CONTINUOUS ASSESSMENT AND ACADEMIC PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN MATHEMATICS UNIFIED EXAMINATION

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Abstract

This study examined Continuous Assessment (CA) and academic performance of Senior Secondary School Students in Mathematics Unified Examination. Persistent low performance of students in Mathematics despite the integration of Continuous Assessment in schools informed this study. The research adopted descriptive research of the ex-post facto design. The population for the study consisted of all 23,919 Secondary School two (SSII) students. The figure was obtained from the Ministry of education in Ekiti State Nigeria, (2024) now *in SSIII across the three senatorial districts in Ekiti State, Nigeria. The sample study consisted of 2,144 Secondary School three (SSIII) studentsdrawn from 12 public and private secondary schools across the three senatorial districts in Ekiti State through a multistage sampling procedure. Proforma was used as an instrument to collect data for the study. Face and content validity were established for the instrument. Reliability was ensured through consistency checks and a standardized data collection process. The data collected were analyzed using descriptive and inferential statistics. The questions raised were answered using descriptive statistics of mean and percentage. The hypotheses were tested using a t-test at a 0.05 level of significance. The findings revealed that the majority of teachers conducted Continuous Assessment three times per term. The study showed a significant relationship between the frequency of Continuous Assessment and students' performance (r=0.65). The study concludes that frequent Continuous Assessment positively influences students' academic performance. It recommends that consistent implementation of Continuous Assessment practices improve the performance of students in Mathematics unified examination.*

Keywords: Continuous Assessment, Academic Performance, Mathematics, Unified Examination, Secondary School.

Introduction

Mathematics is universally recognized as a foundational subject in school curricula and plays a critical role in scientific and technological advancement. In Nigeria, mathematics is a core subject at the secondary school level and is a requirement for admission into many tertiary institutions. Despite its importance, many senior secondary school students continue to perform poorly in mathematics unified examinations. This persistent underperformance has raised concerns among researchers, educators, and policymakers about how to improve learning outcomes in the subject.

To address this challenge, Nigeria's educational system introduced Continuous Assessment (CA) as part of its policy in 1977, later revised in 1981, 1983, 1987, and 1989. Ossai, 2020 defines CA as a systematic and periodic evaluation of students using diverse assessment tools. It is intended to be comprehensive, cumulative, and diagnostic, assessing students' performance across cognitive, affective, and psychomotor domains (Olaniyan, 2024)

When properly implemented, CA provides timely feedback, promotes active learning, and enhances instructional planning. Studies by Alharthi (2022) have demonstrated that

effective use of CA positively influences academic achievement. However, in practice, many teachers fail to implement CA consistently or make meaningful use of the results, thus undermining its purpose (Fareo, 2020).

The Mathematics Unified Examination, a standardized test administered to students across different schools, is used to assess the depth of understanding and mastery of mathematical concepts. It plays a critical role in determining students' promotion to the next class and serves as a preparatory stage for external examinations like the West African Senior School Certificate Examination (WASSCE) and the National Examination Council (NECO). Nevertheless, a disconnection often exists between students' performance in Continuous Assessment and their outcomes in unified or external examinations, suggesting possible flaws in how CA is implemented and used for academic improvement.

Data from, West Africa Examination Council (WAEC) National Examination Council NECO over the past years support this concern. For instance, WAEC (2022) reported that only 31.5% of students achieved credit and above in mathematics, while NECO (2022) recorded 34.2% achieving similar results. These low performance raise questions about the effectiveness of the current assessment structure and the consistency of CA practices in schools.

This gap highlights the need to revisit the forms of assessment employed by mathematics teachers. Traditional end-of-term exams may not provide the continuous, diagnostic insight necessary for meaningful academic support. Continuous assessment, when administered effectively and frequently, can bridge this gap by offering regular feedback and identifying students' weaknesses early. Continuous Assessment is used not only to measure achievement but also to diagnose learning difficulties and inform instruction. It is especially valuable for evaluating the effectiveness of educational programs and curricula. While most teacher-conducted assessments fall under formative evaluation, external assessments such as the Unified Examination, West Africa Examinations Council, and National Examination Council serve summative purposes. These exams shape major educational decisions related to student promotion, curriculum design, and grading.

