

## **Biology Students' Perceptions of the Fairness, Authenticity and Influence of Continuous Assessment on Academic Performance**

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**Abstract:** The study focused on biology students' perceptions of the fairness, authenticity and influence of continuous assessment on academic performance. Three research questions guided the study. The descriptive survey design was adopted. The population of the study was 39,233 SS2 biology students out of which 1,500 was sampled. The instrument for data collection was biology students' perception of continuous assessment validated by experts with a reliability coefficient of 0.76. Data was generated by administering the instrument. The data generated was analysed using mean, weighted mean average and grand mean. The findings from the study revealed that biology students perceive continuous assessment be highly fair, authentic and influential of academic performance. The study recommended that teachers involve the students in their assessment plans so that they can exercise some degree of control over their evaluation.

**Keywords:** Assessment, biology, evaluation, authenticity, performance

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### **I. INTRODUCTION**

The educational process of teaching and learning is often not complete if the objectives instructional are not evaluated. To be effective, such evaluation must have to be continuous. Today in the field of education, there are so many continuous assessment techniques, most of which are relative to the educational theories that underlie the teaching and learning approach. Today, owing to the implications of learning theories to the teaching and learning of science subjects such as biology, several instructional innovations and alternative assessment methods have found their way into educational practice. The integration of the innovative assessment methods however, raises a fundamental question: Are these innovations as successful as they promise to be?

Continuous assessment could be described as a systematic process of gathering information about what a student knows, is able to do, and is learning to do. The purpose of continuous assessment is not only to evaluate and classify students' performance, but to inform teaching and improve learning, and to monitor students' progress in achieving year-end learning outcome. In line with this view, Airasian (1991) affirmed that rather than emphasizing the recall of specific, detailed and unrelated facts, science (including biology) continuous assessment gives greater weight to an assessment of a holistic understanding of the major scientific ideas and a critical understanding of science and scientific reasoning. The assessment can be done immediately or at a later time after lesson in the classroom.

Classroom assessment is broadly defined as any activity or experience that provides information about student learning (Airasian, 1991). Teachers learn about students' progress not only through formal tests, examinations, and projects, but also through moment-by-moment observation of students in action. They often conduct assessment through instructional activities. Much of students' learning is internal. To assess students' biology knowledge, skills and strategies, and attitudes, teachers require a variety of tools and approaches. They ask questions, observe students, engaged in a variety of learning activities and processes, and examine student work in progress. They also engage students in peer-assessment and self-assessment activities. The information that teachers and students gain from assessment activities informs and shapes what happens in the classroom; assessment always implies that some action will follow. To determine whether student learning outcomes have been achieved, therefore, students' continuous assessment must be an integrated part of teaching and learning.

Assessment of student learning involves careful planning and systematic implementation because it can exert some influence on students' performance. Assessment that is woven into daily instruction offers students frequent opportunities to gain feedback, to modify their learning approaches and methods, and to observe their progress (Ary, Cheser&Razavieh, 2002). Continuous assessment also provides ongoing opportunities for teachers to review and revise instruction, content, process emphases, and learning resources. Teachers therefore, may provide informal assessment by questioning students and offering comments. They also conduct formal

assessments at various stages of a project or unit of study. Such assessment must be continuous and may employ different methods as 'open-ended' or 'extended response exercise', 'extended tasks' and portfolios. It could also be curriculum-based testing or worthwhile tasks.

Continuous assessment to meet the purpose of evaluation must have to be fair. Assessment criteria must be clearly established and made explicit to students before an assignment or test so students can focus their efforts. In addition, whenever possible, students need to be involved in developing assessment criteria. Students should also understand clearly what successful accomplishment of each proposed task looks like. Models of student work from previous years and other exemplars assist students in developing personal learning goals. Each assessment task should test only those learning outcomes that have been identified to students for the assessment to be fair (Etinne, 2005). Continuous assessment also needs to be authentic.

Continuous assessment tasks in biology should be authentic and meaningful, involving tasks worth mastering for their own sake rather than tasks designed simply to demonstrate students' proficiency for teachers and others. Through assessment, teachers discover whether students can use knowledge, processes, and resources effectively to achieve worthwhile purposes. Therefore, teachers must design tasks that replicate the context in which knowledge will be applied in the world beyond the classroom in order to make the assessment authentic. Authentic assessment tasks are therefore, not only tests of the information students possess, but also of the way their understanding of a subject has deepened, and of their ability to apply learning. They demonstrate to students the relevance and importance of learning. Performance-based tests are also a way of consolidating student learning. The perennial problem teachers have with "teaching to the test" is of less concern if tests are authentic assessments of student knowledge, skills and strategies, and attitudes.

Research findings suggest that students' perceptions about continuous assessment have considerable influences on students' performance (Okpala&Onocha, 1994). Furthermore, it was found that students hold views about different formats and method of continuous assessment including its fairness and authenticity. When students' perceptions and expectations about open-ended formats are compared to those about multiple choice formats of examination, some remarkable results may occur. The influence of students' perceptions about these two formats on students' approaches to learning can be discussed and furthermore, students' preferences towards both formats are compared and contrasted to improve assessment. But, the biology students' perceptions about continuous assessment are not satisfactorily established in literature suggesting the need to conduct a study to tackle that grey area.

