

# Correlation between Continuous Assessment (CA) and Students' Performance in Physics

<sup>1</sup>Aina, Jacob Kola<sup>1\*</sup>, Adedo, Ganiyu. A<sup>2</sup>

1. Physics Department College of Education (Technical) Lafiagi Kwara State, Nigeria

2. Chemistry Department College of Education (Technical) Lafiagi Kwara State, Nigeria

\*E-mail corresponding author: [akoja64@hotmail.com](mailto:akoja64@hotmail.com)

## Abstract

This is a descriptive survey study. Ninety-two physics students from Kwara State College of Education Lafiagi, participated in the study. Physics results in electromagnetism of these students were analyzed using frequency counts, percentages and Pearson Product Moment Correlation Coefficient to find out correlation between continuous assessment and students' performance in physics. Results indicated that there was a strong correlation between continuous assessment and students' scores in examination and also in student final grade in electromagnetism. It was concluded that continuous assessment influenced students' performance in physics. It was recommended that compilation of students' final grade in physics should not be based on only examination scores but should be addition of examination scores and the scores of students' in continuous assessment.

**Keywords:** Correlation, continuous assessment, electromagnetism, summative and formative assessment.

## Introduction

Correlation studies is very important in educational research as opined by Aina (2012) that correlation is used to find out relationship between variables, determined degree of association and existing influences between variables. According to Ige (2007) correlation is a good instrument to be used to analyse relationship between performances of students in a subject.

Continuous assessment (C.A) is considered to be a systematic determination of the extent of students' progress or lack of it in school subjects including attitude and values from first day of students in school to the last day (Abadina, 2001). According to Okoro (2002), continuous assessment is a system of evaluation in which students are given a large number of tests at regular intervals rather than a single final examination at the end of the course. Continuous assessment is very important in all educational level in Nigeria. Ogar (2007) opined that through continuous assessment, progress of each student can be measured and monitored and appropriate counselling method can be put in place as the case may demand. The National Policy on Education laid strong emphasis on the use of continuous assessment practice at the various levels of Nigeria educational system. Assessment is very important in teaching and learning process; through assessment feedback could be provided to both students and teachers (Dennis, 1988). We have both formative and summative assessment. Formative assessment is done during the course as the teaching and learning is in progress; this is called continuous assessment. The summative is done when the course is ended, this assessment is conducted at the end of the term or semester as the case may be. The two are important in physics assessment according to Aladenusi (2010) assessment is a central element in the overall quality of teaching and learning.

Osokoya (2003) viewed continuous assessment as the method of finding out what the students have gained from learning activities. Assessment is an important element in physics teaching, Houston in Aina (2010) opines that teacher must regularly assess the effectiveness of the learning experiences which they have organized to enable the students achieve the earlier stated objectives. Abbas (2009) said ordinary continuous assessment is an ongoing test device which is comprehensive and include the three domains of learning. Continuous assessment must include project, internet assignment, use of community resources and many more; continuous assessments must not only be single assignment as it is being done by some teachers.

Physics in National Certificate of Education (NCE) controlled by National Commission for Colleges of Education (NCCE) is divided into many fields some of these fields are mechanics and properties of matter, optics, quantum and modern physics, electromagnetism, environmental physics, digital and basic electronics, physics methodology and practical physics (NCCE, 2008).

It was observed by Aiyelabegan (2003), Akanbi (2003) and Kola (2007) that, in the recent time students' performance in physics has not been encouraging supported by the record made available from physics Department College of education (T) Lafiagi, (Exam & Record, 2011). Despite the vital role continuous assessment played in the teaching and learning of physics to improve students' performance, yet students still performed poorly in the course. The question that comes to mind is that, is there any relationship between

continuous assessment and students' performance in physics? Investigation of influence of continuous assessment on the examination scores of students and also influence on overall students' performance in electromagnetism physics become very necessary.

