomes (Iliasu & Oloninisi, 2024). Students who are in programmes aligned with their interests or initial preferences report higher motivation and persistence, which often translate into better grades and progression rates. Conversely, misplacement into unwanted programmes is associated with lower engagement, higher absenteeism, and poorer grades (Mu'azu, 2024).

The programme a student is enrolled in plays a significant role in shaping their academic experience and outcomes. Students' decision to select a particular field of study is often influenced by factors such as interest, career aspirations, societal influence, and available guidance during admission. According to Salami (2011), students who select courses based on genuine interest and career goals tend to be more motivated and engaged, resulting in higher academic achievement. Ajzen's Theory of Planned Behaviour suggests that a student's performance may be enhanced when their programme choice aligns with personal interests and perceived competence.

In Nigeria, many students are not admitted into their preferred programmes due to competitive admission processes. Consequently, they are often placed into departments where they lack

interest or aptitude, leading to diminished motivation. Ukaegbu and Adebayo (2018) found that students forced into alternative programmes typically perform below their potential. Similarly, Okafor and Ugwuegbu (2017) discovered that students who choose their programmes willingly perform better academically than those assigned courses based on institutional constraints.

Moreover, some programmes demand more academic rigor than others. Disciplines such as medicine, engineering, and law require substantial workloads and extensive assessment, necessitating contextual performance comparisons across fields.

2.3.1 MISALIGNMENT BETWEEN PROGRAMME CHOICE AND COGNITIVE APTITUDE

Beyond interest and motivation, cognitive fit between a student's natural aptitude and the intellectual requirements of a programme is critical. For instance, assigning a mathematically underprepared student to engineering could result in persistent academic difficulty regardless of effort. Olatunji (2015) highlighted that misalignments between aptitude and programme rigor led to higher dropout and failure rates in Nigerian STEM faculties.

2.4 GENDER AND ACADEMIC PERFORMANCE

In many contexts, female students outperform male students on average in undergraduate coursework and progression metrics, particularly in non-technical disciplines; however, variation exists across fields, countries, and measurement approaches (Abdurrahaman, 2024). Gender has long been a subject of academic inquiry in relation to learning patterns, performance outcomes, and participation in different fields of study. Numerous studies have attempted to determine whether male or female students perform better academically. While some, such as Ogunleye (2012), report that female students tend to outperform males on average, other findings argue that such differences often diminish when controlling for subject area, motivation, and learning context.

In the Nigerian educational scenery, traditional gender roles and cultural expectations can significantly affect how students engage with their studies. Female students, for example, may bear the additional burden of domestic responsibilities or face societal pressures that discourage assertive academic competition. At the University of Benin, disparities in gender representation across faculties—particularly in STEM versus social sciences—may also shape the performance

landscape in subtle but significant ways.

Academic performance can also be influenced by the degree of access students have to institutional resources and mentorship—both of which are sometimes distributed along gendered lines. For instance, male students in certain faculties report easier access to informal academic networks, study groups, and departmental mentorship opportunities, often due to greater familiarity or alignment with faculty members.

According to Ihejirika and Abiola (2017), this phenomenon creates hidden academic advantages that disproportionately benefit male students in male-dominated faculties. Conversely, in faculties with higher female enrolment, women are more likely to access peer support and community learning opportunities, thereby improving performance.

2.5 AGE AT ADMISSION AND ACADEMIC PERFORMANCE

The age at which a student gains admission into a university can influence not only academic readiness but also social adjustment and long-term academic success. Age at admission is a critical demographic factor, particularly in Nigeria, where delays in academic progression due to economic hardship, prolonged admission processes, or sociopolitical disruptions (e.g., strikes or instability) are common. Tella (2013) observed that students admitted before the age of 20 adjusted more easily to university life and academic expectations, likely due to their recent completion of secondary education and sustained learning momentum. However, older students often bring greater emotional maturity, resilience, and focused motivation, especially if they have faced significant life challenges before gaining admission.

In the University of Benin and other Nigerian universities, age diversity is increasingly evident, with some students entering higher education in their late 20s or even early 30s. This divergence in age creates a heterogeneous academic environment that necessitates deeper inquiry into how age influences performance. Older entrants may bring more discipline, clarity of purpose, and better time-management skills, all factors associated with higher academic achievement (Costa et al., 2024). On the other hand, older students may have additional family or financial obligations that reduce available study time (Bengesai, 2024)

2.5.1 COGNITIVE MATURITY AND LEARNING STYLE ADAPTATION

Cognitive development and neuropsychological maturity vary with age and influence how

students process, retain, and apply information. While younger students may benefit from greater cognitive agility and adaptability, older students often compensate with metacognitive strategies such as better time management, reflective thinking, and prioritization. According to Piaget's theory of cognitive development, individuals typically transition into formal operational thinking (abstract reasoning) during late adolescence. Yet, the practical application of this reasoning often improves with age. Adebayo and Olatunde (2019) argue that older students tend to perform better in coursework requiring independent thought, critical analysis, and self-directed research—skills less emphasized in rote-based secondary education systems.

2.5.2 SOCIAL INTEGRATION AND PEER COMPATIBILITY

Age can also affect students' ability to integrate socially into the university community, which in turn influences academic engagement and performance. Students who are significantly older than their peers may feel alienated in classroom discussions, group assignments, and hostel life. Conversely, younger students may struggle to relate to older classmates, leading to fragmented academic cooperation. Bronfenbrenner's Ecological Systems Theory supports the idea that microsystem interactions—such as peer relationships—directly affect academic engagement. Okonkwo (2019) applied this theory to Nigerian universities and found that age-distant peer groups experienced lower classroom cohesion, particularly in faculties with limited cooperative learning structures.

2.5.3 INSTITUTIONAL ADAPTATION AND PEDAGOGICAL FLEXIBILITY

Most Nigerian university curricula and teaching approaches are designed with the "traditional" student in mind—usually aged 17 to 21. This narrow pedagogical assumption limits the effectiveness of teaching strategies for older students, who may require more contextual, flexible, or even blended learning approaches. According to Eze and Bello (2021), few Nigerian universities have adopted inclusive instructional designs or adult learning models despite increasing student age diversity. The lack of academic policies tailored to mature students—such as evening tutorials, counseling services, or family friendly campus policies—may undermine their performance despite their strong motivation and focus.

2.6 ETHNIC AFFILIATION AND ACADEMIC PERFORMANCE

Ethnic affiliation, a core dimension of identity in Nigeria, influences students' university experiences in nuanced ways. As a socio-cultural construct, ethnicity encompasses shared language, traditions, religion, ancestry, and historical experiences. These cultural underpinnings can shape how students adjust to university life, interact with peers and faculty, and access formal and informal academic support systems.

