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TEACHERS' DISPOSITION TOWARDS THE USE OF ALTERNATIVE ASSESSMENT IN ASSESSING SCIENCE STUDENTS IN SENIOR SECONDARY SCHOOLS IN LAGOS STATE, NIGERIA

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Abstract

The study examined teachers' disposition towards utilization of alternative assessment in assessing science students in senior secondary schools, determined the effect of utilization of alternative assessment and investigated the influence of teachers' sex and cadre on their disposition towards utilization of alternative assessment in assessing science students in senior secondary schools. Two research questions and three hypotheses were raised for the study. The research design adopted was survey research design. The population comprised of 533 science teachers in public senior secondary schools in Ikorodu Local Government Area, Lagos State, Nigeria. A sample of 230 science teachers were selected by stratified random sampling technique. An instrument tittled "Teachers Response to Utilization of Alternative Assessment" (TRUAA) was used to collect the data. The questionnaire elicited demographic information of participants as well as their disposition towards utilization of alternative assessment. The reliability coefficient of the questionnaire was determined using Cronbach Alpha and the coefficient was 0.82. Data collected were analysed using mean, standard deviation and Chi- Square. Results showed that most teachers were positively disposed to utilization of alternative assessment (mean value= 3.05). The results further showed that teachers' sex (X^2=.846, p>0.05), and cadre (X^2=.058, p>0.05) had no significant influence on their disposition towards utilization of alternative assessment. Based on the findings of the study, it was recommended among others that, the Ministry of Education needs to understand that raising academic standards require effective teaching techniques, therefore, all secondary school teachers must be mandated to incorporate alternative assessments in their evaluation practices and frequently utilize same for science students.

Keywords: Assessment; alternative assessment; disposition; science teachers and science students.

Introduction

Assessment is a cornerstone of the educational process, providing crucial information about student learning, guiding instructional decisions, and offering feedback to both students and educators. In education, the term assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students (Abimbola, 2016). Assessment is a critical step in the learning process. It determines whether or not the topic's learning objectives have been met. A learning objective is what students should know or be able to do by the time a lesson is completed. Assessment affects many facets of education, including student grades, placement and advancement as well as curriculum, instructional needs and school funding. People within the educational community which include policy makers, educators, students, parents, administrators have different ideas regarding the implementation of assessment strategies. While some believe traditional assessment methods are more effective, others think that Alternative assessment tools are superior (Lustgarten, 2022). Traditionally, assessments in education have been predominantly summative, relying on standardized testing methods such as multiple-choice tests, essays, and short-answer questions. These traditional assessments often emphasize rote memorization and the recall of factual knowledge. However, they may not adequately capture the diverse skills and competencies that students develop, particularly in the field of science education (Mekhri, 2021).

Alternative assessments, which include methods such as portfolios, performance tasks, peer assessments, self-assessments, and project-based assessments, offer a more comprehensive approach to evaluating student learning. These methods aim to assess not only what students know but also how they can apply their knowledge in practical, real-world situations, thereby promoting critical

thinking, creativity, and problem-solving skills (Marissa, 2018). In science education, where experimentation, observation, and application of theoretical knowledge are integral, alternative assessments can provide a more accurate measure of student understanding and abilities (National Research Council, 2019). The implementation of alternative assessments in science education is heavily dependent on the attitudes, knowledge, and practices of science teachers. Teachers' willingness and ability to incorporate these assessment methods are influenced by several factors, including their familiarity with alternative assessment techniques, their professional development experiences, the availability of resources, and institutional support (Adaramola, & Obomanu, 2017). Understanding these factors is essential for improving the adoption and effectiveness of alternative assessments in the classroom.

In Nigeria, the consistent unsatisfactory performance of senior secondary school students in science subjects at the end of the term leaves one in doubt about the effectiveness of the assessment method popularly used by science teachers for assessing the science subjects (Adaramola, & Obomanu, 2017). Most secondary school teachers adopt the use of traditional method which does not focus on evaluation process of learning more but rather on the product. Many teachers become frustrated when students cannot pass a test that the class has been preparing to take for many weeks. There is the need to find out the effectiveness of other assessment methods, relative to the traditional method especially alternative assessment which is all inclusive. Previous research has highlighted the benefits of alternative assessments in promoting deeper understanding and skill development among students. For instance, studies have shown that alternative assessments can lead to improved student engagement and motivation, better retention of knowledge, and the development of higher-order thinking skills (Marissa, 2018). However, the

successful implementation of these assessments requires a supportive environment and adequate training for teachers.

Hence this study examined teachers' disposition towards the use of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area of Lagos State. By addressing these issues, the research seeks to contribute to the enhancement of assessment practices in science education, ultimately leading to improved student outcomes and better preparation for the challenges of the 21st century. The specific objectives of the study were to:

1. Examine science teachers' disposition to use of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area, Lagos State;
2. Determine the effect of use of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area, Lagos State; and
3. Investigate the influence of teachers' sex, and cadre on their disposition towards the use of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area.

