

RELATIONSHIP BETWEEN CONTINUOUS ASSESSMENT GRADE AND STUDENTS ACADEMIC PERFORMANCE GRADE IN CHEMISTRY EXAMINATION IN OGBIA LOCAL GOVERNMENT AREA, BAYELSA STATE

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Abstract

The study investigate the relationship between continuous assessment grade and students academic peroformance in chemistry examination in Ogbia Local Government Area, Bayelsa State. The correlational research design was adopted for the study and a total of 118 students made up the population of the study. The study was guided by two research questions and two hypothesis. Date for study was analyzed using PPMC and the hypothesis was tested 0.5 level of significant. Findings revealed that, Continuous Assessment (CA) and Examination Grade (E) has positive relationship with student's academic performance ($r = .53$). The result also showed that, male and female students have positive relationship with their academic performance ($r = .22$). Based on the findings, it was recommended that teachers should be educated and encouraged on the need to take and administer continuous assessment in their teaching and learning process.

Introduction

Chemistry is one of the main branches of science, specifically a physical science and it's a fundamental subject in the Nigeria Secondary School curriculum for Science Students. Chemistry is the study of the composition, structure, properties, reactions and changes that matter undergo. The relevant of chemistry to man cannot be overemphasis as the knowledge of chemistry is vital for man to understand and explore his environment effectively and efficiently (Akpomiemie, 2025). It is a panacea for industrialization and national development. It is one the cornerstone of science, technology and industry. Chemistry is a very important tool for assessing technological advancement,

scientific, human capital and national development.

The process of assessing a performance's level is called assessment. Since it provides vital information on the accomplishment of educational goals and objectives, evaluating students' academic performance is a vital part of the teaching and learning process. The evaluation of learning outcomes offers the impartial proof required for educational decision-making (Onoh & Ogbozor, 2021). Learning assessment is a continuous process rather than a one-time event. It includes the methodical and cautious process of monitoring, evaluating, and modifying the learning strategies. Continuous Assessment (CA) is the term used to describe assessment

that is conducted continuously (Samiullah & Anjum, 2017). Evaluation might be done internally or outside. Class assignments, practical reports, teacher-made examinations, recap exercises, projects, and field studies are all examples of school-based assessments that are referred to as internal assessments. Each of these resources is a component of the ongoing evaluation methods used in the classroom. The many instruments and methods used in the classroom to gauge students' academic performance levels in terms of their knowledge, attitudes, and values are together referred to as a continuous assessment approach. Tests created by looking at people outside of the classroom are referred to as external assessments. The Senior Secondary Certificate, for instance The West African Examination Council (WAEC) or National Examination Council (NECO) administers the SSCE, a public test that is a component of the external evaluation process for O Level students (Adinna et al., 2021).

Results from assessment are used for the evaluation of educational system, encourages students to enhance improved performance, facilitate better instructional planning, balanced instructional content delivery, as well as enhancement of students to be certified to have attained a considerable level of achievements and mastery of the desired concepts. Assessing and evaluating students' performances play a major role in determining how students comprehend certain concepts taught during the lesson delivery by their teachers. Hence, it can summarily be described as a process of gathering information on student's educational attainment as well as learning, competence and performance for the purpose of determining improved pedagogical experiences (Sangoniyi and Gbolagade, 2022).

The adoption of continuous assessment for student evaluation at all educational levels was one of the most major and consequential changes to the Nigerian educational system. It follows that all elementary and secondary school teachers need to be aware of and proficient in continuous assessment. (Onoh & Ogbozor, 2021). One tactic instructors use in the classroom to determine the information, abilities, and comprehension that pupils have gained at a given moment is continuous assessment. In order to observe various activities and gather data on students' knowledge, comprehension, and abilities, teachers use a range of methods while administering assessments. It has been acknowledged that ongoing evaluation is a crucial component of the teaching and learning process and a vital tool for quality control. It has been emphasised that teachers, students, educators, and parents all gain from continuous evaluation as a guidance-oriented approach. Continuous assessment, according to Nwakpa et al. (2023), is guidance-oriented in that the data gathered will be used to guide the child's educational, career, and personal-social decisions. They said that continuous assessment is considered systematic in that it is graded and scheduled according to the children's age and experience and is administered at appropriate points throughout the academic year. When continuous assessment is timed properly, it prevents test-takers from becoming disinterested in taking too many tests. Continuous assessment's comprehensiveness indicates that it is not only concerned with academic abilities. It encompasses the emotive, cognitive, and psychomotor dimensions (Nwakpa et al., 2023). An appropriate educational strategy used to evaluate students' academic performance and development in schools is