### Materials and Method

Research hypotheses

**H01: There is no correlation between continuous assessment and examination scores of student's in electromagnetism physics.**

**H02: There is no correlation between continuous assessment and the students' grade in electromagnetism physics.**

Research questions

**1. Do students' scores in continuous assessment had any influence on scores in electromagnetism physics examination?**

**2. Do students' scores in continuous assessment had any influence on the final grade in electromagnetism physics?**

The study employed descriptive survey method of research where student's scores in electromagnetism physics are collected for analysis. Electromagnetism physics was used because is one of the physics courses students offered from year 1 to year iii and also one of the courses student failed most. There are electromagnetism I, electromagnetism ii and electromagnetism iii. The populations of the study were all physics students in kwara state, Nigeria. The sampled populations were all physics students in college of education (T) Lafiagi. Ninety-two physics students participated in the study. The general purpose of the study was to find out correlation between continuous assessment and students' performance in physics, specifically effort was made to find out the effect of continuous assessment on students' performance in both examination scores and overall grade in electromagnetism physics.

The research instruments used are End of Semester Electromagnetism Examination (ESEE), Take Home Electromagnetism Assignment (THEA) and Electromagnetism Class Test (ECT). The researcher used end of semester examination scores and average of all the continuous assessments given to these students for one semester.

Statistical analysis used was frequency count, percentages and Pearson Product Moment Correlation Coefficient which is used to determine the degree of relationship between two sets of variables (Okoro, 2002). Frequency count and percentages are descriptive statistical analyses used for organizing and describing the characteristics of educational variables in concise and meaningful quantifiable terms (Daramola, 2006). According to Owie (1996) correlation coefficient method is used to compute the strength of association between variables. This research study is a simple correlation since it involved two variables where ranking is not needed (Daramola, 2006).

Continuous assessment for this study is made of one class test and one take home assignment all added together to make 40marks. The examination scores used was the end of semester examination conducted in electromagnetism; the total score was 60 marks.

### Results

Hypothesis 1: There is no correlation between continuous assessments and examination scores of student's in electromagnetism physics

From table 1, correlation between continuous assessments and examination score is .736, a perfect and strong correlation. Testing for hypothesis 1 at alpha level of 0.05 gives 0.174; calculated (r) is greater than table (r) i.e.  $r_{cal} > r_{tab}$ . hypothesis 1 is hereby rejected.

Hypothesis 2: There is no correlation between continuous assessment and the final grade of students' in electromagnetism physics

From table 2 correlations between students' scores in continuous assessment and final grade in electromagnetism physics is .948, a strong and perfect correlation. Testing hypothesis 2 at alpha level of 0.05 gives 0.174, since calculated (r) is greater than table (r) hypothesis 2 is hereby rejected i.e.  $r_{cal} > r_{tab}$

Research questions:

1. Do students' scores in continuous assessment had any influence on scores in electromagnetism physics examination?

2. Do students' scores in continuous assessment had any influence on their final grade in electromagnetism physics?

66.3% of the students passed continuous assessment while only 2.2% of the students passed in examination and 67.4% had pass grade in electromagnetism as indicated in table 3 above.

### Discussion

Hypothesis 1 which states that there is no significant relationship between continuous assessment and examination score of student's in electromagnetism physics was rejected. This implies that there is significant relationship between students' score in continuous assessment and examination score in electromagnetism

physics. Hypothesis 2 which states that there is no significant relationship between continuous assessment and the overall students' performance in electromagnetism physics was also rejected. From this, it could be inferred that there is significant relationship between students' score in continuous assessment and final grade in electromagnetism physics. The results of the two hypotheses is in line with the earlier submission of Dennis (1988) that continuous assessment played the role of feedback to both students and teachers in teaching and learning process. Continuous assessment being significantly related to both students' scores in examination and final grade in electromagnetism physics also confirmed the assertion of Osokoya (2003) that continuous assessment is used to find out what the students have gained from learning activities.

Table 3 indicated that continuous assessment had influenced both on examination scores and final grade of students in electromagnetism physics; only 2.2% of the students initially passed the examination but with 66.3% passes in continuous assessment, the final grade of the students was 67.4%.

### **Conclusion**

From the outcome of this research, it is therefore concluded that continuous assessment is very important in teaching and learning of electromagnetism physics in colleges of education because it influenced students' performance. Continuous assessment influences both examination scores and final grade in electromagnetism physics. In view of this; the following recommendations were suggested:

Continuous assessment should be made compulsory for all students in teaching and learning in all fields of physics. This continuous assessment should not be a single assignment or class test it should be many assignments that cover the three domains of learning.