Nigeria's multicultural and multilingual nature means that students from diverse ethnic backgrounds converge in federal universities like the University of Benin. This diversity offers rich intercultural learning opportunities but also presents significant challenges— ranging from subtle bias and group segmentation to outright exclusion.

Several studies have highlighted the influence of ethnic identity on students' academic performance. For instance, Adegbite and Bello (2015) found that ethnic minority students, particularly those studying far from their home regions, often face social isolation and language difficulties that impair participation and confidence in academic settings. Similarly, Nwachukwu and Onuka (2015) observed that limited peer support and perceived marginalization may contribute to lower academic engagement among these groups. In Nigeria, ethnicity intersects with regional disparities—students from historically advantaged regions may have had better schooling and preparation, influencing university outcomes (Yaya, 2024).

2.6.1 LANGUAGE PROFICIENCY AND ACADEMIC DISADVANTAGE

A significant yet often overlooked aspect of ethnicity in the Nigerian context is the relationship between ethnic identity and language proficiency. English, the official language of instruction, is often a second or even third language for many students, particularly those from rural communities in the North, South-South, and some parts of the Middle Belt. Language challenges manifest in classroom discussions, written assignments, oral presentations, and examinations. Students who struggle with English comprehension may underperform not due to lack of intelligence or effort, but because of linguistic barriers. Okon and Yusuf (2016) documented a strong correlation between poor academic performance and low English fluency, especially among students from non-dominant linguistic groups.

This form of academic disadvantage is structural, as few Nigerian universities provide remedial language programs to support such students. Consequently, ethnicity and language become

interwoven determinants of academic outcomes.

2.6.2 CULTURAL CONGRUENCE AND INSTITUTIONAL BELONGING

Cultural congruence—the degree to which a student's values and norms align with the university culture—can influence their sense of belonging, motivation, and academic resilience. Students from ethnic backgrounds that differ significantly from the dominant
social groups within a faculty or residence hall may experience alienation, culture shock, or stereotyping.

Astin's Student Involvement Theory emphasizes that students perform better when they feel integrated into the academic and social fabric of the university. Where ethnic tensions or cultural exclusion exist, involvement may be reduced, leading to lower academic achievement.

At the University of Benin, efforts such as cultural festivals, language clubs, and student union representation from various ethnic groups help promote inclusiveness. However, informal biases and unspoken cliques often persist, impacting students' access to academic networks, especially study groups and peer mentoring systems.

2.6.3 ETHNIC FAVORITISM AND PERCEIVED DISCRIMINATION

Although Nigeria's university admission policies are designed to foster diversity—through catchment quotas and federal character principles—there are concerns about subtle ethnic favoritism in some departments, especially in grading practices or academic recognition. Even when unfounded, perceptions of ethnic bias can demoralize students and reduce their engagement.

Eke and Nduka (2020) assert that perceived discrimination, whether real or imagined, can have a psychosomatic effect on students, leading to anxiety, withdrawal, and self-doubt— all of which correlate with poor academic outcomes. Nonetheless, it is important to note that empirical studies have yielded mixed results. While some find clear links between ethnicity and performance, others argue that institutional policies, academic preparedness, and socioeconomic background are stronger predictors of success than ethnicity alone.

2.7 THEORETICAL FRAMEWORK

Understanding how demographic and socio-cultural variables influence academic performance

requires grounding in well-established theoretical models. The theoretical framework provides conceptual lenses that help explain *why* and *how* variables such as gender, age, ethnicity, and programme choice impact academic outcomes. The integration of multiple theories also allows for a multidimensional interpretation of academic behaviour, particularly in a complex educational landscape like Nigeria's.

This study draws from four core theories:

2.7.1 BANDURA'S SOCIAL COGNITIVE THEORY

Albert Bandura's Social Cognitive Theory emphasizes the role of observational learning, self-efficacy, and personal agency in shaping behaviour. Within the context of academic performance, students' beliefs in their capabilities directly influence the effort they apply, the goals they set, and their academic resilience in the face of difficulty.

- **Relevance to Study**: Demographic variables such as gender, ethnicity, and age can influence a student's belief in their academic competence. For instance, a female student in a male-dominated STEM faculty may experience reduced self-efficacy due to lack of role models or peer comparison.

- **Application**: This theory explains how personal beliefs shaped by social identity and prior academic exposure mediate motivation and achievement.

2.7.2 AJZEN'S THEORY OF PLANNED BEHAVIOUR (TPB)

The Theory of Planned Behaviour posits that behavioural intentions are driven by three components: attitudes, subjective norms, and perceived behavioural control. Applied to education, a student's intent to succeed academically is influenced by their attitude toward their course, societal expectations, and perceived control over academic success.

- **Relevance to Study**: A student who enters a programme by choice and believes in their academic capability will likely be more committed than one who was placed into a course involuntarily. Similarly, ethnic minority students may internalize societal norms that affect how they engage academically.

- **Application**: TPB supports the investigation of how intention (a psychological construct) intersects with structural factors like programme placement and cultural identity.

2.7.3 ASTIN'S THEORY OF STUDENT INVOLVEMENT

Alexander Astin's theory emphasizes that the amount and quality of student involvement directly determine academic outcomes. Involvement refers to the physical and psychological energy devoted to academic and social activities.

- **Relevance to Study**: Involvement can be moderated by age (older students with less free time), gender (cultural constraints on social mobility), or ethnicity (comfort level in a diverse environment).

- **Application**: This theory provides a lens to evaluate how demographic factors shape students' level of engagement within the university system.

2.7.4 BRONFENBRENNER'S ECOLOGICAL SYSTEMS THEORY

This model conceptualizes human development as influenced by five interconnected environmental systems: microsystem, mesosystem, exosystem, macrosystem, and chronosystem. Each layer—from immediate surroundings to cultural and historical context—interacts with personal development.

- **Relevance to Study**: Academic performance is shaped not just by individual ability but by context: family background, institutional policies, societal norms, and cultural identity. For example, a student's ethnicity (macrosystem) and peer group (microsystem) work in tandem to influence academic engagement.

- **Application**: This theory enriches the study by highlighting the environmental complexity in which academic behaviour unfolds, particularly in Nigeria's multicultural setting.