continuous assessment. The percentage often ranges from thirty percent (30%) to forty percent (40%) of the overall test score, which is 100 percent (100%) of each topic, every term.

Academic performance is the achievement of a student at the end of a course, subject or programme. The chemistry curriculum, being practical and analytical in nature, requires sustained student engagement. CA has been proposed as a means to maintain this engagement. Several studies have indicated that CA has the potential to improve academic performance by offering formative feedback and reducing exam-related anxiety (Okeh & Emunemu, 2021; Osuala et al., 2018). However, inconsistencies remain in the predictive validity of CA scores, especially in STEM subjects like chemistry.

Continuous Assessment (CA) is a crucial component of modern educational systems, designed to provide ongoing evaluation and feedback to students throughout a course. In chemistry education, CA involves assignments, quizzes, practicals, and projects. Despite the integration of CA into school systems, many educators question its true impact on academic achievement. There is limited empirical evidence especially within the Nigerian context on whether students with high CA scores consistently perform better in chemistry examinations. Refining assessment procedures and enhancing learning outcomes need an understanding of this link. Through the administration of assignments and exams as learning experiences grow prior to the end-of-term exam, continuous assessment aims to support better learning. Even while the goal of continuous evaluation is admirable, some educators and students see the administration of too many examinations

as an unnecessary burden and source of labour.

Consequently, the primary goal of ongoing evaluation is progressively being forgotten. In light of this, the study is evaluating the connection between students' academic achievement on chemistry exams and their grades from ongoing assessments. The study is anchored on the Constructivist Learning Theory (Piaget, 1970), which posits that learners build knowledge through active engagement. Continuous assessment promotes this by encouraging students to reflect, apply, and consolidate knowledge over time. A study on the effects of ongoing evaluation on students' academic performance in mathematics in secondary schools in Enugu State was carried out by Onoh and Ogbozor in 2021. Two research questions and one hypothesis served as the study's compass. The study used a survey research design with a stratified sampling approach and a sample size of 252 maths instructors. Data for the research was gathered using a questionnaire, and the reliability of the instrument was assessed using Cronbach's Alpha (α), yielding a reliability coefficient of 0.84. The data was analysed using the t-test, mean, and standard deviation statistics. The findings indicated, among other things, that pupils' performance was impacted by the frequent administration of continuous evaluations in Enugu State's secondary schools. The results of continuous assessments and pupils' academic achievement in mathematics were significantly correlated. It was determined that ongoing evaluation significantly affects secondary school pupils' mathematical performance. Since continuous evaluation improves students' performance in mathematics, it was suggested that maths instructors get training and encouragement

on the importance of incorporating it into the teaching process.

The relationship between continuous assessment and examination scores in mathematics in Southwest Nigeria Colleges of Education was examined by Sangoniyi and Gbolagade (2022). Ten public schools of education in southwest Nigeria, including four federal colleges and six state colleges, were randomly selected as the study's population. The study was directed by three research questions and two hypotheses. The past three years' math scores and a questionnaire created by the researcher served as the data gathering tools. The findings demonstrated that there was no discernible correlation between students' gender-based final exam grade scores and continuous assessment performance in mathematics. However, depending on institution ownership, there was a substantial correlation between students' final test grade results in mathematics and continuous assessment. Based on the results, it was suggested that ongoing evaluations get a lot of attention, regardless of the gender of the students or the ownership of the institution. Additionally, professors at Nigerian educational institutions should attend a thorough seminar on the value and significance of ongoing evaluation in identifying students' academic talents and development so that better decisions may be made.

