INTERNATIONAL JOURNAL OF EDUCATIONAL RESEARCH, INNOVATION AND MULTIDISCIPLINARY DEVELOPMENT

IJERIMD

GIVING YOU THE JOY OF RESEARCH AND THE POWER OF KNOWLEDGE FROM IJERIMD.

TREND ANALYSIS OF STUDENTS ACHIEVEMENT IN MATHEMATICS AT WASSCE FROM 2013 – 2022 IN FEDERAL CAPITAL TERRITORY, ABUJA, NIGERIA

e-ISSN: 2616-1370
Print_ISSN: 1115-5868
Volume 1, Number 1 (2025)

International Journal of Educational Research, Innovation and Multidisciplinary Development

Published by Veritas Vox Publishing House

e-ISSN: 2616-1370

Print_ISSN: 1115-5868

Volume 1, Number 1 (2025)

TREND ANALYSIS OF STUDENTS ACHIEVEMENT IN MATHEMATICS AT WASSCE FROM 2013 – 2022 IN FEDERAL CAPITAL TERRITORY, ABUJA, NIGERIA

Authors:

[1] **Wapa Regina Jacob**

[2] **Maikudi Kwanza Allahnana, Ph. D**

[3] **Emeka Ihenwokeneme**

Affiliation:

[1,2&3]**Department of Educational Foundations,**
Faculty of Education,
Nasarawa State University,
Keffi, Nigeria.

Contacts:

[1]**gright200@gmail.com**

[2]**maikudiallahnana@gmail.com**
+234(0)-8061257907

[3]**Ihenwokeneme@yahoo.com**

Dates:
Received: 2025-08-15
Accepted: 2025-08-28
Published: 2025-10-30

Citation:
Wapa Regina Jacob, Maikudi Kwanza Allahnana, Ph. D & Emeka Ihenwokeneme. (2025). Trend Analysis of Students' Achievement in mathematics at WASSCE from 2013 – 2022 in Federal Capital Territory, Abuja, Nigeria. International Journal of Educational Research, Innovation and Multidisciplinary Development (IJERIMD), *1*(1), 90-105.

https://njsr.com.ng/index.php/home/article/view/18

Abstract

The study based on the trend analysis of students' achievement in mathematics at WASSCE from 2013 – 2022 in Federal Capital Territory, Abuja. An ex-post facto research design was employed, focusing on a population of 117,822 students from 73 public senior secondary schools, comprising 61,264 males and 56,558 females who participated in the examinations over the specified period. A sample of 20,967 students from 12 public senior secondary schools in FCT was selected using a multistage sampling procedure, including 10,672 males and 10,295 females. Data were collected using the school location-based Proforma for Mathematics (GEPROM), which demonstrated a logical validity index of 0.86 and a reliability index of 0.82, as determined by the Cronbach Coefficient Alpha method. The Chi-square test of independence was utilized to test the hypotheses at a significance level of 0.05. The results indicated that the trend of student achievement in WASSCE Mathematics in FCT from 2013 to 2022 was non-stationary, showing consistent progress. While there were differences in the percentages of urban and rural students achieving credits (A1-C6) and passes (D7-E8), no significant differences were found in the trends of urban and rural students' achievements in WASSCE Mathematics over the years. The study concluded that school location does not influence student achievement in mathematics in the FCT. Based on these findings, it was recommended that mathematics teachers in the FCT be recognized for their efforts, and that instructional practices and strategies for teaching mathematics should be maintained or enhanced to support observed student achievements in WASSCE. Additionally, there is a need to review government policies on school location participation in mathematics and ensure that the curriculum is inclusive and non-discriminatory. This approach would foster the development of problem-solving skills that are essential for everyday societal needs.

Keywords: *Trend analysis, achievement, students, WASSCE*

INTRODUCTION

Mathematics is a foundational subject that plays a crucial role in the educational development of students, influencing their problem-solving skills, logical reasoning, and overall academic performance. In Nigeria, the West African Senior School Certificate Examination (WASSCE) serves as a key assessment tool that evaluates students' proficiency in various subjects, including Mathematics. The West African Senior Secondary Certificate Examination (WASSCE) is an ordinary level school certificate exam organized by the West African Examination Council (WAEC) in Nigeria, held annually in May and June. As noted by Zalmon and Wonu (2017), WAEC is one of Nigeria's primary examining bodies, established in 1952 to cater to the educational needs of four British West African countries: Nigeria, Ghana, Sierra Leone, and Gambia. WAEC's main responsibilities include reviewing and overseeing examinations and awarding certificates based on the results. Each member country's national office manages the examination within its territory. The grading system for WASSCE is as follows: A1 (Excellent), B2 (Very Good), B3 (Good), C4 (Credit), C5 (Credit), C6 (Credit), D7 (Pass), D8 (Pass), and F9 (Fail). The selection of WASSCE results for this study is due to its credibility and recognition by higher education institutions (Sakiyo, 2015). Receiving a Senior Secondary School Certificate is a pivotal event in Nigeria's academic calendar, carrying significant economic and social implications and providing pathways to higher education for those who attain it. A key requirement for admission into higher education institutions in Nigeria is a credit pass in Mathematics (Utibe & Agwagah, 2015).

