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Senior Secondary School Biology Teachers' Perceptions on Classroom Assessment in Lagos State

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Abstract

One of the important features of a teaching-learning process is the assessment of behavioural objectives. Studies have revealed that assessment is a powerful instrument in determining the extent to which stated objectives are being achieved. However, its effectiveness depends on diversified variables such as teachers' attitudes, competency in content delivery, pedagogy and teaching styles. To accomplish this goal, teachers have to be versatile and skillful in the art of assessment. There is need to evaluate Biology teachers' perception about this set of assessment knowledge and skills. This study therefore was carried out to investigate Biology teachers' perception on educational assessment practices. It also asserted the relationship among teachers' educational qualification, experience, age and nature of school on assessment practices. Researchers in this study employed a survey design. Eighty-five Biology teachers were purposively sampled from the six Education Districts of Lagos State. The instrument for data collection was a questionnaire. The reliability index of the instrument was .79, using Cronbach Alpha. Three research questions were answered. Results showed that the teachers perceived classroom assessments as a process of administering a test to students with a view of awarding marks and reporting such to students, parents and other stakeholders. The most preferred assessment techniques were multiple-choice tests, essays and practicals; while the least utilized method was anecdotal. There were no significant contributions by the teachers' gender, teaching experience and age on their perceptions about assessment practices. Recommendations were made based on the findings.

Keywords: Classroom assessment, Biology teachers, Teachers' perceptions, Assessment techniques, Lagos state

Introduction

Educational assessment is a key component of a school curriculum and instructional process. Koh (2011) views educational assessment as an essential tool in ascertaining the extent to which educational objectives have been achieved. However, its effectiveness depends on diversified variables such as teachers' attitudes, competency in content delivery, pedagogy and teaching styles. Gronlund (2006) defines educational assessment as the process of obtaining information about learners' performances on various classroom activities, by employing different assessment techniques, in order to ascertain the level of attainment of stated instructional objectives. However, Puckett and Black (2008) define assessment as a process of obtaining information about learners with the view of decision-making.

In view of this, a teacher is expected to be competent and skillful in selecting and developing assessment techniques in congruent with teaching-learning processes. Among the assessment functions of a teacher include administering, scoring, and interpreting results; reporting such results to learners, parents/guidance, school management and other educational stakeholders. Consequently, Alkharusi1, Aldhafril, Alnabhani1 and Alkalbani (2012) emphasized that teachers should competently use assessment information in taking educational decisions; develop reliable assessment instruments and give feedback to various stakeholders.

The holistic development of the learner is a function of the teacher, school, and the learner(s). This development follows a sequential ordering of behavioural objectives. Finding out the actualization of this all-encompassing function of the school requires obtaining information on the learner's level of achievement of the stated objectives through assessment. The learner should be assessed wholly with the use of assessment techniques appropriate for the behaviour to be assessed. Assessment generally, covers all aspects of school experiences – those acquired formally and informally, involving all the three domains of learning. Assessment practices employed by teachers, focus mostly on the cognitive domain, with little emphasis on psychomotor and affective domains.

Classroom teachers seem to use objective and essay assessment techniques to collect information, to report and make decisions about the learners' status of learning outcomes in the cognitive domain. These techniques cannot adequately probe into all the aspects of the learners' development. This is why Gronlund (2006) argued that traditional assessments such as multiple choice, true-false, and matching items are often lower in realism and complexities of the tasks assessed but require little time to administer and score. However, in order to wholly assess the learners, alternative assessment techniques such as the sociometric technique, rating scales, portfolios, observations, and the checklist, among others are used sometimes to supplement traditional assessment techniques. Assessment can be referred to as any technique; method; means; strategy; or tool a teacher uses in obtaining information and gather evidence about students' areas of their strengths and weaknesses in the stated behavioural objectives. The school curriculum, which is usually derived from the education policy of any nation, has well-stated goals, aims and

objectives. Assessment of the school curriculum design enables the stakeholders to the extent to which these goals, aims and objectives are being attained.

Stating instructional objectives prior to assessment implies that educational assessment goes beyond just one-shot examination that focuses on the cognitive domain of learners. For instance, Dowrich (2008) stated that tests, examinations, or assessment, were used synonymously, although, their role was made clear and consistent with the purposes of schooling that involved evaluating some segments, competencies and knowledge of the school curriculum as a way of grouping learners into strata. Professional practicing teachers are expected to be knowledgeable in the arts and skills of educational assessment based on the training received at the college. Consequently, teachers are expected to have been equipped with expected standards and purposes of assessment. One of the major activities of a teacher in the teaching-learning process is the assessment of learners' learning outcomes.

