

# CONTINUOUS ASSESSMENT AS A TOOL FOR EFFECTIVE BIOLOGY TEACHING AND EVALUATION IN NIGERIA.

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## **Abstract.**

The use of continuous assessment (CA) to achieve the objectives of Biology Education and the goals of Education in general, is well-intended in Nigeria. But the level of functionality of CA practice has been poor and is not yielding the best results. The whole exercise needs to be enhanced. In light of this, this paper seeks to highlight the meaning of CA, its importance, and its set-backs with particular reference to biology teaching and evaluation. The paper suggests some enhancement-strategies which include devoting more time and attention to specially teach and evaluate challenging aspects of the course to inspire students to inquisitiveness and assiduity, to create life long experiences in learners in those topical areas to enable them contribute to national development, to internally make modifications in the subject's curriculum to bring about relevance and adaptability without altering requirements for external examinations, etc. Another recommendation is a strategy for the Government and Educational Institutions to continually organize intensive and rigorous pre-service and in-service training for teachers on the concept, modalities and techniques of CA. The paper concludes on the need to awake Biology-teachers to the burden of CA practice in Nigeria for optimal results.

In 1981 Nigeria started to put to mandatory practice the concept of Continuous Assessment as the form of assessment of students' performance in our schools instead of one final examination. In a reinforced vein, the Federal Republic of Nigeria (2004) has stated thus:

- (i) The Primary School Leaving Certificates shall be based only on continuous assessment and shall be issued locally by the head- teacher of the school.
- (ii) The Junior School Certificate (JSC) shall be based on continuous assessment and a national examination.
- (iii) The Senior School Certificate (SSC) shall be based on continuous assessment and a national examination.

Today, continuous assessment is being practiced at all the levels of education in Nigeria including the Colleges of Education, Polytechnics and Universities in order to achieve the goals of making teaching and evaluation effective, as well as meeting the need for certain decisions to be internally taken by school authorities.

Effectiveness in teaching has been a focal point of educational research for decades in educationally developed countries of the world (Ali, 1983). It is a major requirement in achieving the set objectives/aims of educational policies of any country. According to Arubayi (1996), effective teaching is synonymous with good and efficient teaching; it is teaching directed towards achieving earlier stated objectives. In a broad term, effective teaching is that which meets the set goals and objectives (expected educational outcomes) of the subject being taught.

Evaluation involves the collection of information concerning the impact of an education programme (Austin and Panos, 1971). The information is not just collected for the sake of collection but is rather used to make decisions about the educational programme. According to Austin and Panos (1971:733), "These decisions may be concerned with the continuation, termination, or modification of an existing programme, or with the development and possible adoption of some new programmes. Whatever the particular decision may involve, evaluation is most likely to produce useful information if it is based on an understanding of the nature of the educational decision making process itself".

The above presentation of Austin and Panos affirms the fact that decision making process involves some calculus of inputs, operation and outputs, and therefore evaluation should relate measurement from these three domains of variables to one other.

Evaluation takes diverse forms. One way of evaluating instructional effectiveness is the use of student ratings of instructions and courses. These ratings are valid and reliable in assessing various criteria of instructional effectiveness. Another method is the percentage of the students who obtain the terminal certificate at the end of the course or programme. This percentage will include those who repeat classes once or twice before completion, with its monetary implication on parents and government. This method is used by parents and educational planners.

The level of functionality of Continuous Assessment practice in Nigeria has been viewed by many scholars to be poor and not yielding the best or desired results. In the light of this situation, this paper focuses on how continuous assessment can be improved to functionally achieve effectiveness in Biology teaching and evaluation in Nigeria.

### **Meaning of Continuous Assessment.**

Two words make up the term, continuous assessment. They are 'continuous' and 'assessment'. Continuous connotes 'repeatedly without a stop' while assessment can be constructed to mean 'value-measurement'.

Continuous assessment can be taken to mean value-measurement that is carried out repeatedly without a stop. But since 'without a stop' is not true of the concept, continuous assessment is thus a continual assessment.