Mathematics, a compulsory subject in secondary education, is viewed as the science of structure, order, and relationships, stemming from basic activities like counting, measuring, and describing shapes. It emphasizes logical reasoning and quantitative analysis. The subject fosters critical thinking, creativity, abstract reasoning, problem-solving abilities, and effective communication skills (Musbahu et al., 2021). Often referred to as the "queen" of sciences, Mathematics underpins the study of other scientific disciplines such as physics, chemistry, biology, and computer science (Musbahu et al., 2021).

Mathematics impacts various facets of human life, serving as the cornerstone of scientific, technological, and societal advancement. For a nation to thrive and progress, enhancing its

technological capabilities through effective mathematics education are essential, as it influences numerous professional fields (Gimba & Agwagah, 2013). Regardless of complexity, mathematics is a fundamental tool for survival, revealing patterns that enhance our understanding of the world and playing a vital role in intellectual, vocational, moral, economic, scientific, technological, and educational growth (Yadav, 2019).

Mathematics is deemed essential by various stakeholders, including individuals, institutions, and employers, due to its extensive applicability in everyday activities. This importance has led to its prioritization as a mandatory subject in primary and secondary education. Caponera and Lasito (2016) emphasize that learning mathematics is foundational for adult life, as it aids in analyzing and conveying information to solve real-world problems (Gray & Tall, 2013). Consequently, student achievement in this subject is a matter of concern for parents, governments, and educational stakeholders.

Academic achievement reflects performance outcomes that indicate how well students meet specific educational goals. Schools typically define cognitive objectives that apply across multiple subjects or focus on knowledge acquisition in particular domains. Academic achievement can be measured through various indicators, including knowledge gained within an educational framework and performance on assessments (Steinmayr et al., 2015). For this study, declarative achievement will be utilized, defined by Galle, Sakks, and Aminu (2018) as scores from teacher-made tests in continuous assessments, common mocks, or certificate examinations. Similarly, Olarewaju and Suleiman (2019) describe academic achievement as a measure of students' educational goals through examinations. WASSCE, conducted at the conclusion of secondary school education, serves as a nationwide assessment, determining whether secondary education objectives have been met.

The term "location" refers to a student's residential area, specifically whether it is urban or rural. According to Ntibi and Edoho (2017), location impacts academic achievement, as rural environments tend to be more homogeneous and less complex compared to urban settings, which may have cultural diversity. Students in rural areas often have limited access to quality educational facilities and extracurricular activities compared to their urban counterparts. Akissani, Muntari, and Ahmed (2019) highlight that urban schools typically offer better

resources, including qualified teachers and infrastructure, which may not be available in rural schools. Urban areas are characterized by high population density, while rural areas exhibit lower density and often face socio-economic challenges. Ahordiah, Akpadaka, and Oviogbodu (2015) point out those students in rural schools, particularly girls, encounter more difficulties, as parents often prioritize boys' education over girls.

School location also plays a significant role in academic achievement, with Galle, Atiku, and Gado (2019) describing it as a socially constructed concept that influences relationships and roles between males and females. School location disparities in education remain a critical issue, particularly in the context of technological advancement. Research has shown that societal views often assign more complex tasks to boys, while girls are relegated to simpler responsibilities, leading to perceptions of girls as the "weaker sex" (Ezechi & Adukwu, 2018). This societal bias affects academic achievement, making it a pressing concern for educators and researchers.

Given the importance of mathematics achievement, various studies have explored trends in this area, including research by Musa and Dauda (2014) and Zalmon and Wonu (2017), which indicated fluctuating achievement levels over specific periods. Considering mathematics as essential for a nation's scientific and technological progress, periodic investigations into achievement trends are necessary to understand historical patterns and inform future expectations. This research aims to analyze the trends in students' achievement in mathematics for WASSCE in the Federal Capital Territory from 2013 to 2022, examining whether trends have shifted and predicting future outcomes. Additionally, the study will explore differences in academic achievement between urban and rural students and assess how school location affects achievement in mathematics.

