

FUDMA JOURNAL OF SCIENCE AND EDUCATIONAL RESEARCH (FJSER)

A BI-ANNUAL PUBLICATION OF FACULTY OF SCIENCE
AND EDUCATION, FEDERAL UNIVERSITY, DUTSINMA

ISSN: 2449-0636

Vol. 2 No. 1 Special Edition June, 2016



**FUDMA JOURNAL OF SCIENCE AND
EDUCATIONAL RESEARCH (FJSER)**

**VOLUME 2, NUMBER 1. SPECIAL
EDITION JUNE, 2016.**

ISSN: 2449-0636

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EDITORIAL

FUDMAJournal of Science and Educational Research Special Edition is the edition that involves only the papers presented at the 1st Annual Conference of Faculty of Science and Education, which held on 28th 30th September, 2015. The Theme of the conference is 'Science and Education in a Digital Age'. This edition contains thirty (30) articles, out of which eleven (11) are Science-based and nineteen (19) addresses the areas of using technology for teaching in a digital age. These articles were found publishable after a blind peer-review process.

The special edition of this Journal is an invaluable resource for teachers, educationists, scientists and all researchers in the world. Every author is solely responsible for the view and style expressed in the articles.

On behalf of the editorial board, great appreciation must be given to those who served as referees/reviewers for this special edition, who out of their tight schedules, gave their best to review and recommend for the publication of these articles out of about one hundred (100) papers presented during the maiden conference of the Faculty of Science and Education. Without loss of generality, I wish to appreciate the Conference Organising Committee and the contributors for making the special editon of this journal possible.

Let me use this opportunity to invite you to submit your quality research work in any area of Science, Technology and Education to the FUDMA Journal of Science and Educational Research (FJSER) for publication.

Finally, I wish to appropriate the Vice Chancellor and the entire members of the University Management of Federal University Dutsinma, for their support during the conference.

Professor J.O. Fatokun
Editor-in-Chief

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PARADIGM SHIFT IN ASSESSMENT: FROM ASSESSMENT OF LEARNING TO ASSESSMENT FOR LEARNING IN NIGERIAN SCHOOLS' SYSTEM

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ABSTRACT

Assessment is an indispensable tool in the school system for determining students' academic performance. The paper examines paradigm shift in assessment from assessment of learning to assessment for learning in the Nigerian schools' system. Paradigm shift in the field of educational evaluation and assessment in Nigerian educational system is to ensure that assessment achieves its basic purpose and objective, which is to improve students' learning. The paper reviews the concepts, types and shift in assessment. The paper recommends that school administrators, teachers and other educational stakeholders should not rely solely on the data derived from assessment of learning which basically categories students into brilliant and dull individuals but maintain balance in two forms of assessment so as to achieve quality and basic purpose of assessment in Nigerian schools and to conform with the best practices by school teachers worldwide. The effective use of assessment for learning must be mandatory for all teachers in Nigerian schools.

Keywords: Assessment for learning, assessment of learning, paradigm shift.

INTRODUCTION

Assessment and testing have powerful influence on the lives, ambitions, careers and academic attainment of an individual student in a school system. In Nigerian schools, teachers used a variety of methods or techniques to assess their students' performance and assessment is used to determine the way teachers teach, measure students' performance and effectiveness of the teaching methodologies of teachers.

Assessment can be seen as all those activities undertaken by teachers and by their students in assessing themselves which provides information to be used feedback to modify the teaching and learning activities in which they are engaged (Black and William, 1998).

Borich (2011) defines educational

assessment as an interactive process between students and teachers that informs teachers' and students' learning progress; without this, teachers cannot make effective decision on students' learning. Assessment also refers to activities teachers use to assists students to learn and to determine students' improvement and performance. Assessment is often seen as a tool to measure the progress of individual students. It also allows individuals, communities and countries to track the quality of schools and educational systems (Braun, Kanjee, Bettinger and Kremer, 2006). There are different types of assessment used in school systems to evaluate students' progress and advancement such as formative, summative, placement and diagnostic assessments. The roles of formative and

summative assessments are indispensable in a school system.