Research Questions

The following questions were answered in the course of the study:

1. What is the disposition of teachers towards the use of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area?
2. What is the effect of use of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area?

Research Hypotheses

The following hypotheses were raised to guide the study:

1. There is no significant influence of teachers' sex on their disposition towards the use of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area.
2. There is no significant influence of teachers' cadre on their disposition towards the use of alternative in assessing science students in senior secondary schools in Ikorodu Local Government Area.

Methodology

The study adopted survey research design. The design involves the process of gathering information from a representative sample of a chosen population. The collected data is then analysed, and the result is used to generalize for the entire population. In this study, data were collected from a sample of science teachers in senior secondary schools in Ikorodu Local Government Area using an instrument titled "Teachers' Response to Utilization of Alternative Assessment" (TRUAA). The TRUAA elicit information on the feelings and reactions of teachers to their disposition towards the use of alternative assessment in assessing science students in senior secondary schools.

The population of the study comprised of 533 science teachers in senior secondary schools in Ikorodu Local Government Area, Lagos State. The study covered thirteen senior secondary schools in Ikorodu Local Government Area. Purposive sampling technique was adopted in selecting the thirteen senior secondary schools from thirty- two senior secondary schools in Ikorodu Local Government area. A sample of 230 science teachers were selected from all the thirteen senior secondary schools at 43% of the population using stratified random sampling technique, using teachers' sex, and cadre as strata.

The major instrument employed in data collection for this study was a well-structured questionnaire developed by the researcher. The questionnaire was titled

"Teachers' Response to Utilization of Alternative Assessment" (**TRUAA**), it comprised of two parts: Section A was structured to elicit teachers' responses to their sex, cadre, discipline and academic qualification, while section B comprised of 25 items measured teachers' disposition towards the use of alternative assessment in assessing science students. The response format was Likert-type, with four response modes of 'Strongly Agree', 'Agree', 'Disagree' and 'Strongly Disagree'. The item had a score of 1, 2, 3, and 4, for Strongly Disagree, Disagree, Agree and Strongly Agree respectively. The instrument was subjected to internal consistency reliability, which yielded a Cronbach Alpha reliability of 0.82. The pilot sample consisted of teachers in Oreyo Grammar School, Igbogbo, Ikorodu. Lagos State., who were not part of the study.

Data was collected by administering the structured questionnaires personally to the science teachers with the help of the Heads of Departments in each institution who facilitated the completion and return of the questionnaires by the teachers. Descriptive statistics which involve the use of tables, simple percentages, mean, standard deviation was used to present and analyse data according to the research questions while inferential statistics used for testing the hypotheses was Chi-Square χ^2at 0.05 level of significance.

Results

Research Question 1: What is the disposition of teachers towards the use of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area?

To answer this question, teachers' disposition towards the use of alternative assessment in assessing secondary school students was measured using a 4-point Likert-scale. Teachers were requested to indicate their agreement or otherwise to the

items on alternative assessment. The frequency, percentage, means and standard deviations of their responses are presented in Table 1.

Table 1: Teachers' disposition towards the use of alternative assessment in assessing science students

S/N	Items	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Std. Deviation
1	Alternative assessment plays an important role in teaching	3(1.4%)	6(2.8%)	141(66.2%)	63(29.6%)	3.24	.570
2	Alternative assessment helps the teacher to assess the students' performance in the science subjects	2(0.9%)	6(2.8%)	147(69.0%)	58(27.2%)	3.23	.537
3	Alternative assessment enhances students learning motivation	1(0.5%)	10(4.7%)	143(67.1%)	59(27.7%)	3.22	.544
4	Alternative assessment helps parents to be informed about their children's progress	6(2.8%)	11(5.2%)	130(61.0%)	66(31.0%)	3.20	.660
5	Alternative assessment helps students to develop practical skills in science subjects	1(0.5%)	19(8.9%)	131(61.5%)	62(29.1%)	3.19	.603
6	Formative assessment is more important than summative assessment	2(0.9%)	31(14.6%)	117(54.9%)	63(29.6%)	3.13	.681
7	It is better to assess students' performance daily during class	3(1.4%)	32(15.0%)	129(60.6%)	49(23.0%)	3.05	.660
8	It is better to assess students at mid-term or at the end of the session	2(0.9%)	30(14.1%)	138(64.8%)	43(20.2%)	3.04	.617
9	Alternative assessment is more important than written tests	17(8.0%)	63(29.6%)	96(45.1%)	37(17.4%)	2.72	.844
10	It is difficult to grade students with alternative assessment	30(14.1%)	72(33.8%)	86(40.4%)	25(11.7%)	2.50	.878
	Grand Average Mean and Standard Deviation					3.05	.284