Zalmon and Wonu (2017) reported a significant increase of 147.76% in the number of students taking WASSCE for general mathematics over the years, along with notable improvements in achievement levels. Adewale (2018) found that students performed well in selected STEM subjects during the review period, although mathematics achievement showed a decline from 2016 to 2018 before beginning to improve again in 2019 and 2020. Olarewaju and Suleiman (2019) revealed varying percentages of urban and rural students achieving credit in WASSCE,

with males ranging from 26.5% to 91.0% for credits, while female students' credits ranged from 12.5% to 86.2%. In NECO, male students' credit percentages varied from 14.6% to 84.4%, while females ranged from 11.8% to 70.4%. The results also indicated that male students tended to score more credits than female students in Further Mathematics across both examinations.

Usman and Sulaiman (2023) found significant differences in the percentage trends of student grades at Nasarawa State University from 2018 to 2022, where approximately 75% of students received E-D grades in Econometrics, 20% achieved C-B grades, and only 5% earned A grades. They recommended that the National University Commission hire more qualified Econometrics lecturers and encourage more instructional time for the subject. Ogugua and Uboh (2020) highlighted disparities among states in WASSCE performance, with Abia State achieving the highest at 74.11% and Jigawa State the lowest at 10%. They recommended that the federal Ministry of Education acknowledge high-performing schools and assist those with lower achievements to identify and resolve underlying issues. Olarewaju et al. (2019) analyzed WASSCE Further Mathematics trends from 2007 to 2016, finding a stochastic trend with credit percentages ranging from 23.0% to 77.3%. They urged stakeholders to enhance scientific literacy in education and make the Further Mathematics curriculum inclusive and equitable.

Adewale (2018) collected and analyzed student performance data using Microsoft Excel, revealing overall strong performance in STEM subjects, although mathematics showed a decline between 2016 and 2018. The study called for continued government support for STEM education. Edith and Arokoyu (2018) reported persistently poor mathematics performance in Nigeria, with less than 48% of candidates achieving credit. They recommended that mathematics teachers present the subject in engaging, relevant ways.

The study is based on Ludwig Von Bertalanffy's system theory, which emphasizes understanding how systems exchange matter and function. According to Mwangeka (2020), a system consists of interconnected parts. Arnold and Wade (2015) define a system as a combination of interrelated elements working together toward a common goal.

Applying system theory can enhance secondary education administration, addressing issues that impact student achievement. The framework is relevant for understanding academic

performance in WASSCE mathematics, as students' achievements are influenced by the system's effectiveness. Ultimately, the knowledge gained from the education system benefits the community, fostering literate individuals who contribute to society, whether through further education or employment. The system approach aims to create a supportive environment for both teachers and students, making it pertinent to this study.

In other to understand the trend of students' achievement in Mathematics in this current study, there is needed to look at the past trend, as reported by researchers. Zolmu and Wonu (2017) investigated the trend of students' achievement in WASSCE mathematics from 1991 to 2016 and found out that in 1991, out of the total number of students' that sat for May/June WASSCE in general Mathematics in Nigeria only 11.10% of the students' were able to obtain credit and above while 88.90% has pass and below, in 1992, 21.90% obtained credit and above while 78.10% has pass and below, in 1993, 10.90% has credit and above while 89.10% pass and below, 1994, 16.10% has credit and above while 83.90% has pass and below, in 1995, 16.50% obtained credit and above while 83.50% had pass and below. In 1996, 10% obtained credit and above while 90% had pass and below, in 1997, 7.70% obtained credit and above while 92.30% had pass and below, in 1998, 11.10% obtained credit and below while 88.90% had pass and below, in 1999 only 9.00% obtained credit and above while 91.00% had pass and below.

In 2000, the number of students' that obtained credit and above is 32.80% while pass and below is 67.20%, in 2001, those that obtained credit and above is41.60% while 58.40% had pass and below, in 2002, 15.00% obtained credit and above while 85.00% had pass and below, in 2003, 45.80% obtained credit and above while 54.20% had pass and below. In 2004, 53.80% had credit and above while 46.20%obtained pass and below. In 2005, only 35.55% obtained credit and above while 64.45% had pass and below, in 2006, 39.94% obtained credit and above while 60.06% had pass and below. In 2007 15.56% obtained credit and above while 84.44% had pass and below, in 2008, 23.00% obtained credit and pass while 77.00% had pass and below. In 2009, 31.00% obtained credit and above while 69.00% had pass and below.

In 2010, 33.55% obtained credit and above, while 66.45% had pass and below, in 2011, 38.93% obtained credit and above, while 61.07% had pass and below. In 2012, 49.00% obtained credit and above, while 51.00% had pass and below, in 2013, 36.00% obtained

credit and above while 64.00% had pass and below. In 2014 out of the total number of students' that sat for May/June WASSCE only 31.30% obtained credit and above, while 68.70% had pass and below, in 2015 34.18% obtained credit and above, while 65.82% had pass and below. And in 2016, 38.68% obtained credit and above, while 61.32% had pass and below, which can be seen from the table below as extracted (Zalmon & Wonu, 2017).