In Enugu State, Nwakpa and Okoli (2023) examined the connection between students' grades on continuous assessments and their performance on secondary school exams. Two research questions and hypotheses served as the study's compass, and it used the correlational survey research methodology. Out of the 26979 students enrolled in the 2021 academic year, 394 were chosen at random to participate in the

research. The statistical tool Pearson Product Moment Correlation Coefficient was used to answer the study questions, and Linear Regression was used to assess the hypotheses. While the hypotheses showed a significant correlation between the continuous assessment scores and the students' achievement in both biology and civil education in NECO SSCE in Enugu State, the findings showed a high positive relationship between students' continuous assessment scores and their achievement in citizenship education in NECO SSCE. Among other things, it was suggested that the government support ongoing evaluation programs at the federal and state levels to advance assessment methods and elevate the current educational landscape.

The impact of continuous assessment results on the academic performance of biology students pursuing the National Certificate in Education (NCE): implications for school administration was investigated by Adinna et al. in 2021. Ex-post-facto research design was used for the study, and 200 randomly selected students from Northwest University's faculty of education in Kano, Nigeria, made up the study's population. Their scores from the 2012–2013 academic year's Introduction to Psychology (EDU1201), Sociology of Education (EDU1202), and History of Education (EDU1203) courses were used. The null hypotheses were evaluated at the 0.05 level of significance, and the data was examined using Pearson's Product Moment Correlation Coefficient (r). The findings showed a strong correlation between undergraduate students' test results in the three education courses and their continuous assessment scores. Since continuous assessment explains and predicts undergraduate students' future academic performance, the study suggested that teachers and school administrators give it

Careful thought in order to enhance the quality of the assessment procedures and guarantee transparency.

Purpose of the Study

The main purpose of this study is to investigate the relationship between students' continuous assessment score and their academic performance in chemistry in Ogbia Local Government Area, Bayelsa State. Specifically, the study sought to:

1. Determine the relationship between students' continuous assessment grade and their performance grade in chemistry examination.
2. Assess the relationship between male and female students' performance in continuous assessment and their examination grades in chemistry.

Research Questions

The following research questions were generated for the study:

1. What is the academic performance mean scores difference between the students' continuous assessment grades and their examination grades in Chemistry?
2. What is the mean scores difference between male and female students' academic performance grades in continuous assessment and examination in Chemistry?

Hypotheses

The following hypotheses were formulated and tested at 0.5 level of significance:

1. There is no significant relationship between continuous assessment grades and examination grades in chemistry.
2. There is no significant relationship between male and female students' performance in grade examination in chemistry.

Methodology

The survey design used in this research was correlational. According to Nworgu (2015), this kind of design aimed to determine the association between two or more variables, namely the chemistry students' test marks and Continuous Assessment grades. These studies often show the strength and direction of the correlation between the variables. The study involved 90 students in total, and data was gathered from a few public secondary schools in Ogbia Local Government Area, Bayelsa State. The data was analysed using the t-test statistical tool, which tested the hypothesis at the 0.05 significant level. All research questions were addressed using the mean and standard deviation.

Results

Research Question I

What is the academic performance mean scores difference between the students' continuous assessment grades and examination grades in Chemistry?

Table I: Mean and standard deviation performance scores difference of students' continuous assessment grades and examination grades in Chemistry.

Grades	n	Mean (\bar{x})	SD
C.A	90	25.44	6.53
Exam	90	74.13	311.3
Mean Diff.		48.69	

The result in Table 1 shows that the mean score of continuous assessment grades was 24.44 with standard deviation score of 6.53 whereas the mean score of the students' examination grades was 74.03 with associated standard deviation of 311.3. This indicates that the students did better in examination than in their continuous assessment with a mean difference of 48.69 in favour of examination score grades. The higher standard deviation score of the examination shows that, the exams scores

deviated from the mean more than that of the C.A. scores and that, the higher mean of the examination scores may not be real as it appears.

Hypothesis 1

Ho₁: There is no significant relationship between continuous assessment grades and that of examination grades in Chemistry?

Table 2: t-test comparison of students' continuous assessment grades and examination scores grades in Chemistry.