Educators sometimes argue that employing different assessment techniques in the classroom provide useful information on the level of attainment of instructional objectives. Assessing students' level of achievement of the stated objectives is pertinent in the teaching-learning process. This singular function of the teachers or educators of ascertaining the extent to which stated behavioural objectives are being achieved could be influenced by diversified variables. Such variables include teachers' factors – teacher's age, teaching experience, gender, qualification, content mastery, among others. Wang (2004) cited in Alkharusi (2008) who investigated the impact of gender on classroom assessment reported significant differences in teaching experience and teacher's gender with respect to teachers' use of alternative assessment techniques, although, the differences were not observed using traditional assessment techniques. Studies have further shown that most experienced teachers use alternative techniques in their assessment more often than the least experienced teachers. According to Alsarimi (2000) cited in Alkharusi (2008) teachers who use different assessment techniques such as the completion, the short answer, oral exams, extended answer, and multiple-choice item formats show that there were no significant differences on the basis of their gender and the number of years teachers have put in. However, Ndalichako (2015) reported a statistical significant difference in the teachers' perception of assessment by gender, arguing that female teachers had more favourable perceptions on assessment than male teachers.

Assessment is a key component of a school curriculum and instructional process. Maximizing students' learning outcome, according to Lukin, Bandalos, Echout, & Mickelson, (2004) requires the use of appropriate techniques in the classroom to assess the learners. The extent to which the various assessment techniques are utilized calls for scrutiny. Fan, Wang, & Wang (2011); Koh (2011); Quilter & Gallini (2000) argued that teachers do not have adequate knowledge and skill on assessment techniques required for effective assessment practices. More so that classroom assessment information serves as powerful instruments in making improvements in the education sector, the effectiveness assessment depends on teachers' attitudes, teachers' age, teaching experience, gender, qualification, content mastery, among others. Thus, there is a need to determine the effects of these variables on teachers' perception on educational assessment. This

study was carried out to investigate Biology teachers' perception on educational assessment practices. It also asserted the relationship among teachers' educational qualification, experience, age and nature of school on assessment practices. The study sought to:

i. Find out how teachers perceived classroom assessments.
ii. Identify the major techniques that teachers use in assessing students' learning outcomes in the classroom.
iii. Find out the relative contributions of teachers' gender, age and teaching experience to classroom assessment as perceived by biology teachers.

Research Questions

Three research questions raised in this study are:

1. How did the biology teachers perceive classroom assessment?
2. What are the major techniques that Biology teachers employ to assess students' learning outcomes?
3. What are the relative contributions of teachers' gender, age and teaching experience to classroom assessment as perceived by biology teachers?

Methodology

The researchers employed a survey design. Eighty-five Biology teachers were purposively sampled from the six Education Districts of Lagos State. Teachers whose schools have been presenting students in external examinations were selected from six Education Districts. The Teachers' Perceptions and Practices in Biology Questionnaire (TPBQ) was used in the data collection. TPBQ was developed by the researchers and was made up of two sections- sections A and B. Section A focused on the bio-data of the teachers, while Section B consisted of statements about teachers' perception on classroom assessment practices. Validation of the instrument was carried out by two experts in the Biology programme in Science and Technology Education Department of Lagos State University. The instrument was then pilot-tested on thirty biology teachers that were not used in the study. The reliability index of the instrument was .79, using Cronbach Alpha. The validated instrument after editing was administered to 85 teachers. The data collected were scored and analyzed with the use of mean, simple percentages and the Analysis of Variance (ANOVA).

Results

Research Question 1

How did the Biology teachers perceive classroom assessment?

Table 1: Perception of teachers on the concept of assessment

S/N	Assessment	Definition (%)
1.	Assessment is a means of obtaining information about learners' level of attainment of instructional objectives using different assessment	12 (14.1)

tools.	
2. Assessment is referred to as a means of obtaining data about learners in order to make decisions about learners.	23 (27.1)
3. Assessment is administering a test to students with a view of awarding marks and reporting such to students, parents and other stakeholders.	35 (41.2)
4. Assessment is a process teachers use in promoting students from one class to another.	8 (9.4)
5. Assessment refers to the evaluation a teacher carries out during and after the course of instruction.	7 (8.2)

Table 1 showed that majority (35; 41.2%) of the Biology teachers perceived assessment as administering a test to students with a view of awarding marks and reporting such to students, parents and other stakeholders. About 23 (27.1%) teachers defined classroom assessment as a means of obtaining data about learners in order to make decisions about learners. While only 12 (14.1%) teachers referred to classroom assessment as a means of obtaining information about learners' level of attainment of instructional objectives, using different assessment tools. Few teachers, 8 (9.4%) perceived classroom assessment as a process teachers use in promoting students from one class to another, while the rest of teachers 7 (8.2%) referred to classroom assessment as the evaluation a teacher carries out during and after the course of instruction. From findings of this study, it can be deduced that most of the practicing biology teachers perceived assessment as the administration of tests and consequently assign grades to students' performance, while only very few of them actually perceived assessment as the collection of information about students' achievement employing different techniques. This is an indication that biology teachers concentrate on the cognitive domain, at the expense of affective and psychomotor domains of the learners' development.