According to Okpala, Onocha and Oyedeji (1993:225), "continuous assessment refers to a system of assessment which is carried out at predetermined intervals for the purpose of monitoring and improving the overall performance of students and of the teaching-learning environment". Obioma (1988:38) defined continuous assessment as a mechanism for obtaining the final grading of a learner in the cognitive, affective and psychomotor domains. The report of the Federal Ministry of Education at the end of a seminar on evaluation of students' achievement held in Ibadan in 1979 sees continuous assessment as "a method of ascertaining what a pupil gains from schooling in terms of knowledge, skills, industry, and character developments, taking account of all his/her performances in tests, assignments, projects and other school activities during a given school period". It stresses that continuous assessment is a method of using the recorded performances of each pupil to help the teacher improve on his/her teaching by identifying and remedying areas of difficulties in learners' performances.

It has become evidently clear that Continuous Assessment (CA) goes with known characteristics viz:

- (i) It is pre-determined at intervals: It is a system of assessment carried out at pre-determined intervals of time.
- (ii) It is systematic: Every action during the process is pre-arranged and has a definite programme, specified frequency and based on variety of procedures or variety of evaluation techniques.
- (iii) It is comprehensive: A variety of instruments are used to measure a variety of learning outcomes in the cognitive, affective and psychomotor domains.
- (iv) It is cumulative: Repeated measurements are taken on learners' performances. Again, any decision(s) to be made on the present outcome takes into account information and/or decisions made previously.
- (v) It is guidance oriented: Information or results obtained are used to guide both teachers and students for further development in the arts of teaching and learning. Obioma (1988) concentrating on learners, has stated that effective programmes of evaluation should be geared towards providing guidance for learners' present and future development.
- (vi) It is diagnostic: Since CA can serve as an immediate feedback to both teachers and students, it affords the opportunity of taking effective options (remedial action) whenever any misdirected

trends are observed (Ohuche, 1988).

### **Importance of Continuous Assessment.**

Continuous Assessment is of great importance as can be seen from its characteristics discussed above. While being a tool for enabling certain decisions to be taken by the teacher and the school authority, it helps to make effective the process of teaching and learning, and that of evaluation, as it is a basis for decision-making on the outcomes of educational programmes. This is more so as students' learning is evaluated to determine the success of the instructional programmes. This may involve the use of standardized tests, teacher-made tests, rating scales, check-lists, self-report inventories, or other special types of evaluation of instructions.

Continuous Assessment enables the teacher to know her pupils well, their interests, attitudes, strengths and weaknesses. Again, it makes the teacher very accountable for outcomes or results (success or failure) of the instructional programme. This creates room for immediate improvement. In his version, Obanya (1979) has stated that CA increases the possibility of actually identifying and remedying learners' difficulties. The teacher is in a better position to help the learner by:

- Re-Teaching what has not been mastered,
- adopting new method,
- Re-Examining the textbooks and other teaching-learning materials to see how they can best be adapted to learners' needs,
- Re-Examining the content of the curriculum to see what aspects have been more difficult to teach and to learn than others.

Again, CA enables the science-teacher to make modifications in the subject's curriculum to bring about relevance and adaptability without altering the requirements for external examinations. Thus, the importance of CA to inputs, processes and outputs of instructional experiences and programmes cannot be over-emphasized.

### **Some Set-Backs**

No doubt, the operation of continuous assessment in Nigeria has had some set-backs as a mechanism for assessing learners' behavioral outcome in the cognitive, affective and psychomotor domains of learning. While it is evident that continuous assessment is a tool for effective Biology teaching and evaluation, the whole exercise revolves round the teacher on the one hand, and other players in the educational system e.g. students, Government etc. on the other hand. The set-backs of the exercise are however more pronounced on the teacher-factor. This is more so as CA has severe implications for the classroom teachers. According to Ughamadu (1994), CA has severe implications for the classroom teacher because in practice, teachers should combine the various scores obtained by every student from the different modes of assessment and to also use such scores to diagnose students' learning difficulties and to assist them by giving appropriate remediation. Therefore, in implementing CA, teachers need to be proficient in the skills of effective planning, designing and utilization of assessment tools for measuring learning-attainment of students. There is also the requirement to possess skills in statistical computations and interpretation of scores from different assessment instruments used in CA practice. Unfortunately, some biology-teachers do not possess some of these skills.