Grades	n	Mean (\bar{x})	SD	df	t	P	Decision
CA	90	25.4	6.53	178	-1.04	.041	Significant
Exam	90	74.13	311.3				

Table 2's results indicate that the t-value is -1.04 and the P-value of .041 was less than .05 ($P < .05$) when compared to .05. As a result, the null hypothesis, which claims that there is no meaningful correlation between students' marks on continuous assessments and their test results in chemistry, was rejected.

Research Question 2

Grades	Gender	n	Mean (\bar{x})	SD
C.A	Male	46	25.2	5.6
	Female	44	25.5	6.0
Exam	Male	46	25.4	30.12
	Female	44	25.3	311.3

The C is shown in Table 3. In their continuous evaluation, female students received a mean score of 25.5 with a standard deviation of 6.0, while male students had a mean score of 25.2 with a standard deviation of 5.6.

Table 3 further demonstrates that the ladies had a mean score of 25.3 with a corresponding standard deviation of 311.3, while the men had a mean score of 25.4 with a standard deviation of 30.12.

What is the mean scores difference between male and female students' academic performance grades in continuous assessment and examination in Chemistry?

Table 3: Mean and standard deviation scores of male and female students' academic performance grades in continuous assessment and examination in Chemistry.

Hypothesis 2

Ho₂: There is no significant relationship between male and female students' academic performance examination grades in Chemistry.

Table 4: t-test comparison of male and female students' examination scores grades in Chemistry.

Grades	n	Mean (\bar{x})	SD	df	t	P	Decision
Male	46	25.4	30.12	88	1.101	.034	Sig.
Female	40	25.3	311.3				

Table 4's results indicate that the t-value is 1.01 and the P-value of .034 was less than .05 ($P < .05$) when compared to .05. As a result, the second null hypothesis, H_{02} , which asserts that there is no meaningful correlation between the academic performance and grade scores of male and female students in Chemistry, was rejected.

Discussion

The study's conclusions showed that grades from ongoing evaluations are positively correlated with chemistry students' academic achievement. The study concurs with Adinna et al. (2021) on the Effect Of Continuous Assessment Scores On Academic Achievement Of National Certificate In Education (NCE) Biology Students: Implications For School Administration, which holds that undergraduate students' exam scores in the three education courses and continuous assessment scores have a significant relationship. According to Sangoniyi and Gbolagade's (2022) study, "There was a significant relationship between continuous assessment and final examination grade scores of students in mathematics based on institution ownership." This study was conducted at Southwest Nigeria Colleges of Education. Additionally, it concurred with Onoh and Ogbozor's (2021) findings about the influence of ongoing evaluation on secondary school students' academic performance in mathematics. There was a strong correlation between students' academic achievement in mathematics and the results of continuous assessments, which were regularly given in secondary schools in

Enugu State and had an impact on students' performance.

The study also concurred with Nwakpa and Okoli (2023) regarding the relationship between students' grades on continuous assessments and their performance on the secondary school examination in Enugu State, finding a significant correlation between students' scores on continuous assessments and their performance in biology and civil education on the NECO SSCE in Enugu State. On the relationship between continuous assessment and examination scores in mathematics at Southwest Nigeria Colleges of Education, the study disagreed with Sangoniyi and Gbolagade (2022), who found no significant correlation between students' gender-based final exam grade scores and continuous assessment.

Conclusion

It was determined that there was a favourable correlation between the continuous assessment and the academic achievement of secondary school students studying chemistry; that is, the grades from the continuous assessment significantly enhanced the students' academic performance. Students' effectiveness and self-confidence in their capacity to succeed academically were enhanced by ongoing evaluation. Students become more dedicated and learn more when they are persuaded that they should strive for perfection. This suggests that students' ratings on ongoing assessments have no bearing whatsoever on their academic achievement in chemistry.

Recommendations

The conclusions lead to the following suggestions:

1. Teachers should be informed and supported on the necessity to take and conduct continuous assessment in their teaching and learning process.
2. Trainings/Seminars/Workshops should be organised to give practical instruction in utilising continuous evaluations.

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