According to Tontus (2020), both formative and summative assessments collect and analyze information to evaluate students' knowledge and application of concepts. Continuous Assessment provides ongoing feedback to guide instruction and learning. The National Policy on Education (2023)mandates CA at all educational levels to enhance student evaluation and national development. Unlike traditional summative assessments that rely on a single end-of-term exam, CA offers structured, periodic evaluations that prepare students for final assessments like WAEC.

Tania and Andrea (2023) define CA as a continuous process of measuring students' understanding over time. The National Policy supports evaluating students' knowledge, work ethic, and character based on weekly, monthly, termly, or annual assessments. Omirin (2024) agree that CA evaluates students holistically across cognitive, affective, and psychomotor domains. Mathematics achievement remains a central concern in education. According to Ezeka (2024), assessment should evaluate: Cognitive abilities – reasoning, problem-solving, and comprehension, psychomotor skills – practical engagement with charts, tools, and figures, Affective characteristics – attitudes, confidence, motivation, and anxiety.

Academic performance is typically measured by how well students meet learning objectives. Ghalem et al. (2016) define performance as the extent to which objectives are achieved, while Busalim et al. (2019) describe academic performance as the completion of course tasks, usually reflected in GPA or exam results.

Gender differences in mathematics performance have been widely studied since the mid-20th century, with early research by

Luo & Chen (2024) suggesting that males performed better in mathematical tasks. However, subsequent studies have challenged this notion, revealing a more nuanced understanding influenced by biological, cognitive, and sociocultural factors. While historically males were seen as better performers, recent research indicates that performance differences may depend more on environmental influences and assessment types than innate ability.

This study seeks to investigate whether students who undergo multiple Continuous Assessments perform better in standardized examinations, such as the Unified Examination, than those who do not receive such evaluations

Statement of the Problem

All senior secondary school students should acquire the necessary mathematical knowledge, skills, and attitudes to perform excellently in both internal and external examinations. Continuous Assessment (CA), when implemented regularly and effectively, should provide ongoing feedback, identify learning difficulties, and improve performance in standardized tests such as the Mathematics Unified Examination, WAEC, and NECO.

Despite the policy provision for CA in the Nigerian education system, performance in mathematics remains unsatisfactory. WAEC and NECO results in recent years have consistently shown a high percentage of failure in mathematics, with many students unable to achieve the minimum credit pass required for further studies. Even in the Mathematics Unified Examination, which is intended to prepare students for external tests, a large proportion of students appears to have been scoring within the below-average range, with very few attaining excellence.

The researcher observed that inability of teachers to frequently conduct Continuous Assessment appears to be having impact on the performances of senior secondary schools' students, also gender of students seem not to significantly influence performances of students in Mathematics.

It is on the basis of this that this researcher intends to investigate the extent to which continuous assessment, gender impact on academic performance of secondary school students in Unified Examination.

Purpose of the Study

This study examined the Continuous Assessment practices in secondary schools and students' performance in unified Mathematics examinations. The specific objectives of the study were to:

i. examine the frequency of Continuous Assessments conducted in secondary schools;
ii. assess students' performance in Mathematics Unified Examinations;
iii. determine whether the frequency of Continuous Assessment impacts students' academic performance in Mathematics;
iv. investigate the influence of gender on students' performance in Unified Examinations.

Research Questions

The following research questions were raised for the study.

1. To what extent do teachers regularly conduct Continuous Assessments for senior secondary school students?
2. What is the level of academic performance of senior secondary school students in the Mathematics Unified Examination?

Research Hypotheses

The following null hypotheses were formulated in the study at 0.05 level of Significance.

1. There is no significant influence of frequency Continuous Assessment on academic performance of senior secondary school students in Mathematics Unified Examinations.
2. There is no significant difference in performance of senior secondary school students in Mathematics Unified Examinations based on gender

Methodology

The study population consisted 23,919 Senior Secondary School Two students for 2023/2024 (SS2) students now in SSIII in Ekiti State, Nigeria, the figure was obtained from the Ministry of Education in Ekiti State, Nigeria (2024). These students were selected because they had completed the unified examination. The population includes males and females from public and private schools in both urban and rural areas.