The holistic development of learners requires teachers collecting information on all the three domains. Teachers should not perceive assessment as a one-shot examination that focuses on the cognitive domain of students but rather employ the tenets of assessment which provide feedback to learners that will afford the teacher in the acquisition of diagnostic information, as well as provide summary information for record-keeping. Assessment should involve the pragmatic input of the teacher in determining the effects of the teaching-learning process on students' behaviour. It should cover all areas of school experiences a learner is exposed to.

However, results in this present study show that the assessment techniques employed by biology teachers were not comprehensive and guidance-oriented in nature. This finding contradicts Olomolaiye (1992) and Ndudi (2001) as cited in Idowu & Esere (2009), who emphasized the assessment of all learning experiences, not only in the cognitive domain but also in the affective and psychomotor domains. Idowu & Esere (2009) posit that a teacher can only obtain valid and reliable information about a learner, when the learner has been exposed to different learning tasks and the teacher employs various assessment devices to obtain the required information.

Research Question 2

What are the major techniques that Biology teachers employ to assess learners' learning outcomes?

Biology teachers were asked to state the techniques they employ for assessing students' level of attainment/achievement. The focus here was to determine whether biology teachers were using different forms of assessment techniques to gather information about their students' learning outcome. Table 2 shows the different types of assessment techniques that teachers use in the course of the accomplishing the instructional process.

Table 2: Assessment techniques employed by biology teachers

Item Description	Agree (%)	Disagree (%)
Multiple choice (objectives) tests	82 (96.4)	3 (3.6)
Observational instruments	69 (81.2)	16 (18.8)
Essay tests	81 (95.3)	4 (4.7)
Rating scales.	68 (80)	17 (20)
Sociometric instruments	50 (58.9)	35 (41.1)
Projects	78 (91.8)	7 (8.2)
Laboratory practical	80 (94.1)	5 (5.9)
Structured quizzes	64 (75.3)	21 (24.7)
Anecdotal records	53 (62.3)	32 (37.7)

Table 2 shows that multiple choice (objective) tests, essay tests, laboratory practical and projects were used most frequently by biology teachers for assessing their learners' achievement. However, the least frequently used instruments were anecdotal and sociometric. Multiple choice (objective) and essay tests being the most frequently used assessment techniques is not a unique case for Biology teachers in this study. These tests probe into the cognitive domains of the students' achievement. This is an indication that most teachers concentrate majorly on cognitive development of the students. The use of sociometric, anecdotal and observational techniques in the assessment practices of teachers will enable them to identify the areas of strengths and weaknesses in learners' behaviour with the view of developing, improving and modifying right behaviour and skills.

The findings of this study is in consonant with Beckmann, Senk and Thompson (1997) as cited in Kitta (2014) who investigated the assessment and grading practices of nineteen (19) high school mathematics teachers, found out that the teachers used tests and quizzes most frequently as their assessment tools. The findings of this present study also agree with those of Morgan and

Watson (2002) reported that most middle and high school teachers use teacher-made tests to assess learners' level of achievement. Achieving holistic development of the students requires teachers adopting diversified techniques in the assessment of their students learning outcomes.

Research Question 3

What are the relative contributions of the teachers' gender, age and teaching experience to assessment as perceived by the biology teachers?

Table 3 showing ANOVA result of the relative contributions of biology teacher's gender, experience and age to assessment

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.652	3	.551	1.855	.144(a)
	Residual	24.042	81	.297		
	Total	25.694	84			

Table 4: Showing the unstandardized and standardized regression coefficients for the teachers' age, gender and teaching experience

Variable	B	SE B	β	Sig.
Age of teachers	.015	.008	.241	.048
Gender of teachers	.139	.121	.126	.252
Teaching experience	-.001	.010	-.011	.927

Table 3 shows a non-significant model: $F(3,81) = 1.855$, $p = .144$. The model explains 3% of the variance (Adjusted $R^2 = .030$). Table 3 shows that age of biology teachers, gender of teachers and teaching experience were not significant predictors of Biology teachers' assessment practices. This implies that age, gender of teachers and teaching experience does not jointly predict Biology teachers' assessment practices. However, table 4 shows that age of teachers had a significant effect on assessment practices. As teachers grow older in age in the teaching profession, there is a corresponding increase in their experience; which could have led to the statistical significant value in their assessment practices. Although, gender and teaching experience had no significant effect on assessment practices. However, this finding disagrees with Alkharusi's (2011c) who in his report stressed gender differences in the self-perceived assessment skills in favour of female teachers. In this study, teaching experience, age and gender of teachers did not jointly predict biology teachers' assessment practices.

Conclusion

The main thrust of this study was to determine the level of biology teachers' perceptions about classroom assessment practices in Lagos State. It was revealed that most of the practicing biology teachers perceived assessment as the administration of tests and consequently assign grades to students' performance, while only very few of them actually perceived assessment as the collection of information about students' achievement employing different techniques. Furthermore, most of the biology teachers use assessment techniques that probe into the cognitive domain. However, some of them utilize different methods that delve into all the three domains to assess their students. There is need for Biology teachers to explore all the assessment techniques that will afford them the necessary knowledge and skills to wholly assess their learners.

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