Over the years, there have been varying trends in student achievement in Mathematics, prompting educators, policymakers, and stakeholders to investigate the factors influencing these changes. The Federal Capital Territory (FCT), Abuja, is of particular interest due to its unique demographic, socio-economic, and educational dynamics. This region hosts a diverse population with varying access to educational resources, teaching quality, and support systems, all of which can significantly impact student performance. The period from 2013 to 2022 is significant, as it encompasses various educational reforms, changes in curriculum, and the effects of external factors such as the COVID-19 pandemic, which disrupted educational activities globally. Understanding these trends can provide insights into the effectiveness of current educational policies and highlight areas that require intervention. This study aims to analyze the achievement trends in Mathematics among students in the FCT over the specified years, exploring underlying factors such as teaching methods, student engagement, socio-economic influences, and institutional support. By identifying patterns and discrepancies in student performance, the study seeks to contribute to the broader discourse on educational quality in Nigeria and offer recommendations for improving mathematics education in the FCT.

Research Questions

The following research questions guided the study:

i. What is the trend of students' achievement in Mathematics at WASSCE in FCT from 2013-2022?

ii. What is the trend of urban and rural students' achievement' in Mathematics WASSCE in FCT from 2013 - 2022?

Objectives

The main objective of this study was to investigate the trend analysis of school location differential achievement in WASSCE Mathematics in FCT from 2013-2022. However, the following specific objectives were achieved:

i. To establish the pattern of students' achievement in Mathematics at WASSCE in FCT for 10 years (2013-2022).

ii. To establish the pattern of urban and rural students' achievement in Mathematics WASSCE in FCT from 2013-2022?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

i. There is no significant difference in the percentage of students in FCT that obtained credit (A_1-C_6), pass (D_7–E8) and (F9) in WASSCE Mathematicsfrom2013-2022**.**

ii. There is no significant difference in the school location achievement of students in Mathematics WASSCE in FCT from 2013 - 2022.

METHODOLOGY

This study employed an ex-post facto survey research design, deemed appropriate because the West African Senior Secondary Examination has already occurred, and the researcher has no influence over it or its results. The focus is solely on the examination outcomes to analyze trends in students' mathematics achievement from a selected sample. The study's population comprised 117,822 students (91,698 urban, 26,124 rural, 61,264 males, and 56,558 female) from 73 public senior secondary schools in the FCT who took the Mathematics WASSCE from 2013 to 2022. The sample included 20,967 students from twelve public senior secondary schools, with 13,762 from urban areas and 7,205 from rural areas. Given the impracticality of analyzing the entire student population in the FCT, a multistage sampling procedure was implemented. Initially, all public senior secondary schools in Abuja were categorized into urban and rural. From this, seven urban schools and five rural schools were selected using

proportionate sampling methods to form the study sample. The sample was then divided by school location. For data collection, the researcher created the Students' Proforma for Mathematics Results (SPMR), which facilitated the retrieval of necessary data from the education resource center in the FCT. The SPMR contains nine items: (1) School location, (2) Location, (3) Year, (4) A1-C6, (5) D7-E8, (6) F9, (7) Registration Number, (8) Absent Number, and (9) Total. Detailed information can be found in Appendix B.

To ensure the SPMR effectively measures its intended constructs, face validity was established by having two measurement and evaluation experts review the tool. They assessed the clarity, appropriateness, and relevance of the items, resulting in a logical validity index of 0.86. The SPMR was pilot-tested on 100 students who were not part of the main sample. The data collected were analyzed using Kuder-Richardson 20 (KR20) to assess internal consistency reliability, which yielded a reliability index of 0.82. A letter of introduction was secured from the Department of Educational Foundations at Nasarawa State University Keffi, requesting data from the Education Resource Centre in the FCT. The researcher then extracted the required data from the annual WAEC result analysis sheet according to the items listed in the proforma. Research questions were addressed using time series analysis and percentages, while the chi-square test of independence was employed to test hypotheses Ho2 and Ho3 at a significance level of 0.05.

International Journal of Educational Research, Innovation and Multidisciplinary Development (IJERIMD)
e-ISSN: 2616-1370
Print_ISSN: 1115-5868
Vol. 1 No. 1, September, 2025. Pg 90 - 105
DOI: https://doi.org/10.33003/fjs-2023-0705-2028