Formative versus Summative Assessment

Formative Assessment refers to assessment that specifically intended to provide feedback on performance to improve and accelerate learning (Sadler, 1998). Also, it can be defined as assessment carried out during the instructional process for the purpose of improving teaching and learning (Sphepard, 2008). It aids learning by generating feedback information that is of benefit to students and to teachers (Nicol & Macfarlane- Dick, 2005). Formative evaluation is a form of structured testing procedure that is executed while teaching and learning are on-going with a view to bring about improvements via feedback. The feedback will assist teachers to determine the effectiveness of their teaching methods, the performance of students and to also determine the area of strength and weakness of their students. Owolabi (2000) also submitted that the corrective feedback system makes formative evaluation useful for pursuing the aims of mastery learning.

This will also help the teachers to recognise the areas where the students need remediation (i.e. re-teaching and re-testing). In addition, it will help the students to identify their performances and to re-structure their understanding and skills for better performance in their studies. In most cases, formative assessments are internally set in the school by teachers and therefore may have strong linkage with instruction. In a classroom setting, the common examples of formative assessments are writing projects, writing assignments, tests, and quizzes and so on. Formative assessment serves as the following purposes:

- i. to provide feedback for teachers to modify subsequent learning activities and experience (Huhta 2010);
- ii. it identify and remediate group or

individual deficiencies -(Huhta, 2010);

- iii. it move focus away from achieving grades to learning process, in order to increase self-efficacy and reduce the negative impact of extrinsic motivation (Shepard, 2005);
- iv. it improve students' metacognitive awareness of how they learn (Shepard, 2005);
- v. it allows both for fine-tuning of instruction and student focus on progress (Cauley & McMillan, 2010);
- vi. it provides evidence that the intended course of actions was indeed appropriate (Black & William, 2009);
- vii. it helps teachers and students in decision making during educational and learning processes (Ainsworth & Viegut, 2006);
- viii. it facilitates the development of self-assessment in learning (Nicol & Macfarlane-Dick, 2005);
- ix. it provides information to teaching-learning process for students and helps them to attain mastery in their subjects/courses; and
- x. it provides information to teachers that can be used to shape teaching.

Summative Assessment is different from formative evaluation in functions. According to Stiggins (2002), summative assessment can be used in taking high stakes decisions on performance of students but cannot be used for taking daily or weekly instructional decisions by students and teachers as the learning process unfolds. It can neither diagnose students' needs during learning nor provide parents with information on how to support their children.

It is the type of assessment, which takes place at the end of prescribed instruction e.g. term, session, semester, year or other

such tenures of academic vocational and other educational programmes. Its purpose is to assign grade and not to monitor the progress of a course when it is on-going. Summative assessments are not bad but their functions are different from formative assessment. In Nigeria, standardized tests that are used for the purposes of summative assessment are West African Examinations such as WAEC, NECO, and NABTEB & GCE. Some summative assessments can be used to diagnose students' needs in teaching and learning.

Shift from Assessment of Learning to Assessment for Learning

The paradigm shift from "Assessment of Learning" to "Assessment for Learning" is to ensure that assessment serves its basic purpose in the educational system. Assessment of learning (AOL) refers to formal tests carried out after a certain learning period or at the end of a course, the results of which are used mainly for comparison, selection or accountability purposes (Black, Harrison, Lee, Marhsall & William, 2003). Assessment of learning is defined by Earl (2003) as the process of collecting and interpreting evidence for the purpose of summarizing learning at a given point in time, to make judgements about the quality of student learning on the basis of established criteria, and to assign a value to represent that quality.

Assessment of learning is summative in nature because it is intended to measure learning outcomes and report those outcomes to students, parents and administrators and other stakeholders. It is accompanied by a value or letter grades; it compares students' achievement with standards; it occurs at the end of learning unit and it is teacher centered.

Assessment of Learning (AOL) cannot give the students and other educational stakeholders the systematic improvement of students in the classroom. Also, AOL it does not give immediate feedback to teachers and students for adequate

remediation. These shortcomings necessitate a shift in assessment from assessment of learning to assessment for learning.

Assessment for Learning (AFL)

This is a shift in assessment that all the evaluators and testers must embrace for improvement in the performance of students in the school system. Assessment for learning refers to assessment activities that are embedded in normal teaching and learning process with the purpose of providing feedback for both teachers and students to plan the next step of teaching and learning (Black, Harrison, Lee, Marhsall & William, 2003). Assessment for learning is formative in nature. It occurs at all stages of the learning process.