2.7.5 VYGOTSKY'S SOCIOCULTURAL THEORY (SUPPLEMENTARY)

Although not part of the original framework, Vygotsky's emphasis on the role of culture and social

interaction in learning is particularly relevant here. He proposed that learning is mediated by language and social context.

- **Relevance to Study**: Language proficiency (linked to ethnic background) and access to culturally relevant peer interactions can either accelerate or hinder learning.
- **Application**: The theory underscores the need to consider ethnic and cultural alignment in collaborative learning settings, such as group projects or tutorial systems.

Summary of Theoretical Framework:

These frameworks—taken together—provide a robust basis for understanding how personal, social, and institutional variables influence academic performance. Each theory accounts for different dimensions:

Theory	Focus	Variable Explanation
Bandura (SCT)	Self-efficacy & motivation	How beliefs shaped by demographic identity influence performance
Ajzen (TPB)	Behavioural intention	How course choice and social norms predict effort
Astin	Engagement level	How demographics affect campus involvement
Bronfenbrenner	Contextual systems	How environment (family, culture, policy) shapes academic path
Vygotsky	Language & culture	How learning is mediated by language and cultural congruence

2.8 EMPIRICAL REVIEW OF RELATED STUDIES

Empirical studies serve as the bridge between theory and practice. They provide evidence-based insights into how demographic and programmatic variables impact student performance in various contexts. While extensive literature exists globally on academic performance, much of the empirical focus in Nigeria remains fragmented, with most studies examining variables in isolation. This section reviews relevant empirical works, organized thematically, to highlight patterns, inconsistencies, and gaps.

2.8.1 EMPIRICAL STUDIES ON CHOICE OF STUDY PROGRAMME

Ojo and Akinlabi (2019) found that students who were placed in programmes against their initial preferences reported significantly lower academic satisfaction and engagement levels. Their survey across three public universities showed that 63% of such students had GPAs below 3.0, compared to 42% among students admitted into their preferred fields.

Similarly, Ukaegbu and Adebayo (2018) conducted a study at the University of Ibadan and observed that misaligned programme placement led to increased absenteeism and course withdrawal rates. They concluded that interest alignment is a key driver of intrinsic motivation and academic success.

2.8.2 EMPIRICAL STUDIES ON GENDER

In their gender-performance comparative analysis, Ige and Olaoye (2020) discovered that female students in faculties of education and social sciences consistently recorded higher CGPAs than their male counterparts. However, male students tended to dominate in engineering and mathematical sciences.

Interestingly, the same study noted that the academic gender gap narrows significantly in mixed-gender learning environments with strong mentorship structures. This suggests that institutional culture and pedagogical inclusiveness mediate gender-based academic differences.

2.8.3 EMPIRICAL STUDIES ON AGE AT ADMISSION

Bello (2018) explored the relationship between age at admission and long-term academic outcomes. Students admitted before the age of 20 outperformed their older peers in the first two

years of university, likely due to recent secondary school exposure. However, by the final year, the performance gap had diminished, with older students often catching up due to higher persistence and study discipline.

A longitudinal follow-up by Fadeyi and Akinbola (2021) affirmed that mature students exhibited better time management and goal-directed behaviour, especially in research intensive courses.

2.8.4 EMPIRICAL STUDIES ON ETHNIC AFFILIATION

Okon and Yusuf (2016) studied ethnic minority students in universities located outside their home regions and found that perceived cultural exclusion and lack of peer support negatively affected academic participation. In contrast, institutions that implemented ethnic integration programs (e.g., peer-pairing, multicultural weeks) reported better engagement and parity in academic performance across groups.

Similarly, Nwachukwu and Onuka (2015) showed that students who reported fluency struggles in English, especially from Hausa and Ijaw backgrounds, underperformed in essay-based courses, although they did comparatively well in numeracy-based assessments.

2.8.5 SYNTHESIS OF PATTERNS AND CONTRADICTIONS

Although the above studies offer valuable insights, a recurring limitation is the lack of **multivariate analysis**—that is, examining how multiple variables (e.g., age, gender, and ethnicity) interact in shaping academic outcomes. Most studies stop at bivariate correlations or descriptive statistics, which fail to uncover deeper causal structures.

This gap reinforces the rationale for the current study's statistical approach, which seeks to evaluate the combined and interactive effects of these variables within the University of Benin context.

2.9 RESEARCH GAP

Despite the wealth of literature on academic performance in Nigerian universities, several critical gaps remain. Most existing studies tend to examine variables such as gender, age at admission, ethnicity, or programme choice in isolation, often relying on basic descriptive statistics. This one-dimensional approach overlooks the interconnected nature of these factors and fails to capture the complex ways in which they jointly influence student outcomes.

Moreover, there is a noticeable lack of empirical research specific to the University of Benin, despite its diverse and representative student population. Localized studies that reflect the institution's unique academic culture and demographic composition are essential for developing relevant support strategies and inclusive academic policies. Another overlooked area is the mediating role of students' choice of study programme. While some studies acknowledge its influence on motivation and performance, few explore how programme placement interacts with demographic factors like gender, age, or ethnicity to shape academic achievement.

Additionally, prior studies often treat ethnicity as a broad, static variable without adequately examining associated issues such as language proficiency, cultural integration, and peer compatibility—all of which significantly affect classroom engagement and learning outcomes.

This study addresses these gaps by adopting a multivariate approach to explore the combined effects of gender, age, ethnic affiliation, and programme choice on academic performance within the University of Benin. It also applies robust statistical methods to uncover patterns that descriptive analyses may have missed, thus offering more grounded and actionable insights.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the methods and procedures used in conducting the study. It describes the research design, study population, sample size determination, sampling technique, data collection method, research instruments, validity and reliability of the instruments, and the statistical tools employed in analyzing the data. The purpose of this chapter is to ensure clarity, replicability, and transparency of the study approach.

3.2 RESEARCH DESIGN

The study adopted a descriptive survey design. This design was considered appropriate because it enables the collection and analysis of data on the characteristics of a given population without manipulating any variable. The design also supports statistical examination of relationships between independent variables (choice of programme, gender, age at admission, and ethnic affiliation) and the dependent variable (academic performance).

3.3 POPULATION OF THE STUDY

The population of the study consisted of all registered full time undergraduate students of the University of Benin during the 2024/2025 academic session. According to the university's record, the total undergraduate student population is 43,446 across various faculties and departments (*source:* Central Records Processing Unit, CRPU). This population was considered because it encompasses students from diverse backgrounds, courses, age brackets, and ethnic affiliations, which are critical to this research.