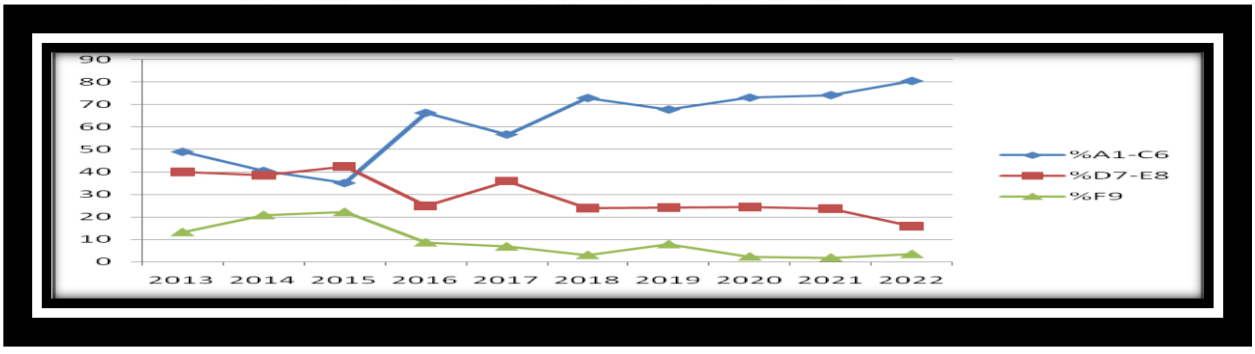
RESULTS

Research Question 1: What is the trend of students' achievement in Mathematics WASSCE in FCT from 2013- 2022?

Table 1: Trend of Students' Achievement in Mathematics WASSCE in FCT from 2013-2022

YEAR	(%) A1-C6	(%) D7-E8	(%) F9
2013	49.9	40.0	13.3
2014	40.5	38.6	20.9
2015	35.5	42.5	22.3
2016	66.3	25	8.7
2017	56.7	36	6.9
2018	72.9	23.9	3.1
2019	67.8	24.2	7.9
2020	73.1	24.5	2.4
2021	74.2	23.8	1.9
2022	80.5	15.9	3.5

Table 1 shows the percentage of students that obtained credit (A_1-C_6), pass (D_7 & E_8) and fail (F_9) in WASSCE Mathematics from 2013-2022**.** The trends indicated upward and downward patterns over times. This implies that the trend of students' achievement in WASSCE Mathematics in FCT Abuja from 2013- 2022 was non stationary (steadily progressive). The percentage of students' in FCT that obtained credit (A1-C6) in general Mathematics ranges 35.5% which is in 2015 to 80.5% in 2022 within the period of study. The range of percentage of students' that obtained pass (D7-E8) ranges from 15.9% in 2022 to 40.0% in 2013 and the range of percentage of students' that obtained fail (F9) result ranges from 1.9% in 2022 to 22.3% in 2015. Hence, the time series plot is represented in Figure (1) showed non-stationary trends (steadily progressing) in achievement patterns as indicated below.



International Journal of Educational Research, Innovation and Multidisciplinary Development (IJERIMD)
e-ISSN: 2616-1370
Print_ISSN: 1115-5868
Vol. 1 No. 1, September, 2025. Pg 90 - 105
DOI: https://doi.org/10.33003/fjs-2023-0705-2028

Figure 1: Trend of Achievement by credit (A1-C6), pass (D7-E8) and Fail (F9) (2013- 2022)

Research Question 2: What is the urban and rural achievement of students in Mathematics WASSCE in FCT from 2013 - 2022

Table 2: Summery of Percentages of Urban and rural Students That Obtained Credit (A1 – C6), Pass (D7 & E8) and Fail (F9) in Mathematics WASSCE in FCT from 2013 – 2022

School location	Percentage (%) of Students that Obtained Credit (A1-C6)	Percentage (%) of Students that Obtained pass. (D7-E8)	Percentage (%) of Students that Obtained fail. (F9)
Urban	35.6	12	3.3
Rural	28.3	16.1	4.7
Total	63.9	28.1	8.0

From the Table 2 above, it can be seen that out of the 63.6% of students that credit mathematic from 2013 -2022, 35.6% are male while 28.3% are Female. Out of 28.1% that obtained pass, 12% are male while 16 .1% are Female and for the 8% that obtained fail 3,3% are male while 4.7 are female respectively which can also be seen graphically in figure 3 below.