Source: Field Work (Adeyemi-John & Olagunju, 2024)

Table 1: shows the frequency, percentage, means and standard deviations of the items. It revealed that the means of the responses ranged from 2.50 to 3.24, while the standard deviation of teachers' responses ranged from .537 to .878. Using mean rating, teachers highly agreed that alternative assessment plays an important role in teaching (3.24), followed by Alternative assessment helps the teacher to assess the students' performance in the science subjects (3.23) and alternative assessment enhances students learning motivation (3.22). Also, their perception on a statement that alternative assessment helps parents to be informed about their children's progress was favorably high (3.20), alternative assessment helps students to develop practical skills in science subjects (3.19), to formative assessment is more important than summative assessment (3.13) and it is better to assess students' performance daily during class (3.05). On the other hand, their perception on the items it is better to assess students at mid-term or at the end of the session (3.04), alternative assessment is more important than written tests (2.72) and it is difficult to grade students with alternative assessment (3.50) were rated least among items. In general, overall mean (3.05) of teachers' disposition shows that teachers had a positive disposition towards utilization of alternative assessment in assessing science students in senior secondary schools.

Research Question 2: What is the effect of utilization of alternative assessment in assessing students in senior secondary schools in Ikorodu local government area?

To answer this question, the effects of utilization of alternative assessment in assessing secondary school students were measured using a 4-point Likert-scale. Teachers were requested to indicate their agreement or otherwise to the items on effect of the use alternative assessment. The frequency, percentage, means and standard deviations of their responses are presented in Table 2.

Table 2: Effect of the use of Alternative Assessment in Assessing Science Students

S/N	Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Std. Deviation
1	Alternative assessment assists teachers to identify students' talents and hidden potentials	1(0.5%)	4(1.9%)	136(63.8%)	72(33.8%)	3.31	.530
2	Alternative assessment makes learning interesting to students because it is a shift from statutory traditional assessment	-	5(2.3%)	148(69.5%)	60(28.2%)	3.26	.490
3	Alternative assessment helps students to improve their psychomotor skills, higher thinking order skills and problem solving skills	-	9(4.2%)	143(67.1%)	61(28.6%)	3.24	.520
4	Alternative assessment helps teachers to discover students' difficulties in learning	4(1.9%)	10(4.7%)	142(66.7%)	57(26.8%)	3.18	.598
5	Teachers perceive alternative assessment as interesting teaching skills because it brings varieties to teachers	-	9(4.2%)	157(73.7%)	47(22.1%)	3.18	.482
	Grand Average Mean and Standard Deviation					3.23	.369

Source: Field Work (Adeyemi-John & Olagunju, 2024)

Table 2 shows the frequency, percentage and means and standard deviation of the items, it revealed that the means of the responses ranged from 3.18 to 3.31, while the standard deviation of the teachers responses ranged from .482 to .598. Using mean rating, a large proportion of teachers agreed that alternative assessment assists teachers to identify students' talents and hidden potentials (3.31), followed by alternative assessment makes learning interesting to students because it is a shift from statutory traditional assessment (3.26), followed by alternative assessment helps students to improve their psychomotor skills, higher thinking order skills and problem solving skills (3.24) to alternative assessment helps teachers to discover students' difficulties in learning (3.18) and lastly, to teachers perceive alternative assessment as interesting teaching skills because it brings varieties to teachers (3.18). In general, overall mean (3.23) of the effect of utilization of alternative assessment

in assessing science students shows that the use of alternative assessment had positive effect on teachers' assessment of science students in secondary schools.

Testing the Hypotheses

Hypothesis 1: There is no significant influence of teachers' sex on their disposition towards the use of alternative assessment in assessing science students in senior secondary schools in Ikorodu local government area.

Table 2: Influence of teachers' sex on utilization of alternative assessment in assessing science students

Gender	Teachers' Disposition towards the use of Alternative Assessment in Assessing Students			**χ2**	**Df**	**P**
	Positive	**Negative**	**Total**			
Male	70(77.8%)	20(22.2%)	90(100%)			
				.846	1	>.05
Female	97(78.9%)	26(21.1%)	123(100%)			
Total	167(78.9)	46(21.1)	213(100%)			

Note:* p >.05 Source: Field Work (Adeyemi-John & Olagunju , 2024)

The result of the chi-square in table 2 shows the analysis of the relationship between teachers' perception on the utilization of alternative assessment and their sex. The result revealed that 77.8% and 78.9% of male and female teachers respectively had positive disposition towards the utilization of alternative assessment in assessing science students. The chi-square value of $\chi 2 = .846$ is greater than the alpha value of 0.05, therefore the null hypothesis 1 is retained. This indicates that teachers' sex has no significant influence on their disposition towards utilization of alternative assessment in assessing science students in senior secondary schools. ($\chi 2 = .846$, df=1, p>.05)

Hypothesis 2: There is no significant influence of teachers' cadre on their disposition towards the use of alternative in assessing science students in senior secondary schools in Ikorodu local government area.