The sample for the study which consisted of 2,144 Senior Secondary School Three Mathematics students and 12 teachers were selected from 12 secondary schools in Ekiti State, Nigeria, using a multistage sampling procedure. In stage one, the researcher used simple random sampling technique to select two Local Government Areas (LGAs) from each of the Senatorial Districts, making six LGAs. In stage two, 12 secondary schools were selected from the LGAs, each of the six selected using stratified random sampling technique considering the issues of gender. In stage three, purposive sampling technique was used to select the students needed for the study

Results

Research question 1: To what extent do teachers regularly conduct Continuous Assessments for senior secondary school students?

Table 1. The data were obtained using a proforma designed by the researcher to collect information on how often teachers conducted Continuous Assessment per term. Each teacher indicated the number of times Continuous Assessment was carried out based on school records. Out of 12 teachers, 4 reported conducting Continuous Assessment twice per term, while 8 conducted it three times per term. The percentages 33.33% and 66.67% were calculated using the formula: Percentage = Frequency/Total Number of Teachers *100

Table 1: frequency and percentage on the extent to which teachers conduct Continuous Assessments

NO OF C.A PER TERM (times)	NO OF TEACHERS	PERCENTAGE (%)
2	4	33.33
3	8	66.67
Total	12	100

Table 1 shows the number of times teachers conduct Continuous Assessment for senior secondary school students within a term. The data reveals that 33.33% of teachers conduct Continuous Assessment two times per term, while 66.67% conduct it three times per term. This indicates that most teachers (66.67%) conduct Continuous Assessment regularly, which suggests a good level of adherence to the Continuous Assessment.

Research question 2: What is the level of academic performance of senior secondary school students in Mathematics Unified Examination?

Table 2. The performance level of the students was determined using the mean and standard deviation of their mathematics unified examination scores. Score below (Mean-SD) were classified as low, those within (Mean ± SD) as average, and those above (Mean + SD) as high performance.

Table 2: Frequency and percentage on the level of academic performance of students in Mathematics Unified Examination

PERFORMANCE LEVEL	SCORE RANGE	NUMBER OF STUDENTS	PERCENTAGE (%)
LOW	6 – 57	436	20.3
AVERAGE	58 – 71	1395	65.1
HIGH	72 – 100	313	14.6
TOTAL		2144	100

Table 2. Presents the level of senior secondary school students' scores in Mathematics Unified Examination. Students' performance was categorized into three levels based on the mean 64.28 and standard deviation (7.22). Out of 2144 students, 20.3% performed at a low level, 65.1% at an average level, and 14.6% at a high level. This indicates that most students demonstrated average performance in Mathematics

Hypothesis 1: There is no significant difference in the influence of Frequency of Continuous Assessment on academic performance of senior secondary school students in Mathematics Unified Examinations.

Table 3: The table was generated by collecting the data of the student's continuous assessment and mathematics unified examination scores. The scores were analysed using t-test to determine relationship between the two variables.

Table 3: t test on Continuous Assessment and academic performance of senior secondary school students in Mathematics Unified Examinations.

FREQUENCY OF CONTINOUS ASSESSMENT	N	Mean	Std. Deviation	df	t cal	P
2 Times	799	61.08	8.030			
3 Times	1345	66.18	5.930	2142	16.842	0.001

P<0.05

Table 3: Grouped results for Mathematics scores by how often CA was given revealed that those who took CA three times had a mean score of 66.18 and SD =5.930 while those who took CA only twice had a mean score of 61.08 and SD = 8.030. The p-value was equal to 0.001. Because the P< 0.05, we reject the null hypothesis in this case.

Therefore, it is concluded from the analysis that academic performance in Mathematics Unified Examinations is statistically different for students who experienced Continuous Assessment two times or three times.

Hypothesis 2: There is no significant difference in students' academic performance in Unified Examinations based on gender.

Table 4: t-test for gender difference in Mathematics Unified Examination

GENDER	N	Mean	Std. Deviation	df	t cal	p-value
Female	1090	64.36	7.232			
Male	1054	64.20	7.213	2142	0.523	0.601

P > 0.05

Table 4: shows the analysis of data on Mathematics Scores by Gender, it was observed that the mean score for female students (N=1090) was 64.36 (with a Standard Deviation of 7.232), and for male students (N=1054) it was 64.20 (with a Standard Deviation of 7.213). This implies that there is only a small difference (64.36-64.20=0.16) in the mean scores of female and male students: 64.36 for the female, and 64.20 for the male. So far, the results point to comparable performance between male and female with tcal =0.523 a p-value of 0.601 is > 0.05, it means that male and female mathematics students do not really show different variances when it comes to their mathematics scores, the null hypothesis was not rejected.