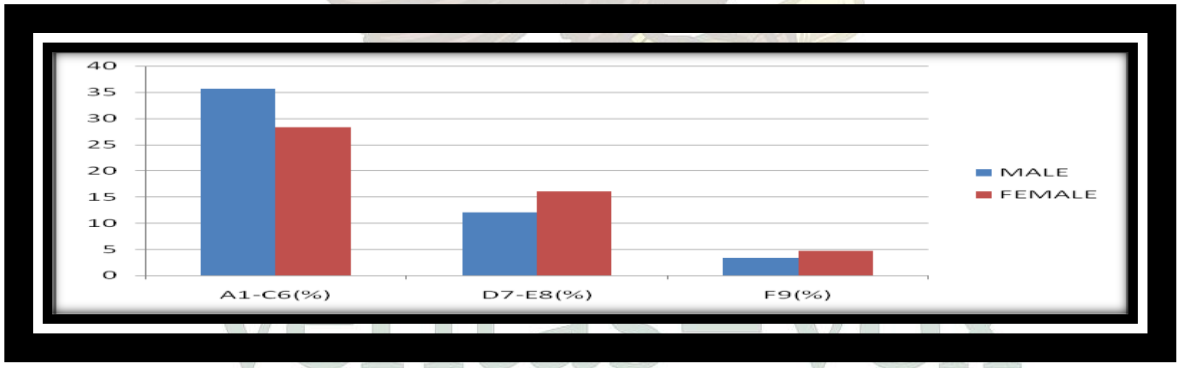


Figure 2: Percentage of Urban and rural achievement of students' in WASSCE Mathematics from 2013 -2022

Hypotheses

Ho1 There is no significant difference in the achievement of students in FCT that obtained credit (A_1-C_6), pass (D_7 & E_8) and fail (F_9) in WASSCE Mathematics from 2013-2022.

International Journal of Educational Research, Innovation and Multidisciplinary Development (IJERIMD)
e-ISSN: 2616-1370
Print_ISSN: 1115-5868
Vol. 1 No. 1, September, 2025. Pg 90 - 105
DOI: https://doi.org/10.33003/fjs-2023-0705-2028

Table 3: Chi-Square Test for Significant Difference of Students' Achievement Obtained Credit (A_1-C_6), Pass(D_7-E_8) and Fail(F_9)

	Value	Df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	99% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	110.000[a]	100	.232	1.000[b]	1.000	1.000
Likelihood Ratio	52.754	100	1.000	1.000[b]	1.000	1.000
No. of Valid Cases	11					

a. 121 cells (100.0%) have expected count less than 5. The minimum expected count is .09.

b. Based on 20967 sampled tables with starting seed 1418382849.

Table 3, shows Chi square for significant difference in the achievement of students' in FCT that obtained credit (A_1-C_6), pass (D_7 & E_8) and fail (F_9) in WASSCE Mathematics from 2013-2022. The results at Df= 100,20967, Sig(P) 0.232 at 0.05 level. The result indicated that Sig(P) is greater than 0.05 level. (P>0.05). The Ho_1 was retained, hence, there is no significant difference in the achievement of students' in FCT that obtained credit (A_1-C_6), pass (D_7 & E_8) and fail (F_9) in WASSCE Mathematics over the years (2013-2022).

Ho_2: There is no significant difference in the school location achievement of students in Mathematics WASSCE in FC T from 2013 - 2022.

Table 4: Chi-Square Test for Urban and rural Significant Difference of Students' Achievement by Credit (A_1-C_6), Pass (D_7-E_8) and Fail(F_9)

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.000[a]	4	.199
Likelihood Ratio	6.592	4	.159
N of Valid Cases	3		

a. 9 cells (100.0%) have expected count less than 5. The minimum expected count is .33.
b. Based on 20967 sampled tables with starting seed 1418382849.

Table 4 shows Chi-square test of significant difference in urban and rural students' achievement in WASSCE Mathematics 2013-2022, yielded Sig(P) 0.1990 at 0.05 level of significant, with Df=4, Ho_2 was retained.

Discussion of Findings

Inferences drawn from Hypothesis 1 reveal no significant difference in the achievements of students from 2013 to 2023 in the FCT, regardless of whether they obtained credit (A1-C6), passed (D7-E8), or failed (F9) in WASSCE Mathematics. The results, with a degree of freedom (Df) of 100 and a significance value (Sig(P)) of 0.280 at the 0.05 level, show that Sig(P) is greater than 0.05. Consequently, the null hypothesis (Ho1) is retained, indicating that students' achievements in mathematics are independent of the year. This finding aligns with Zalmon and Wonu (2017), who reported a 147.76% increase in the number of students taking WASSCE in general mathematics over the years, along with significant improvements in achievement. Adewale (2018) found that while students performed well in selected STEM subjects, mathematics achievement declined from 2016 to 2018 before improving again from 2019 to 2020. This study corroborates those findings, as there was an increase in the percentage of students achieving credit in mathematics from 2019 to 2022, consistent with Adewale (2018) and Onyeka and Arokoyu (2018).

Chi-square analysis for Hypothesis 2 yielded a significance value of 0.199 at Df=4. Since Sig(P) is greater than the 0.05 significance level, the null hypothesis (Ho2) is retained, suggesting no significant difference in mathematics achievement between urban and rural students in the FCT during this period. Thus, school location does not significantly influence

students' mathematics performance. This finding aligns with Olarewaju and Suleiman (2019), who noted varying percentages of male and female students achieving credit in WASSCE, with male students ranging from 26.5% to 91.0% and female students from 12.5% to 86.2%. In NECO, the percentage of male students with credit ranged from 14.6% to 84.4%, while female students ranged from 11.8% to 70.4%. Results indicated that male students generally obtained more credits than their female counterparts in both examinations. However, the findings of this study contradict those of Allahnana et al. (2018), who found that male students outperformed female students in mathematics achievement and identified a significant relationship between urban and rural students' interest in mathematics.