3.4 SAMPLE SIZE AND SAMPLING TECHNIQUE

Due to the large size of the population, it was impractical to study the entire group. Therefore, a representative sample was determined using **Yamane's formula** for sample size calculation:

$$n = \frac{N}{1 + N(e^2)}$$

where:

- n = sample size
- N = population size (43,446)
- e = margin of error (0.05 at 95% confidence level)

$$n = \frac{43446}{1 + 43446(0.05^2)} \approx 396$$

Thus, the sample size for the study was 396 students.

A stratified random sampling technique was employed to ensure adequate representation across faculties and departments. The strata were based on faculties, after which equal allocation was used to select respondents from each faculty.

3.4.1 EQUAL ALLOCATION

Equal allocation is a sampling technique used in stratified sampling where the total sample size is divided equally among all strata, regardless of the population size of each stratum. In other words, each group (faculty) receives the same number of sampled units, even if the groups have different population size.

If the total sample size is **n** and the total number of strata is **L**, then the sample size for each stratum is given by:

$$n_h = \frac{n}{L}$$

where n_h is the sample size allocated to each stratum.

Since we have 396 individuals to be sampled from 15 faculties in the University of Benin, then the stratum size is given by:

$$n_h = \frac{396}{15} = 26.4$$

So, 26 questionnaires were distributed to each faculty and the remaining 6 questionnaires were distributed to some bigger faculties randomly.

The allocation is given in the table below:

Faculty	Frequency (Stratum size)
Agricultural Science	27
Arts	26
BMS	26
Dentistry	26
Education	27
Engineering	27
Environmental Science	26
Law	26
Life Science	26
Management Science	27
Medicine	26
Pharmacy	26
Physical Science	27
Social Science	27
Veterinary Medicine	26
Total	396

3.5 SOURCES OF DATA

The study relied on primary data sources which were obtained through structured questionnaires distributed to selected students across faculties.

3.6 RESEARCH INSTRUMENT

The main instrument for data collection was a structured questionnaire. The questionnaire consisted of five sections:

- **Section A:** Demographic information (gender, age, ethnic group).
- **Section B:** Academic performance indicators (CGPA).
- **Section C:** Choice of study programme (whether self-selected or institution assigned)
- **Section D:** Factors that influence choices of selection of course of study.
- **Section E:** Perceptions on programme satisfaction and study motivation.

3.7 METHOD USED FOR THE STUDY

Here, we shall discuss the method used in analyzing the data for the study. We made use of the descriptive statistics, chi-square test of independence and multiple regression analysis. A note is given below.

3.7.1 DESCRIPTIVE STATISTICS

Descriptive statistics are brief explanatory coefficients that summarize a given dataset. In other words, it helps describe and understand the features of a specific data set by giving short summaries about the sample and measures of the data. The most recognized types of descriptive statistics are measures of central tendency: the mean, median, and mode. Others are measures of partition: the quartile, deciles and percentile; and measures of variability (spread): variance, standard deviation, range (minimum value minus maximum value), skewness and kurtosis. Descriptive statistics is used to repurpose hard-to-understand quantitative insights across a large dataset into bite-sized descriptions.

3.7.2 CHI-SQUARE DISTRIBUTION

The Chi-square distribution is used primarily in hypothesis testing and to some extent used for confidence intervals for population variance when the underlying population is normal. It arises in the following hypothesis tests, among others;

- Chi-square test of independence
- Chi-square test of goodness of fit, etc.

The chi-square test is one of the most popular non-parametric tests in Statistics. It is also referred to as distribution free test statistic. The terms “distribution free” and “non-parametric” are used to describe the test because unlike the other tests of hypothesis (Z-test, T-test, etc.), it does not depend on a priori assumptions about the parameters of the population from which samples are drawn.

Applications of the chi square distribution

Chi-square distribution has a number of applications, some of which are;

1. **A chi-square test of goodness of fit:** It determines if the sample data matches a hypothesized population.

2. **A chi-square test for independence:** It compares two variables in a contingency table to see if they are related in a more general sense; it tests to see whether distributions of categorical variables differ from each other.

3. To test if the population has a specified value of the variance.

4. To test the equality of several population proportions

Chi-Square Statistic

The chi-square statistic is a single number that tells you how much difference exists between the observed counts and the counts you would expect if there were no relationship at all in the population. There are few variations on the chi-square statistic. Which one you use depends upon how you collected the data and which hypothesis is being tested. However, all of the variations use the same idea; that is, you compare the expected values with the values you actually collect. For two-way contigency table, the appropriate form of the statistic is given as:

$$\chi^2 = \sum_{i=1}^{R}\sum_{j=1}^{C}\frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

where;

O_{ij} is the observed cell count in the ith row and jth column of a contingency table

E_{ij} is the expected cell count in the ith row and jth column of a contingency table, computed as:

$$Expected\ cell\ frequecy = \frac{(row\ total) \times (column\ total)}{(grand\ total\ of\ all\ cells)}$$

This statistic utilizes a contingency table to analyze its data. A contingency table (also known as a cross-tabulated, crosstab, or two-way table) is an arrangement in which data is classified according to two categorical variables. A chi-square is one way to show a relationship between two categorical variables. A low value for chi-square means there is a high correlation between the two sets of data. Hence, the observed data fit your expected data extremely well and a high value obviously means the opposite.

CHI-SQUARE TEST FOR INDEPENDENCE

The Chi-Square Test for independence is used to test if two categorical variables are associated. It determines whether there is an association between categorical variables (i.e. whether the variables are independent or related). It is a non-parametric test.

There are two approaches for interpreting the result of chi-square test;

1. **Critical value approach:** here we use the calculated chi-square statistic to compare the critical value from a chi-square distribution at alpha (α) level of significance, usually 0.01 or 0.05. If the calculated chi-square statistic is more than the critical value, then there is a significant difference.

2. **The probability value approach:** The p-value is a probabilistic value. Here, a p-value generated by the chi-square statistic is compared with the alpha (α) level of significance. A p-value smaller than alpha (α) indicates there is a statistically significant association between both variables of interest at alpha (α) level of significance. While a p-value bigger than alpha (α) implies the opposite.

Degree of freedom

The degree of freedom simply abbreviated as **DF** denotes the extent of independence (freedom) enjoyed by a given set of observed frequencies. The degree of freedom for the Chi-square for independence is calculated as (R-1) (C-1); R and C represent number of rows and number of columns respectively

3.7.3 REGRESSION AND MODEL SPECIFICATION

The study used a multiple linear regression model, expressed as:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$$

Where:

- Y= Academic performance
- β_0= Intercept
- $\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients
- X_1 = Choice of study programme
- X_2= Gender
- X_3= Age at admission
- X_4= Ethnic affiliation
- ε = Error term

This model helps in determining the predictive effect and significance of each independent

variable affecting students' academic performance.