Table 3: Influence of teachers' cadre on utilization of alternative assessment in assessing science students

Cadre	Teachers' Perception of the use of Alternative Assessment in Assessing Students			χ2	Df	P
	Positive	Negative	Total			
Education Officer II	26(92.9%)	2(7.1%)	28(100%)			
Education Officer I	20(76.9%)	6(23.1%)	26(100%)			
Senior Education Officer	26(72.2%)	10(27.8%)	36(100%)			
Principal Education Officer	15(78.9%)	4(21.1%)	19(100%)			
				.058	7	>.05
Assistant Chief Education Officer	30(81.1%)	7(18.9%)	37(100%)			
Chief Education Officer	27(90.0%)	3(10.0%)	30(100%)			
Assistant Director	8(72.7%)	3(27.3%)	11(100%)			
Director	15(57.7%)	11(42.3%)	26(100%)			
Total	167(78.4%)	46(21.6%)	213(100%)			

Note:* p>.05 Source: Field Work (Adeyemi-John & Olagunju , 2024)

Table 3 shows that more than 50% of teachers in each education cadre favoured the use of alternative assessment in assessing science students. In the junior cadres, 92.9% and 76.9% of Education Officer II and Education Officer I respectively were positively disposed to the use of alternative assessment in assessing science students. Among the senior cadre, 72.2% and 78.9% of Senior Education Officer and Principal Education Officer respectively were positively disposed to the use of alternative assessment. The table further shows that 81.1%

and 90.0% of Assistant Chief Education Officer and Chief Education Officer respectively were positively disposed to the use of alternative assessment in assessing science students. In the Director cadre, 72.7% and 57.7% of Assistant Director and Director were positively disposed to the use of alternative assessment in assessing science students. The chi-square value of $\chi 2 = .058$ is greater than the alpha value of 0.05, therefore the null hypothesis 2 is retained. This indicates that teachers' cadre has no significant influence on their disposition towards utilization of alternative assessment in assessing science students in senior secondary schools. ($\chi 2 = .058$, df=7, $p > .05$)

Discussion

It was revealed from the study that science teachers were positively disposed to utilization of alternative assessment in assessing science students in secondary schools. This finding disagreed with that of (Pietro, 2023) who investigated teacher perceptions on alternative evaluations using different criteria of performance. The study surveyed comprised of 401 instructors in three states to learn more about the viewpoints of teachers on a variety of subjects. The majority of teachers, according to the report, had negative perceptions on alternative assessment.

The finding also showed that the use of alternative assessment had positive effect on teachers' assessment of science students in secondary schools. This finding is in agreement with Loana and Luminita (2017) who researched on the effect of alternative assessment in the educational process- Science teachers' perspective. The study found out that science teacher considered alternative assessment as the best methods in assessing students.

It was found from the study that teachers' sex had no significant influence on their perception of utilization of alternative assessment in assessing science students. This finding is in agreement with (Hassan et al., 2018) who looked at the effects of

alternative assessments on EAP Teachers' assessment literacy in relation to knowledge, gender, teaching experience, and academic degree. The findings indicated that there was no discernible difference in assessment literacy between EAP teachers who were male and female. Lastly, it was found from the study that teachers' cadre had no significant influence on their disposition towards utilization of alternative assessment in assessing science students. This finding is in disagreement with (Zi et al., 2022] which research on teacher personal and environmental characteristics was conducted to predict instructors' formative assessment practices. Teachers' rank have a considerable impact on their formative assessment methods, according to the results of a multivariate outcome, multilevel analysis.

Conclusion

The study concludes that all science teachers had a positive disposition towards utilization of alternative assessment in assessing science students in senior secondary schools. The study also revealed that the use of alternative assessment had positive effect on teachers' assessment of science students in secondary schools. It was also revealed further that teachers personal variable such as: sex and cadre had no significant influence on teachers' disposition towards the utilization of alternative assessment in assessing science students in senior secondary schools. Finally, it can be concluded from the study that, science teachers of all categories were positively disposed to utilization of alternative assessment in assessing science students in senior secondary schools in Ikorodu Local Government Area, Lagos State.

Recommendation

From the result of the study, it can therefore be recommended that:

a) All secondary school teachers must be mandated to incorporate alternative assessment in their evaluation practices and frequently utilize same for science students.

b) Students should be made to understand that with the expanded concept of learning, it is increasingly important to remember that paper-and-pencil testing is only one way to collect information about student learning. Therefore, a broader concept of alternative assessment is more appropriate and students should be duly carried along by their teachers in the implementation

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