AFL is also defined by Earl (2003) as ongoing process of gathering and interpreting evidence about student learning for the purpose of determining where students are in their learning, where they need to go, and how best to get there. It occurs when teachers use inferences about students' progress to inform their teaching.

Assessment for learning occurs at all stages of the learning process. It provides immediate feedback to both teachers and students which emphasizes strengths, identifies challenges, and points to next steps; as such, it is formative in nature. It encourages all students to take responsibility for and become active in their own learning for better performance and improvement in academics.

The feedback loop sends a signal to teachers to check on students' level of understand and adjust their instruction to keep them on track if need be. Assessment of learning comprises of two phases e.g. initial of diagnostic assessment and formative assessment. Diagnostic assessment or pre-assessment is the type of assessment that determines what a student does not know about a topic (Wikipedia, 2014). AFL is based on a variety of information sources such as portfolios, works in progress,

teacher observation, and conservation and so on. No grades or scores are given in AFL; record-keeping is primarily anecdotal and descriptive.

The AFL is fundamentally concerned with change. In fact, assessment in the classroom is intended to be vehicle of change by getting learners to notice the gap between their current performance and the target performance (Fulcher, 2014). ALF is designed to meet students' information and needs to maximize both motivation and achievement by involving students from the start in their own learning (Stiggins, Arter, Chappuis and Chappius, 2004). Through ALF, teachers find out what students have mastered, what they partly master and know and what they have not mastered so that follow-on activities can advance for better understanding and performance.

The UK Assessment Reform Group (1999) identifies the big 5 principles of assessment for learning namely:

- i. the provision of effective feedback to students;
- ii. the active involvement of students in their own learning;
- iii. adjusting teaching to take account of the results of assessment;
- iv. recognition of the profound influence assessment has on the motivation and self-esteem of pupils, both of which are critical influences on learning; and
- v. the need for students to be able to assess themselves and understand how to improve.

It is envisaged that: if these five principles are followed by Nigerian teachers, the rate of students' failure in both the internal and external examinations could be reduced. The AFL task is to provide feedback to both teachers and students regarding the learner's progress towards achieving the learning objectives and goals. This feedback should be used by teachers to revise and develop further instruction. Nicol and Macfarlane-Dick (2005 and 2006) synthesized literature

and listed the following seven principles of good feedback practice:

- i. clarification of what good performance is (goals, criteria, expected standards);
- ii. facilitation of the development of self-assessment in learning;
- iii. provision of information to students about their learning;
- iv. encouragement of teacher and peer dialogues around learning;
- v. encouragement of positive motivational beliefs and self-esteem;
- vi. provision of opportunities to close the gap between current and desired performance; and
- vii. provision of information to teachers to reform teaching (Nicol & Macfarlane-Dick, 2005 & 2006).

These seven principles of feedback practice will enhance students' performance if they are practiced effectively in Nigerian schools. Adequate feedback and remediation are the backbone of assessment for learning. The purpose of AFL is change and improvement in teaching and learning process. It's also aimed at helping students gain awareness about their weaknesses; work on them for better performance.

The following recommendations are made to improve the performance of students in Nigerian schools through the assessment for learning process, namely:

- teachers should give students prompt and effective feedback;
- help students to be able to improve themselves;
- students who have difficult in their studies should be assisted by teachers through remediation;
- school administrators and teachers should not rely solely on the data derived from (AOL) summative assessment to assess students' performance;
- teachers must create learning opportunities where students can study at their own pace;

- In-service training should be organised for teachers on effective implementation of AFL in Nigerian schools;
- effective use of AFL must be mandated for all teachers;
- teachers must be effectively monitored by school administrators to make sure that they employ AFL in the classroom; and
- Government educational agencies in Nigeria should monitor teachers on the use of AFL to ensure that attention is given particularly to diagnosing learners' problems as they learn so that corrective steps could be timely and relevantly taken.

Conclusion

Assessment of students in the school is to improve their performance and not to mar their performance or make them fail. In all levels of education in Nigeria, teachers should stop relying on assessment of learning (summative assessment) to assess students' performance. Teachers should put into practice assessment for learning and change the way they make use of feedback given to their students for better performance. In order to reduce the gap between higher/brilliant students' and lower/dull students in Nigerian schools the principles of assessment for learning must be embraced and effectively practiced by our teachers. Finally balance in two forms of assessment is compulsory for teachers in order to achieve quality (not quantity) assessment and high students' performance in Nigerian schools.

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