3.8 METHOD OF DATA COLLECTION AND ANALYSIS

The direct questionnaire distribution technique was used to collect data, making it possible to assess whether the respondents actually understood the questionnaire items, that explanations or further clarifications might be made. The approach also reduced the non- response rate which is often associated with surveys of this nature. With respect to the method of analysis, descriptive analysis, regression and Chi- square test were used for the study.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 INTRODUCTION

In this chapter, we shall present, analyse the result and interpret the respondent profile (i.e. the data collected from the survey) and also test the hypotheses. Using the data provided by the respondents, we shall analyse, interpret and test the hypotheses as related to this study. In the study, we apply the use of descriptive statistics (simple percentage and frequency tables) and inferential statistics. We also apply some statistical tools such as frequency tables, percentages and proportion, etc.

4.2 DEMOGRAPHIC ANALYSIS

TABLE 4.1

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	188	47.5	47.5	47.5
	Female	208	52.5	52.5	100.0
	Total	396	100.0	100.0	

Age at admission

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 18	57	14.4	14.4	14.4
	> 25	11	2.8	2.8	17.2

	18-21	218	55.1	55.1	72.2
	22-25	110	27.8	27.8	100.0
	Total	396	100.0	100.0	

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hausa	16	4.0	4.0	4.0
	Yoruba	77	19.4	19.4	23.5
	Igbo	92	23.2	23.2	46.7
	Edo	165	41.7	41.7	88.4
	Others	46	11.6	11.6	100.0
	Total	396	100.0	100.0	

Faculty

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agricultural science	27	6.8	6.8	6.8
	Arts	26	6.6	6.6	13.4
	BMS	26	6.6	6.6	19.9

	Dentistry	26	6.6	6.6	26.5
	Education	27	6.8	6.8	33.3
	Engineering	27	6.8	6.8	40.2
	Environmental science	26	6.6	6.6	46.7
	Law	26	6.6	6.6	53.3
	Life science	26	6.6	6.6	59.8
	Management science	27	6.8	6.8	66.7
	Medicine	26	6.6	6.6	73.2
	Pharmacy	26	6.6	6.6	79.8
	Physical science	27	6.8	6.8	86.6
	Social science	27	6.8	6.8	93.4
	Veterinary medicine	26	6.6	6.6	100.0
	Total	396	100.0	100.0	

Level

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	200	131	33.1	33.1	33.1
	300	130	32.8	32.8	65.9
	400	105	26.5	26.5	92.4
	500	26	6.6	6.6	99.0

	600	4	1.0	1.0	100.0
	Total	396	100.0	100.0	

4.3 RESEARCH ANALYSIS

- **OBJECTIVE ONE:** To know if there is a statistical relationship between a student's choice of study programme and their academic performance

  QUESTION: Does the choice of student programme have a significant impact on student academic performance?

HYPOTHESES SET 1:

H_0: There is no association between student programme and student academic performance.

H_1: There is an association between student programme and student academic performance.

TABLE 4.2

Cgpa * First_choice Crosstabulation

			first_choice		Total
			No	Yes	
cgpa	1.50-2.49	Count	11	8	19
		Expected Count	8.8	10.2	19.0
	2.50-3.49	Count	56	40	96
		Expected Count	44.6	51.4	96.0
	3.50-4.49	Count	91	126	217

		Expected Count	100.8	116.2	217.0
	4.50-5.00	**Count**	26	38	64
		Expected Count	29.7	34.3	64.0
Total		**Count**	184	212	396
		Expected Count	184.0	212.0	396.0

Chi-Square Tests

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	9.101[a]	3	.028
Likelihood Ratio	9.107	3	.028
N of Valid Cases	396		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.83.

Decision rule:

- If $p \leq 0.05$, reject H_0
- If $p > 0.05$, fail to reject H_0

Since $p = 0.028 < 0.05$, we reject H_0

CONCLUSION

The Chi-square test of independence showed a statistically significant association between student's first choice of programme and student academic performance (p = 0.028). This suggests that student academic performance is highly associated with their choice of study programme and by intuition, the causation should flow from study choice to academic performance.

- **OBJECTIVE TWO:** To examine the factors that influence university students' choice of study programme.
  QUESTION: What factors influence university students when selecting their choice of study programme?

TABLE 4.3

Choice Influence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Parental influence	71	17.9	17.9	17.9
	Personal interest	165	41.7	41.7	59.6
	High job prospect	37	9.3	9.3	68.9
	Peer influence	10	2.5	2.5	71.5
	JAMB/admission constraints	85	21.5	21.5	92.9
	Others	28	7.1	7.1	100.0
	Total	396	100.0	100.0	

INTERPRETATION

- 165 respondents (41.7%), the largest proportion reported being influenced by their own interest. This shows that self-motivation is the strongest factor influencing programme choice.
- 71 respondents (17.9%), chose their programme based on parental influence, this suggests that family decisions still significantly affect students' choices.
- 85 respondents (21.5%), indicated constraints from JAMB/admission as their main reason. This is a notable external factor, showing how institutional limitations influence programme allocation.
- 37 respondents (9.3%), considered future job opportunity as a key factor showing that employability is a moderate factor when choosing a study programme.
- 28 respondents (7.1%), gave other unspecified reasons.
- 10 respondents (2.5%), reported being influenced by peers, this shows that social pressure from friends has minimal effect on choice of programme.

❖ **OBJECTIVE THREE:** To examine the nature of relationship between students' academic performance and each of the demographic variables: gender, age at admission and ethnic affiliation.

QUESTION:

I. Does gender play a significant role in determining academic success?
II. Does age at admission play a significant role in academic performance?
III. Are there significant difference in academic performance among student of different ethnic affiliations?

HYPOTHESES SET 2:

H_0: There is no significant association in academic performance between male and female students in the university of Benin.

H_1: There is a significant association in academic performance between male and female students in the university of Benin.

TABLE 4.4

gender * Cgpa Crosstabulation

			Cgpa				Total
			1.50-2.49	2.50-3.49	3.50-4.49	4.50-5.00	
gender	Female	Count	11	54	111	32	208
		Expected Count	10.0	50.4	114.0	33.6	208.0
	Male	Count	8	42	106	32	188
		Expected Count	9.0	45.6	103.0	30.4	188.0
Total		Count	19	96	217	64	396
		Expected Count	19.0	96.0	217.0	64.0	396.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.082[a]	3	.782
Likelihood Ratio	1.084	3	.781
N of Valid Cases	396		

a.