Conclusion

In the years of this survey, there have been varying trends in student achievement in Mathematics, prompting educators, policymakers, and stakeholders to investigate the factors influencing these changes. The Federal Capital Territory (FCT), Abuja, is of particular interest due to its unique demographic, socio-economic, and educational dynamics. This region hosts a diverse population with varying access to educational resources, teaching quality, and support systems, all of which can significantly impact student performance. The period from 2013 to 2022 is significant, as it encompasses various educational reforms, changes in curriculum, and the effects of external factors such as the COVID-19 pandemic, which disrupted educational activities globally. Understanding these trends can provide insights into the effectiveness of current educational policies and highlight areas that require intervention

Based on the findings of this study, it can be concluded that students' achievement in the May/June WASSCE Mathematics from 2013 to 2022 in FCT, Abuja, has shown consistent instability, yet there is an overall progression in their performance. The results indicate that students' achievement in WASSCE Mathematics in the FCT is promising. Additionally, the analysis reveals that school location does not significantly influence students' achievement in mathematics; in other words, students' performance is not determined by the location of their school.

Specifically, among male students, 35.6% achieved credit in mathematics, 12% passed, and 3.3% failed between 2013 and 2022. For female students, 28.3% obtained credit, 16.1% passed, and 4.7% failed during the same period. In terms of urban versus rural performance, students from urban areas achieved 46.1% credit, with 14.9% passing and 4.6% failing. In contrast, students from rural areas had 17.8% achieving credit, 13.0% passing, and 3.5% failing.

Recommendations`

Based on the findings of this study, the following recommends were made:

i. Instructional practices and strategies for teaching and learning mathematics should be maintained or enhanced, considering the observed trends in student achievement over time, particularly in the FCT.

ii. The government should offer incentives to attract teachers, thereby promoting effective teaching and learning for both urban and rural students.

REFERENCES

Adamu, A. S., Boris, O. O. & Kenni, A. (2013). Trends in students' achievement in the Senior Secondary Certificate Examination (SSCE) in Chemistry, Ekiti State, Nigeria. International Journal of Science and Research, 2(6), 393-396.

Ajayi, I., & Osalusi, F. M. (2013). Mass failure of students in the West African Senior School Certificate Examinations (WASSCE) in Nigeria: The teachers' perspective. Case Studies Journal, 2(4), 1-5.

Akissani, I., Muntari, I. & Ahmed, M. (2019). Effects of school location on mathematics achievement of senior secondary school students in Katsina Educational Zone, Katsina State, Nigeria. Abacus (Mathematics Education Series), 44(1), 1-3.

Allahnana, K. M., Akande, M. T., Vintseh, I. M. U., Alaku, E. A. & Emmanuel, M. A. (2018). Assessment of school location and interest in mathematics achievement in Keffi Local Government Area of Nasarawa State, Nigeria. International Journal of Operational Research in Management, Social Sciences & Education, 4(1), 1-9.

Alokan, F. B. (2013). Rural and urban differences in students' academic performance among secondary school students in Ondo State, Nigeria. Journal of Education and Social Research, 3(3), 213-217.

Alordiah, O. C., Akpadaka, G. & Oviogbodu, O. C. (2015). The influence of school location and socio-economic status on students' academic achievement in mathematics. Journal of Education and Practice, 6(17), 130-136.

Amatobi, V. E. & Amatobi, D. A. (2020). The influences of school location and attitude differences on students' achievement in mathematics in Nigerian secondary schools: A case study of Comprehensive Secondary School, Amurie-Omanze, in South Eastern Nigeria. American Journal of Research Communication, 8(2), 1-2.

Anikweze, C. M. (2013). Measurement and Evaluation for Teacher Education (2nd ed.). Enugu.

Arnold, R. D., & Wade, J. P. (2015). A definition of system thinking: System approach. Retrieved from https://www.researchgate.net/publication/273894661

Awofala, A. O. (2017). Assessing senior secondary school students' mathematical proficiency as related to school location and performance in mathematics in Nigeria. International Journal of Research in Education and Science, 3(2), 488-502.

Awogbemi, C. A., Oloda, F. S., & Alagbe, S. A. (2015). A correlational analysis of students' achievement in WASSCE and NECO (SSCE) mathematics. IOSR Journal of Research & Method in Education, 5(4), 14-21.