The necessity of a research study in the area of students' perception of continuous assessment is tied to a number of factors. As is observed in many classroom, the strategic approach to learning is sensitive to the assessment procedures used and/ or expected. Because teachers have the final say on such indicators of academic success as student grades, it seems reasonable that students seek information and form opinions about what the teacher wants. Figuring out the teacher enables them to tailor study strategies that fit the task. On the hand however, the teacher ought to understand how the study perceive these assessment in order to collaborate with them to ensure fair and authentic assessment.

## **II. PURPOSE OF STUDY**

The study focused on biology students' perceptions of the fairness, authenticity and influence of continuous assessment on academic performance. The study specifically sought to:

1. Find out the biology students' perceptions of the fairness of continuous assessment.
2. Examine the biology students' perceptions of the authenticity of continuous assessment.
3. Ascertain the biology students' perceptions of the influence of continuous assessment on their academic performance.

## **III. RESEARCH QUESTIONS**

The following research questions guided the study.

1. What are the biology students' perceptions of the fairness of continuous assessment?
2. What are biology students' perceptions of the authenticity of continuous assessment?
3. What are the biology students' perceptions of the influence of continuous assessment on their academic performance?

## **IV. METHOD**

The study adopted the descriptive survey design. The population of this study was targeted at all public senior secondary school biology students in Anambra state. The population of biology students was 39,223 in SS2 (Source: Post Primary School Service Commission, Awka, 2020). The total sample for the study was 1, 500 biology students. The sample was drawn through a multi-stage procedure. Three out of the six education zones in Anambra state were selected at random. Secondly, to secondary schools were purposively selected from each of the three education zones. The rationale behind the selection of the schools was to make sure that the schools

selected were situated miles apart to ensure greater coverage. Finally, in each school, 50 biology students were selected accidentally for the study.

The instrument for data collection was a questionnaire designed by the researcher from information gathered from literature and by interviewing students. Consequently, a questionnaire titled 'Biology students' perception of continuous assessment' (CSPCA) was constructed. The questionnaire was designed to assess the perceptions of students of the fairness, authenticity and influence of continuous assessment on academic performance in three clusters named sections A, B and C respectively. It had a total of 17 items designed on four point scale namely: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The constructed questionnaire was given to three experts to determine its face, content and construct validity. The corrections and comments were effected in an attempt to standardize the research instrument. The reliability of the instrument was established using Cronbach Alpha technique. The instrument was administered to 30 students outside the areas of study. The generated data was used to compute the reliability of the instrument which yielded coefficient of internal consistency of 0.76.

The instrument was administered to the students via the aid of six research assistants. They research assistants were briefed on the purpose of the study and how to administered and collect the instrument. Two research assistants covered one education zones. They administered the instruments to two schools per day for two weeks. The instrument is collected back on the spot to ensure high return and to make sure the students completed the survey. The collected instruments were taken to the researcher who collated the generated data for analysis. The analysis of data was done using descriptive statistics such as mean, frequency and standard deviations. Weighted response average was used to determine which items was agreed upon by the students using 2.5 and above as benchmark for agreement. The grand mean was calculated by finding the mean of each item mean. The criteria for interpreting the grand mean was that grand mean ranging from 0.10-1.00 was low, 1.10-2.50 was moderate and 2.50 and above was high.

## V. RESULTS

**Research Question 1:** What are the biology students' perceptions of the fairness of continuous assessment?

**Table 1: Biology Students' Perceptions of the Fairness of Continuous Assessment**

S/N	Items	$\bar{x}$	SD
1	Continuous assessment is irrelevant	2.19	1.21
2	It doesnot make for effective learning because they only aimed to learn for the purposes of the particular assessment point	2.81	0.84
3	Inappropriate as a measure because it appeared simply to measure your memory	3.29	0.99
4	They are mere end-point assessment as it happen in a day rather than accurately measuring present performance	3.82	1.28
5	It is might not be rewarding to those who consistently make the effort to learn but sometimes to those who rely on cramming or last-minute effort	2.22	1.74
6	One may leave out large portions of the course material, when writing essays or taking exams, and still do well in terms of marks	2.58	1.43

**Grand Mean = 2.82**

Table 1 shows that items two to four and six have means above the benchmark for agreement. Therefore, biology students agree that continuous assessment does not make for effective learning because they only aimed to learn for the purposes of the particular assessment point, is an inappropriate as a measure because it appeared simply to measure your memory, are mere end-point assessment as it happen in a day rather than accurately measuring present performance and that students may not large portions of the course material, when writing essays or taking exams, and still do well in terms of marks. The grand mean shows that continuous assessments in biology have high level of fairness.