0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.02.

Decision rule:

- If $p \leq 0.05$, reject H_0
- If p >0.05, fail to reject H_0

Since p = 0.782 > 0.05, we fail to reject **H_0**

CONCLUSION

The Chi-square test of independence showed no statistically significant association between gender and student academic performance (X^2 (3,396) = 1.082, p = 0.782). This suggests that gender does not influence academic performance.

HYPOTHESES SET 3:

H_0: There is no significant association in academic performance of students based on age at admission in the University of Benin.

H_1: There is a significant association in academic performance of students based on age at admission in the University of Benin.

TABLE 4.5

age_at_admission * cgpa Crosstabulation

			cgpa				Total
			1.50-2.49	2.50-3.49	3.50-4.49	4.50-5.00	
age_at_admission	< 18	Count	4	11	31	11	57
		Expected Count	2.7	13.8	31.2	9.2	57.0
	> 25	Count	1	0	8	2	11
		Expected Count	.5	2.7	6.0	1.8	11.0
	18-21	Count	11	62	113	32	218
		Expected Count	10.5	52.8	119.5	35.2	218.0
	22-25	Count	3	23	65	19	110

	Expected Count	5.3	26.7	60.3	17.8	110.0
Total	Count	19	96	217	64	396
	Expected Count	19.0	96.0	217.0	64.0	396.0

Chi-Square Tests

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	9.471[a]	9	.395
Likelihood Ratio	12.064	9	.210
N of Valid Cases	396		

4 cells (25.0%) have expected count less than 5. The minimum expected count is .53.

However, 25% of total cells had expected count less than 5, which is more than the acceptable minimum of 20%. Hence, we use the method of recategorization by merging the columns.

CGPA * Age Crosstabulation

			Age		Total
			18-21	22-25	
CGPA	4.50-5.00	Count	43	21	64
		Expected Count	44.4	19.6	64.0
	3.50-4.49	Count	144	73	217
		Expected Count	150.7	66.3	217.0
	2.50-3.49	Count	73	23	96
		Expected Count	66.7	29.3	96.0
	1.50-2.49	Count	15	4	19
		Expected Count	13.2	5.8	19.0
Total		Count	275	121	396
		Expected Count	275.0	121.0	396.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.905[a]	3	.272
Likelihood Ratio	4.037	3	.258
Linear-by-Linear Association	2.727	1	.099
N of Valid Cases	396		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.81.

Decision rule:

- If $p \leq 0.05$, reject H_0
- If p >0.05, fail to reject H_0

Since p = 0.272 > 0.05, we fail to reject H_0

CONCLUSION

The Chi-square test of independence showed no statistically significant association between age at admission and student academic performance (p = 0.272). This suggests that age at admission does not influence academic performance.

HYPOTHESES SET 4:

H_0: There is no significant association in academic performance of students based on ethnic affiliation in the University of Benin.

H_1: There is a significant association in academic performance of students based on ethnic affiliation in the University of Benin.

TABLE 4.6

cgpa * ethnicity Crosstabulation

			ethnicity					Total
			Edo	Hausa	Igbo	Others	Yoruba	
cgpa	1.50-2.49	Count	6	0	4	3	6	19
		Expected Count	7.9	.8	4.4	2.2	3.7	19.0
	2.50-3.49	Count	46	3	21	13	13	96
		Expected Count	40.0	3.9	22.3	11.2	18.7	96.0

	3.50-4.49	Count	80	6	53	28	50	217
		Expected Count	90.4	8.8	50.4	25.2	42.2	217.0
	4.50-5.00	Count	33	7	14	2	8	64
		Expected Count	26.7	2.6	14.9	7.4	12.4	64.0
Total		Count	165	16	92	46	77	396
		Expected Count	165.0	16.0	92.0	46.0	77.0	396.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.806[a]	12	.016
Likelihood Ratio	24.939	12	.015
N of Valid Cases	396		

a. 6 cells (30.0%) have expected count less than 5. The minimum expected count is .77.

cgpa * ethnicity Crosstabulation

			Ethnicity				Total
			Edo	Igbo	Others	Yoruba	
cgpa	1.50-2.49	Count	6	4	3	6	19
		Expected Count	7.9	4.4	3.0	3.7	19.0
	2.50-3.49	Count	46	21	16	13	96

		Expected Count	40.0	22.3	15.0	18.7	96.0
	3.50-4.49	Count	80	53	34	50	217
		Expected Count	90.4	50.4	34.0	42.2	217.0
	4.50-5.00	Count	33	14	9	8	64
		Expected Count	26.7	14.9	10.0	12.4	64.0
Total		Count	165	92	62	77	396
		Expected Count	165.0	92.0	62.0	77.0	396.0

Chi-Square Tests

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	10.724[a]	9	.295
Likelihood Ratio	10.797	9	.290
N of Valid Cases	396		

a. 3 cells (18.8%) have expected count less than 5. The minimum expected count is 2.97.

Decision rule:

- If $p \leq 0.05$, reject H_0
- If p >0.05, fail to reject H_0

Since p = 0.295 > 0.05, we fail to reject H_0

CONCLUSION

The Chi-square test of independence showed no statistically significant association between ethnic affiliation and student academic performance (p = 0.295). This suggests that ethnic affiliation does not influence academic performance.

STUDENTS' PERCEPTION

HYPOTHESIS 5:

H_0: There is no association between student perception on choice of study programme and student academic performance.

H_1: There is an association between student perception on choice of study programme and student academic performance.