Discussion

The study investigated the influence of Continuous Assessment (CA) on the academic performance of senior secondary school students in Mathematics Unified Examination. The findings provided insights into how CA practices, gender, school location, and school type affect students' academic outcomes

The findings revealed that most Mathematics teachers conducted CA frequently, with the majority adhering to conducting three assessments per term, which aligns with policy expectations. This finding suggests that many mathematics teachers recognize the value of continuous feedback and its role in enhancing students' preparedness for standardized examinations. According to Olaniyan, (2024), CA is most effective when conducted regularly, as it enables teachers to track students' progress, diagnose learning difficulties early, and provide remedial support. Similarly emphasized that frequent assessment reinforces students' learning and boosts their confidence. However, the minority of teachers who conducted CA less often could be influenced by workload, large class sizes, and lack of commitment, laziness or inadequate monitoring by school administrators. This partial compliance undermines the diagnostic and corrective potential of CA, as noted by Fareo (2020), who reported that irregular CA practices diminish its intended impact.

The findings on research question 2 showed that while many students achieved moderate scores, relatively few attained high performances in Mathematics. This persistent trend of average performance has been documented in earlier studies, such as Olatunji (2022) which attributed the underperformance to a combination of factors, including inadequate teaching strategies, insufficient practice, and negative attitudes toward Mathematics. The result from this study confirms that despite CA being in place, other instructional and environmental factors may be limiting its full impact. The finding also resonates with Busalim et al. (2019), who argued that academic performance reflects the degree to which learning objectives are met and that even with continuous monitoring, the quality of instructional delivery and learning resources remains critical.

The findings on hypothesis one revealed that CA frequency significantly influences academic performance in Mathematics. Students who were assessed more often performed better in the Unified Examination. This is likely because frequent testing encourages consistent study habits, provides regular feedback, and allows for timely interventions. Hassan (2022) affirmed that continuous evaluation helps maintain academic discipline and promotes mastery of content**.** Ohiri (2023) found that well-structured CA improves students' motivation and long-term retention of concepts. This finding underscores the need for school management to enforce adherence to CA schedules, as irregular assessment limits the opportunity to track and enhance students' learning progress.

The result on the hypothesis two was accepted meaning that no significant difference existed in Mathematics performance between male and female students. This supports recent research by Gianpiero (2024) and Ojo (2023), who reported that the gender gap in Mathematics is narrowing, possibly due to improved teaching methods, reduced gender stereotyping, and equal access to learning opportunities. This result also aligns with classroom-based assessments reported by Hassan (2022), which showed that when learning conditions are

equitable, female students often match or exceed the performance of their male counterparts. However, this contradicts older studies such as Luo & Chen, (2024) which suggested that males had an advantage in mathematical tasks, highlighting that performance differences may be more a product of historical and cultural contexts than innate ability

Conclusion

It can be concluded from the findings of this study that Continuous Assessment (CA) frequency has a positive impact on the academic performance of senior secondary school students in Mathematics Unified Examinations in Ekiti State, Nigeria. Using the data analysis and related findings, several conclusions can be made concerning the research objectives as well as the formulated hypothesis at the beginning of this research.

If CA frequency is increased from 2 to 3 administrations, subsequently, there will be a statistically significant positive influence on students' scores in the Mathematics Unified Examinations.

Recommendations

Based on the findings of this study, the following recommendations are made to improve Continuous Assessment practices and enhance students' academic performance in Mathematics:

1. The Ministry of Education should ensure strict compliance with CA schedules. School administrators should monitor teachers to ensure that CA is conducted at least three times per term, as stipulated by policy.
2. Mathematics teachers should adopt varied, student-centered learning approaches such as problem-based learning, take home assignments, working exercise and continuous practice. This will help address conceptual gaps and boost achievement levels
3. As the study revealed no significant gender difference in performance, schools should continue to provide equal opportunities, resources, and encouragement to both male and female students in Mathematics learning. This will help sustain gender parity in achievement.

Suggestions for Further Studies

Future research could examine the impact of Continuous Assessment on other school subjects or compare its effects across public and private schools. Also, studies can focus on how teachers' training and student attitudes influence the effectiveness of Continuous Assessment. Finally, the role of technology in administering Continuous Assessment could be explored.

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