**Research Question 2:** What are biology students' perceptions of the authenticity of continuous assessment?

**Table 2: Biology Students' Perceptions of the Authenticity of Continuous Assessment**

S/N	Items	$\bar{x}$	SD
1	We do not exercise any degree of control within the context of the assessment of our own learning	3.13	0.22
2	Exams actually measured the quality of teachers' notes and handouts	2.66	1.21
3	Most times, we are not fortunate enough to have a lot of practice in any particular assessment technique	3.17	0.73

4	Helps teachers to provide correct guidance to students	3.99	0.46
5	Helps to test corresponding wider range of skills, including non-cognitive skills of various types	2.42	1.31
6	Enables the testing of the students overall ability	2.19	1.27

**Grand Mean = 2.93**

Table 2 shows that items 1 to 4 has means above the benchmark for agreement. Therefore, biology students agree that they do not exercise any degree of control within the context of the assessment of our own learning, that biology examinations actually measured the quality of teachers' notes and handout, that most times, they are not fortunate enough to have a lot of practice in any particular assessment technique and that continuous assessment helps teachers to provide correct guidance to the students. The grand mean shows that continuous assessments in biology have high level of authenticity.

**Research Question 3:** What are the biology students' perceptions of the influence of continuous assessment on their academic performance?

**Table 3: Biology Students' Perceptions of the Influence of Continuous Assessment on Academic Performance**

S/N	Items	$\bar{x}$	SD
1	Continuous Assessment make you anxious and hinder proper study leading to poor performance	3.28	0.37
2	One poor performance may affect your grade adversely	3.11	0.19
3	Students are not often prepared for continuous assessment and therefore perform poorly	2.93	0.74
4	Variety of assessment tools are not often adopted and the ones used may not be favourable to students	2.57	0.99
5	Test conditions make it difficult to attain greater performance	3.29	0.78

**Grand Mean = 3.04**

Table 3 shows that all the items have means above the benchmark. Students agree that: continuous assessment make you anxious and hinder proper study leading to poor performance, one poor performance may affect your grade adversely, students are not often prepared for continuous assessment and therefore perform poorly, variety of assessment tools are not often adopted and the ones used may not be favourable to students, test conditions make it difficult to attain greater performance. The grand mean shows that continuous assessment has high influence on students' performance.

## VI. DISCUSSION

Biology students agreed that continuous assessment does not make for effective learning because they only aimed to learn for the purposes of the particular assessment point. This is because teacher grade students according to their performance. Thus, students just study to pass and do not properly conceptualize the subject matter under study. Students also agreed that continuous assessment is inappropriate as a measure because it appeared simply to measure your memory. Most students engage in rote learning. They do not study the materials to master them leading to assessments measuring only what they have crammed. Students agreed that continuous assessments are mere end-point assessment as it happen in a day rather than accurately measuring present performance and that students may not large portions of the course material, when writing essays or taking exams, and still do well in terms of marks. Since they are conducted at the end of a quarter, week or term, they only measure end-points. What skills, knowledge and learning the students have acquired at the moment are not the focus of measurement. However, the students' perception is that continuous assessments in biology have high level of fairness. The finding is in line with the findings of Etinne (2007) that continues assessment is fair. It also supports that findings of Greaney (2001) that continuous assessment is a fair way of evaluating students.

Biology students also agreed that they do not exercise any degree of control within the context of the assessment of our own learning, that biology examinations actually measured the quality of teachers' notes and handout. The reason behind this is that most times, students use the teachers note is the greatest study aid at the secondary school level. They agreed that most times, they are not fortunate enough to have a lot of practice in any particular assessment technique and that continuous assessment helps teachers to provide correct guidance to the students. The assessment are often fixed at the end-point of the study. From the beginning to that time of assessment, teacher try to cover the content and objectives of instruction, leaving students with too much

workload. They have a day to prepare for each paper as examinations start a week after that last day of lesson, for the whole subjects. The grand mean shows that continuous assessments in biology have high level of authenticity. This findings contrast the finding so Ebolu (2009) that the nature continuous assessment being always traditional makes students feel unease and that such is a poor assessment technique. It also supports that findings of Ezendu (2005) that authentic assessment must cover all aspect of learning.

Students further agreed that continuous assessment make you anxious and hinder proper study leading to poor performance. Anxiety is known to hinder learning especially when it is debilitating. Students may be filled with thoughts that they could bare think of what they are learning (Udeani, 2012). One poor performance may affect the grade adversely. This is because the entire grade attained in each test and cumulated. This cumulative score is affected by any poor grade the students must have acquired during one test or the order. Also, students agreed that variety of assessment tools are not often adopted and the ones used may not be favourable to students and test conditions make it difficult to attain better performance. Secondary school may teacher set test to suit themselves caring less about the need of the students in the test condition. Objective test are easy to score but may not favour the students because there are not given opportunity to express learning the way they have learning the concept. This may be why the grand mean shows that continuous assessment has high influence on students' performance. The finding by Ezendu (2005) supports the findings of the study.

## **VII. CONCLUSION**

It can be concluded from the study that biology students' perception of continuous assessment is that it is highly fair, authentic and has high influence on their performance.

## **VIII. RECOMMENDATIONS**

In line with the findings of the study, it is recommended that:

1. Teachers involve the students in their assessment plans so that they can exercise some degree of control over their evaluation.
2. Enough time and early information should be given to students in preparation for their assessment.
3. Possible assessment and similar questions should be treated during instruction before assessment.

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