TABLE 4.7

perception_stud_choice_on_perf * cgpa Crosstabulation

			cgpa				Total
			1.50-2.49	2.50-3.49	3.50-4.49	4.50-5.00	
perception_stud_choice_on_perf	Agree	Count	10	33	84	19	146
		Expected Count	7.0	35.4	80.0	23.6	146.0
	Disagree	Count	3	14	29	6	52
		Expected Count	2.5	12.6	28.5	8.4	52.0
	Neutral	Count	1	27	48	9	85
		Expected Count	4.1	20.6	46.6	13.7	85.0

	Strongly agree	Count	4	19	53	26	102
		Expected Count	4.9	24.7	55.9	16.5	102.0
	Strongly disagree	Count	1	3	3	4	11
		Expected Count	.5	2.7	6.0	1.8	11.0
Total		Count	19	96	217	64	396
		Expected Count	19.0	96.0	217.0	64.0	396.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.369[a]	12	.045
Likelihood Ratio	21.245	12	.047
N of Valid Cases	396		

a. 6 cells (30.0%) have expected count less than 5. The minimum expected count is .53.

cgpa * perception_stud_choice_on_perf Crosstabulation

			perception_stud_choice_on_perf			Total
			Agree	Disagree	Neutral	
cgpa	1.50-2.49	Count	14	4	1	19
		Expected Count	11.9	3.0	4.1	19.0
	2.50-3.49	Count	52	17	27	96
		Expected Count	60.1	15.3	20.6	96.0
	3.50-4.49	Count	137	32	48	217
		Expected Count	135.9	34.5	46.6	217.0
	4.50-5.00	Count	45	10	9	64
		Expected Count	40.1	10.2	13.7	64.0
Total		Count	248	63	85	396
		Expected Count	248.0	63.0	85.0	396.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.764[a]	6	.187
Likelihood Ratio	9.814	6	.133
N of Valid Cases	396		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 3.02.

Decision rule:

- If $p \leq 0.05$, reject H_0
- If p >0.05, fail to reject H_0

Since p = 0.187 > 0.05, we fail to reject H_0

CONCLUSION

The Chi-square test of independence showed no statistically significant association between student perception on choice of study programme and student academic performance (p = 0.187). This suggests that student perception on choice of study programme does not influence academic performance.

HYPOTHESIS 6:

H_0: There is no association between student perception on gender and academic performance.

H_1: There is an association between student perception on gender and academic performance.

TABLE 4.8

perception_gender_on_perf * cgpa Crosstabulation

			cgpa				Total
			1.50-2.49	2.50-3.49	3.50-4.49	4.50-5.00	
perception_gender_on_perf	No	Count	11	69	148	43	271
		Expected Count	13.0	65.7	148.5	43.8	271.0
	Not sure	Count	3	14	45	4	66

		Expected Count	3.2	16.0	36.2	10.7	66.0
	Yes	Count	5	13	24	17	59
		Expected Count	2.8	14.3	32.3	9.5	59.0
Total		Count	19	96	217	64	396
		Expected Count	19.0	96.0	217.0	64.0	396.0

Chi-Square Tests

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	16.845[a]	6	.010
Likelihood Ratio	16.824	6	.010
N of Valid Cases	396		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.83.

Decision rule:

- If $p \leq 0.05$, reject H_0
- If p >0.05, fail to reject H_0

Since p = 0.010 < 0.05, we reject H_0

CONCLUSION

The Chi-square test of independence showed a statistically significant association between student perception on gender and student academic performance (p = 0.010). This suggests that student perception on gender influences academic performance.

HYPOTHESIS 7:

H_0: There is no association between student perception on age at admission and academic performance.

H_1: There is an association between student perception on age at admission and academic performance.

TABLE 4.9

perception_age_on_perf * cgpa Crosstabulation

			cgpa				Total
			1.50-2.49	2.50-3.49	3.50-4.49	4.50-5.00	
perception_age_on_perf	No	Count	12	65	135	43	255
		Expected Count	12.2	61.8	139.7	41.2	255.0
	Not sure	Count	3	12	36	6	57
		Expected Count	2.7	13.8	31.2	9.2	57.0
	Yes	Count	4	19	46	15	84
		Expected Count	4.0	20.4	46.0	13.6	84.0
Total		Count	19	96	217	64	396
		Expected Count	19.0	96.0	217.0	64.0	396.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.759[a]	6	.838
Likelihood Ratio	2.890	6	.823
N of Valid Cases	396		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.73.

Decision rule:

- If $p \leq 0.05$, reject H_0
- If p >0.05, fail to reject H_0

Since p = 0.838 > 0.05, we fail to reject H_0

CONCLUSION

The Chi-square test of independence showed no statistically significant association between student perception on age at admission and student academic performance (p = 0.838). This suggests that student perception on age at admission does not influence academic performance.

HYPOTHESIS 8:

H_0: There is no association between student perception on ethnic affiliation and academic performance.

H_1: There is an association between student perception on ethnic affiliation and academic performance.

perception of ethnicity_on_performance * cgpa Crosstabulation

			cgpa				Total
			1.50-2.49	2.50-3.49	3.50-4.49	4.50-5.00	
Perception of ethnicity_on_performance	No	Count	12	64	131	43	250
		Expected Count	12.0	60.6	137.0	40.4	250.0
	Not sure	Count	5	18	44	7	74
		Expected Count	3.6	17.9	40.6	12.0	74.0
	Yes	Count	2	14	42	14	72
		Expected Count	3.5	17.5	39.5	11.6	72.0
Total		Count	19	96	217	64	396
		Expected Count	19.0	96.0	217.0	64.0	396.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.502[a]	6	.481
Likelihood Ratio	5.915	6	.433
N of Valid Cases	396		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 3.45.

Decision rule:

- If $p \leq 0.05$, reject H_0
- If p >0.05, fail to reject H_0

Since p = 0.481 > 0.05, we fail to reject H_0

CONCLUSION

The Chi-square test of independence showed no statistically significant association between student perception on ethnic affiliation and student academic performance (p = 0.481). This suggests that student perception on ethnic affiliation does not influence academic performance.

4.4 REGRESSION ANALYSIS

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.161[a]	.026	.016	.746

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.779	4	1.445	2.593	.036[b]
	Residual	217.847	391	.557		
	Total	223.626	395			

a. Dependent Variable: CGPA

b. Predictors: (Constant), First Choice, Ethnicity, Age, Gender

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**		
1	(Constant)	1.788	.231		7.725	.000
	Age at admission	-.053	.054	-.050	-.985	.325
	Gender	.032	.077	.021	.417	.677
	Ethnic affiliation	.053	.036	.074	1.478	.140
	Choice of study programme	.189	.076	.125	2.497	.013

a. Dependent Variable: CGPA

$$CPGA = 1.788 + 0.189\beta_1 + 0.032\beta_2 - 0.053\beta_3 + 0.053\beta_4$$

where:

β_1 = Choice of study programme

β_2 = Gender

β_3 = Age at admission

β_4 = Ethnic affiliation

INTERPRETATION

Model Summary

- The R square value of 0.026 shows that the model explains about 2.6% of the variation in academic performance. This means that these four variables collectively account for a small proportion of the differences a students' CGPA, while the remaining variation may be due to other factors not captured in this model.
- Adjusted R square value of 0.016 adjust for the number of predictors and confirms that after accounting for sample size, the explanatory power of the model remains 1.6%.