Thus, the implementation of continuous assessment poses certain significant problems for the educational system in general and teachers in particular. Some of the identified problems by Nworgu (2003), Odili and Ajuar(1995), Ojerinde and Felayojo (1984) and F. M.E.S.T.(1985) include problem of uniformity in the kinds and format of record-keeping, continuity of records, comparability of standards, lack of standardized tests of achievement, large class size, favouritism in the award of CA scores, lack of teachers' commitment to CA practice, students' bad attitude towards CA and unqualified personnel to implement and operate continuous assessment especially as it relates to construction and application of CA instruments and techniques. Majority of biology teachers use tests, assignments and observation for assessing their students. Even though some teachers know how to

construct and apply project, questionnaire, interview, checklist, rating scale and anecdotal records, they do not use them. (Ajuar and Okandeji, 2007).

On the part of students, there is a proven lack of seriousness towards continuous assessment. School authorities and Government too, have their own faults. Materials needed for CA are not made available to teachers. There are also the problems of lack of adequate cumulative record sheets/cards, offices and equipment, teaching staff etc.

### **Some Enhancement Strategies for Biology Teaching & Evaluation**

There is a matching between Biology teaching and evaluation and continuous assessment. The study of Biology involves a lot of investigations, experiments and observations which can best be made effective by continuous assessment of learners engaged in this learning process. Some CA enhancement strategies for Biology teaching and evaluation include:

(i) The Biology-teacher in making effective the teaching-learning process should use continuous assessment to:

- Stimulate and maintain interest of learners as well as attract their attention to details;
- Create learners' willingness to participate in classroom activities, and out-of-class activities e.g. collection of materials, excursion trips etc;
- Develop ability to handle delicate objects and biological instruments/equipment with care, and ability to reason logically in science;
- Inspire students to inquisitiveness and assiduity by repeatedly teaching and setting repeated tests on areas of prime relevance. This will also enable active participation on the part of students.

(ii) Devoting more time to specially teach and evaluate some challenging aspects of the course such as diseases and their control, food production, conservation of natural resources and the protection of our environment. Continuous assessment is better used in these areas to create life-long experiences in learners.

The Biology-teacher should devote more time to prepare appropriate or relevant tests, mark and grade them and from the outcomes should give guidance to students in the areas they have difficulties. This will enable the teacher to decide whether the topics taught have been effectively mastered by the students to enable them contribute their quota to national development in the topical areas. The teacher could then re-teach if on the contrary.

(iii) The Biology-teacher in teaching and assessing practical works and out-of-class activities should focus attention on relevance and adaptability of the course to the Nigerian society/environment. She may make modification in the subject-curriculum to bring about relevance and adaptability without altering the requirements for external examinations. This is very possible by virtue of her training academically, professionally and experience-wise.

(iv) The Biology-teacher in assessing the desirable qualities of the learner such as attention to details, willingness to participate in classroom activities, inquisitiveness etc. should use assignments given at the end of a lesson, objective or essay tests based on a topic taught, projects given to be performed within a given period by individual learner or groups of learners, specified school activities as well as achievement tests, rating scales, and observation.

In assessing practical works, attention should be focused on ability to assemble biological laboratory equipment for experiments, the effective management of time, result obtained and the report presented. In assessing out-of-class activities, attention should be focused on extent of student participation, the degree of interest apparently generated by the experience and the degree to which students expressed a desire for additional similar experiences.

(v) Above all, is the strategy for the Government and authorities of educational institutions. There is need for intensive and rigorous pre-service and in-service training of Biology-teachers on the concept, modalities and techniques of continuous assessment. This will help some teachers who do not know how to construct and apply some continuous assessment instruments like anecdotal records,

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project, interview, socio-gram and questionnaire, as well as enable a smooth administration of CA in schools. This kind of training will also inculcate in teachers the entire burden of continuous assessment practice which requires devotion and dedication.

#### **Conclusion**

Application of continuous assessment in Biology teaching and evaluation is a 'must' if the objectives of Biology Education are to be achieved expeditiously. While some draw-backs exist in its implementation, there is the need to improve the strategies used, with emphasis on the teacher having a good knowledge of CA to enable her apply it properly and meticulously. The teacher needs to be awakened to the burden of CA practice.

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