Ayub, A. F. M., Yunus, A. S., Mahmud, R., Salim, N. R. & Suleiman, T. (2017). Differences in students' mathematics engagement between school locations and rural and urban schools. American Institute of Physics.

Ballah, A. G. & Ugwumba, A. O. (2015). Attitude and academic performance of senior secondary school students in physics in Nigeria. 2nd International Conference on Education, Social Sciences and Humanities, 499-508.

Bitrus, G. A., Domiya, A. G., & Durkwa, H. (2016). School location differences in academic achievement in SSCE Economics among senior secondary school students in Maiduguri Metropolis, Borno State, Nigeria. American Journal of Educational Research, 4(3), 288-293.

Caponera, E. & Lasito, B. (2016). Context factors and students' achievement in the IEA studies: Evidence from TIMSS. Large Scale Assessment in Education, DOI: 10.1186/s40536-016-0030-6.

Ebisine, S. S. (2013). Mathematics in contemporary societies: An effective tool for achieving the Vision 20:2020 agenda. International Journal of Scientific Research in Education, 6(3), 279-286.

Edith, C. O. & Arokoyu, A. A. (2018). Trends in students' performance in the senior school certificate examination (SSCE) in mathematics between 2010 and 2015: Implications for sustainable development. International Journal of Applied Research, 4(9), 99-102.

Ezechi, G. N. & Adukwu, B. C. (2018). Influence of school location on senior secondary students' achievement in biology. Journal of Education and Practice, 9(21), 45-51.

Fakogbon, M. A., Omiola, M. A., Awoyemi, S. O. & Muhammed, R. E. (2014). Effect of computer-assisted instructional package on the performance of students in mathematics in Ilorin metropolis. European Scientific Journal, 10(25), 196-206.

Federal Republic of Nigeria. (2014). National Policy on Education (Revised). Lagos.

Femi, A. (2012). Critical success factors in achieving Nigeria's Vision 20:2020: The case of the oil subsidy controversy. The Bi-weekly Bulletin of Socialist Workers League. Retrieved on July 15, 2024, from http://socialistbulletin.wordpress.com/

Galle, S. A., Usman, V. I. M. & Suleiman, A. I. (2023). Trend analysis of students' performance in econometrics (2018-2022) at Nasarawa State University, Keffi, Nigeria. Journal of Educational Studies, Trends and Practices, 17(8), 67-76.

Galle, S. A., Aminu, A. D. & Sakks, B. B. (2018). Application of continuous assessment strategies for effective teaching and learning of economics in colleges of education in Nasarawa State, Nigeria. Association of Educational Researchers and Evaluators of Nigeria Journal of Education, 17(1), 104-111.

Genshenson, S. & Langgbein, L. (2015). The effect of primary school size on academic achievement. SAGE Journals, 37(1), 135-155.

Gimba, R. W., & Agwagah, U. N. V. (2012). Importance of mathematics to science and technology. Journal of Science, Technology, Mathematics and Education, 8(2), 251-259.

Gladys, C. O. (2015). Mathematics as a tool for achieving the Vision 20:2020 goal of national transformation. International Journal of Education, Learning and Development, 3(8), 57-68.

Graham, S. E. & Lauren, E. (2013). Mathematics achievement gaps between suburban students and their rural and urban peers increase over time. Retrieved from http://www.scholars.unh.edu

Gray, E. & Tall, D. (2013). Abstraction as a natural process of mental compression. Journal of Mathematics Education, 19(2).

Guzuru, T. (2017). An overview of issues and concepts in school location mainstreaming. Afro-Asian Journal of Social Sciences, 3(1), 26-23

Igbojinwaekwu, P. C. (2015). Effectiveness of guided multiple-choice objective questions test on students' academic achievement in senior school mathematics. Journal of Education and Practice, 6(2), 193-204.

Ikhwari, T. D. (2014). A study of the relationship between motivation, self-concept, and academic achievement of students at a university in Limpopo Province, South Africa. International Journal of Educational Science, 6(1), 19-25.

John, L. B. (2013). Encyclopedia Britannica. Retrieved from http://www.britannia.com/searches?query=mathematics.

Kajuru, Y. K., Ibrahim, M. O. & Olaleye, O. O. (2015). Effects of teachers' qualifications and competency on performance in Further Mathematics among senior secondary school students in Kaduna State, Nigeria. International Journal of Educational Research and Information Science, 2(4), 93-97.

Kola, A. J. & Taiwo, A. K. (2013). Analysis of school location performance in physics in colleges of Nigeria. Journal of Education and Practice, 4(6), 1-5.

Jegede, S. A., Awodun, A. O. & Olusola, O. O. (2013). Trends in students' achievement in the Senior Secondary School Certificate Examination (SSCE) in physics in Ekiti State of Nigeria between 2007 and 2012.