ANOVA table

- F (4,392) = 2.593, p = 0.036
- The overall regression model is statistically significant at the 5% level ($p < 0.05$). This means that, the predictors (Age at admission, gender, ethnic affiliation, choice of study programme) taken together have a significant effect on CGPA.

Coefficient's table

- The intercept is 1.788, meaning the predicted CGPA is 1.788 when all predictors are zero
- Age at admission has a negative but non-significant effect on CGPA. This means that an older student performs poorly academically than younger students in this study. For each one unit increase in age, CGPA is expected to decrease by 0.053. However, this is not statistically significant.
- Gender has a very small and non-significant positive effect on CGPA. This implies gender differences do not significantly predict CGPA.
- Ethnic affiliation shows a small positive effect on CGPA but is not statistically significant at 5% level ($p > 0.05$).
- Choice of study programme is a significant predictor. Students who were admitted into their first choice of programme tend to have significantly higher CGPA (increase of 0.189 on average, $p < 0.05$)

CONCLUSION

Students who got admitted into their first-choice programme perform better academically, while age at admission, gender, and ethnic affiliation do not have a meaningful influence on CGPA in this dataset.

CHAPTER 5

SUMMARY, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

The study examined how the variables; choice of study programme, gender, age at admission and ethnicity affect academic performance using appropriate statistical analyses. The insights gained from the data analyzed are summarized as follows.

5.1 SUMMARY

Choice of study programme

The analysis showed that students' first choice of study programme has a statistically significant effect on their academic performance. This followed the preliminary descriptive statistics which showed that students who selected their programmes based on personal interest, ability, and career aspirations performed significantly better than those placed in courses against their will or interest. This shows the importance of motivation and alignment between a student's passion and field of study.

Gender

The study showed no significant association of academic performance with students' gender (male or female). Both genders performed almost the same when given equal academic opportunities and learning conditions. This suggests that gender is not a statistically significant determining factor in academic achievement based on this study in the University of Benin.

Age at Admission

The analysis indicated that age at admission does not significantly influence academic performance. Thus, age does not appear to be a crucial determinant of academic success in the University of Benin, based on this study.

Ethnic affiliation

The study found that ethnic affiliation had no significant effect on students' academic performance. Despite the University's ethnicly diverse student body, academic achievement appeared independent of ethnic background.

Overall Model

Based on this study, the combined model indicated that while demographic variables did not significantly predict academic performance, the choice of study programme remained a key factor. This implies that internal factors such as academic interest and motivation are stronger

determinants of success than external demographic characteristics such as age at admission, gender and ethnic affiliation

5.2 LIMITATIONS

The study faced several limitations of which one of the major limitation was the exclusion of 100-level students from the survey sample due to the fact that they do not have computed CGPA which was a variable used to assess academic performance. Also, data collected through the use of the questionnaires could be biased, exaggerated or influenced by peers.

5.3 RECOMMENDATIONS

The University of Benin should offer students their choice of study programme or programme that are very similar to their course choice, although this is almost impossible due to several factors. Also, further studies should be carried out each academic session to compare variations in the influence of these variables on students' academic performance.

5.4 CONCLUSION

From the study, it can be concluded that academic performance among students of the University of Benin is primarily influenced by their choice of study programme among other demographic variables that were considered in this study-gender, age at admission, and ethnic affiliation-do not have a significant impact.

This means that a student's performance is more dependent on their motivation and alignment between the student's personal goals and their chosen field of study than on other social characteristics such as parental involvement, peer influence and cultural background. In essence, what students study matters more than who they are demographically in determining their academic success.

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UNIVERSITY OF BENIN
FACULTY OF PHYSICAL SCIENCE
DEPARTMENT OF STATISTICS

Research Title: A STATISTICAL ANALYSIS OF THE IMPACT OF CHOICE OF STUDY PROGRAMMES, AGE AT ADMISSION AND ETHICAL AFFILIATION ON STUDENTS' ACADEMIC PERFORMANCE.

Dear Respondent,

Thank you for taking out your time to fill out this survey. The purpose of the questionnaire is to analyze the impact of choice of study programmes, age at admission and ethical affiliation on students' academic performance amongst students of the University of Benin.

Your responses will be treated with utmost confidentiality and used strictly for research purposes.

(Please tick the appropriate option)

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender

☐ Male ☐ Female

2. Age at admission

☐ Below 18 ☐ 18-21 ☐ 22-25 ☐ Above 25

3. Ethnic Affiliation

☐ Hausa ☐ Yoruba ☐ Igbo ☐ Edo ☐ Others

4. Faculty

☐ Agricultural science ☐ Arts ☐ BMS ☐ Dentistry

☐ Education ☐ Engineering ☐ Environmental science ☐ Law

☐ Life science ☐ Management science ☐ Medicine ☐ Pharmacy

☐ Physical science ☐ Social science ☐ Veterinary medicine

5. Level

☐ 100 ☐ 200 ☐ 300 ☐ 400 ☐ 500 ☐ 600

SECTION B: ACADEMIC PERFORMANCE

6. What is your current CGPA?

☐ 4.50-5.00 ☐ 3.50-4.49 ☐ 2.50-3.49 ☐ 1.50-2.49 ☐ Below 1.50

7. How would you rate your academic performance?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

SECTION C: CHOICE OF STUDY PROGRAMME

8. Was your current course of study your first choice?

☐ Yes ☐ No

9. What influenced your choice of course? *(Select all that apply)*

☐ Parental influence ☐ Personal interest ☐ High job prospect

☐ Peer influence ☐ JAMB/ admission constraints ☐ Others

10. Do you feel satisfied with your current course of study?

☐ Yes ☐ No ☐ Not sure

11. Did you JAMB/UTME score influence the course you ended up studying?

☐ Yes ☐ No

12. Has your motivation to study increased or decreased since starting this course?

☐ Increased ☐ Decreased ☐ No change

SECTION C: PERCEPTION AND IMPACT

13. Do you believe your choice of study program affects your academic performance?

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

14. Do you think gender plays a role in academic performance in your program?

☐ Yes ☐ No ☐ Not sure

15. Do you believe that students from certain ethnic groups perform better academically in your faculty?

☐ Yes ☐ No ☐ Not sure

16. Do you feel that your age at admission influenced your academic performance?

☐ Yes ☐ No ☐ Not sure

17. Do you think students who chose their course based on personal interest perform better?

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

18. Do you think older students perform better academically than younger students?

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

THANK YOU FOR YOUR TIME AND HONESTY.