Compilation of students' final grade should not be based on only examination scores but should be addition of examination scores and the scores of students' in continuous assessment.

Physics teachers should ensure that all students have more than four records of continuous assessment in each course in a semester and average of three should be taken for the final computation of students' grade.

Physics teacher should allow students to have access to their scores in continuous assessment; this will help the students to know their weakness and strength in the course and make adequate preparation needed for examination.

Physics teacher should be free to give exercises, tests, assignment and project to physics students without any interference from the department or college management.

Physics teacher should always review questions with students after they have got back their answer scripts. Correct answers are pointed out and explained while reasons are given for wrong answers.

### **Acknowledgement**

First and foremost, we acknowledged the authors whose works we have cited in this study. We also thanked the management of College of Education (T) Lafiagi for allowing students in physics department to take part in this research study. Finally, the effort of our colleague in language department who helped to correct grammar, spellings and other things related to English language is highly appreciated.

### **References**

- Abadina, O.A. (2001). Instruments and strategies for continuous assessment. *The Nigerian Principal*. 74-85.
- Abbas, A.G. (2009). Problems of continuous assessment. *Journal of Teachers Education* 8(1&2): 9-17
- Aladenusi, O. (2010). Role of assessment in regenerating teacher education in democratized Nigeria. *South-West Journal of Teacher Education*,3,263-282.
- Aina, K. (2012). Correlation studies in education. [Online] Available: <http://www.amazines.com/articledetail.cfm?articleid=4250154> (June 28,2012)
- Aiyelabegan, A.T, (2003). Effect of physics practical on students' academic performance in senior school certificate physics Examination in kwara state. *Lafiagi Journal of Science Education* 5 (1 & 2): 84-89.
- Akanbi, A.O, (2003). An Investigation into Students' Performance in Senior Secondary School Physics. *Journal of Teacher education trends* 1(1): 58-64.
- Daramola S.O(2006). *Research and statistical methods in education. Students and Researchers in Tertiary Institutions*.Ilorin, Nigeria;Bamitex
- Dennis, E. (1988). Continuous assessment in the University. *Journal of Education Students' Association*,5:30-33
- Ige, O.O (2007). Statistical analysis of relationship between students' performance in English and mathematics in some selected secondary schools in Osun state, Nigeria. *International Journal of Research in Education*. 4 (1&):164-171.
- Kola, A.J, (2007). Uses of instructional materials for teaching and learning Physics in Edu and Patigi Local Government Areas, Nigeria. *International Journal of Research in Education*. 4(1&2): 74-79
- National Commission for Colleges of Education minimum standard (3<sup>rd</sup> Ed) Kaduna, Nigeria
- Ogar, G. (2007). Effects of large enrolment on continuous assessment in a language class. *International Journal of Research in Education* 4 (1&2): 201-206.
- Okoro, O.M.(2002). *Measurement and evaluation in education*. Nsukka, Nigeria; Pacific Publisher.

Osokoya, I.O, (2003). 6-3-3-4 Education in Nigeria: History, strategies, issues and problem. Ibadan, Nigeria: Laurel educational publishers.

Owie, I (1996). Fundamentals of statistics in education and the social science. Benin city, Nigeria; United Press.

Table 1: Correlation between students' scores in C.A and Examination in electromagnetism

	C.A	EXAM.
C.A	1	.736
N	92	92
EXAM	.736	1
N	92	92

Table 2: Correlation between students' scores in CA and final score in electromagnetism

	CA	Final score
CA	1	.948
N	92	92
Final score	.948	1
N	92	92

Table 3: Performance in Continuous Assessment, Exam and final grade in electromagnetism

	No Passed	%	No Failed	%
CA	61	66.3	31	33.7
Exam.	02	2.2	90	97.8
Final grade	62	67.4	30	32.6

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage:

<http://www.iiste.org>

## CALL FOR PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** <http://www.iiste.org/Journals/>

The IISTE editorial team promises to review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

### IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

