



INFLUENCE OF TEACHERS' VARIABLES ON THE APPLICATION OF TESTING SKILLS IN SECONDARY SCHOOLS IN ABIA STATE, NIGERIA

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ABSTRACT

The study investigated the influence of teachers' variables on the application of testing skills in secondary schools in Abia state. A survey design was adopted for the study. The sample of this study consisted of 500 secondary school teachers randomly drawn from the study population using the stratified sampling technique. The data collection instrument (questionnaire) was designed by the researchers, then validated by two experts in educational measurement and evaluation. The reliability coefficients of the instrument determined using the test-retest method, ranged from 0.71 to 0.89. The research questions were answered using descriptive statistics (mean), while the hypotheses were tested using one-way analysis of variance (ANOVA) at .05 level of significance. The results of the analyses revealed that teachers' teaching experience influenced their application of the components of testing skills. Again, that secondary school teachers' qualifications also influenced their application of item construction and test score interpretation components of testing skills; while their qualifications did not have any influence on their test planning, test administration, test scoring and test item analysis components of testing skills. From the conclusion that, teachers' experience and qualifications directly influenced their application of testing skills and test construction. Various recommendations were made, among which are that: teachers should be trained and retrained from time to time. Also, well experienced teachers should oversee test construction and the testing of students in the various departments or subject areas, in our various secondary schools.

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KEYWORDS: Teachers' variables, application, testing skills, teaching experience and teachers' qualifications.

INTRODUCTION

In the teaching and learning process, tests are an indispensable tool which its importance cannot be over emphasized.

Test in an academic program, is an instrument which can be utilized in measuring what a person knows or can do after being instructed in the subject matter.

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(<https://www.test>). In educational practice, tests are "methods used to determine the students' ability to complete certain tasks or demonstrate mastery of a skill or knowledge of content" (<https://files.eric.ed.gov>). Test, despite being an instrument, is also taken as standard procedures systematically used in measuring samples of behaviors by making use of set of questions (Linn, 2008).

Years ago, Tritschler, Darrow and McGill, (2000) opined that, a test is administering a given tool or undertaking a procedure to solicit students' responses as information which provides the basis to judgment or evaluation regarding some characteristics, such as skills, knowledge and values. Different types of tests are used by the teacher to ascertain the degree of achievement of educational objective by the students. Testing therefore, implies preparing and presenting some questions/tasks to some individuals to generate information regarding their achievement of set objectives or goals. Testing is a process that needs to be taken seriously in our educational system generally, and in our secondary schools in particular because test scores are used for guidance, administration, instructional and research purposes (Onunkwo, 2005; Adom, Mensah & Dake, 2020).

Teachers in our school systems are solely responsible for testing their students in teacher-made tests and their involvement in such tasks is the reason for this study. Evidence has shown that teachers award fictitious marks to learners on tests they did not conduct, Azikiwe in Onyendi (2012). Also, the researchers have observed that, most teachers set tests and examinations that lack both validity and reliability (Joshua, Ikiroma & Nwogwugwu, 2015) and which may not expose the learners to critical thinking through the following ways.

- setting easy tests for their students to obtain high marks to retain their jobs and
- mostly relying on one type of test, particularly on objective tests for easy marking and scoring.

The researchers opined that, probably there are teachers' variables that may be responsible for the way they apply the testing skills needed in executing test development (Ovat & Ofem, 2017).

Teachers' variables as defined by Ingersoll (2006), is "a measure of teachers' qualification, teaching practices, teachers' certification, teachers' experience and teaching preparation". According to Ezewu (2007), there are various attributes of teachers that has an influence in the way and manner in which they apply the various testing skills such as academic capabilities, sex, age, marital status, attitude to teaching, years of teaching experience, area of specialization, qualifications and intellectual competence.

Available literature has revealed that testing skills among teachers are not encouraging (Hamman-Tukur & Hamafyelto, 2015; Kazuko, 2010; Quansah, Amoako & Ankomah, 2018). This implies that teachers may end up taking inaccurate information about learners.

For instance, Ubi & Ibe (2020), assessed the application of testing skills among secondary schools' teachers in Calabar Educational Zone in Cross River State; and found out that, the teachers do not adequately apply testing skills when administering tests or examinations. Other studies by Ololube 2008; Ovat et al., 2017; Onyechere, 2000; also found out poor test construction skills among professional and non-professional teachers.

Scholars have also studied the influence of some of the teachers' variables in the application of testing skills among secondary school teachers. For instance, Offor (2008) investigated the influence of some teachers' attributes/characteristics on the application of testing skills among secondary teachers in Bayelsa State. His findings revealed that Bayelsa teachers' teaching experience, area of specialization and qualification influenced their application of testing skills while gender do not. Again, Basse, Ovat & Ofem (2019), studying systematic error in measurement in the Nigerian educational system. They suggested that only teachers with appropriate skills should be involved in test construction, to objectively produce reliable and valid test results.

Earlier, Noah (2004) carried out a study among secondary school teachers in Northern Cross River State and found no influence of teaching experience in their application of testing skills. None of these studies was carried out in Abia State, hence the need for this study.

Statement of the problem

This study sought to determine the influence of teachers' variables on their application of testing skills in secondary schools in Abia State. The outcome of this study will reveal the attributes of the teachers that would enhance their application of testing skills, and these may be used as additional criterion in employing teachers in our secondary schools. Also, examination committees in schools comprising of those teachers who have proficiency in testing, could be set based on the findings of this study.

Consequently, the following research questions and hypotheses guided this investigation.

Research questions

1. To what extent does teaching experience influence the application of testing skills among secondary school teachers in Abia State.
2. To what extent does teachers' qualification influence the application of testing skills among secondary school teachers in Abia State.

Research hypotheses

1. There is no significant influence of teaching experience on their application of testing skills among secondary school teachers in Abia State.
2. There is no significant influence of teachers' qualification on their application of testing skills among secondary school teachers in Abia State.

METHOD

A survey design was adopted for the study. The population comprised all the teachers in the state-owned secondary schools in the three educational zones. There are 184 senior secondary schools with 3,060 teachers (ABSEMB, 2024). The sample consisted of 500 teachers randomly drawn by using stratified sampling technique.

The instrument for this study was designed by the researchers. It is comprised of seven parts. Part A contained the biographic data of the respondents while parts B, C, D, E, F, G each contained 10 items each meant to elicit information from the teachers on the application of testing skills. A 5-point rating scale of always (5), very often (4), sometimes (3), rarely (2) and never (1) was provided to assist the respondents in making their responses. Two experts in Educational Measurement and Evaluation from the University of Calabar, validated the instrument. Their comments were accommodated in the final draft. The reliability of the instrument was determined using the test-retest method. The following stability coefficients were obtained for the various skills in the instrument: test planning 0.71, item construction 0.82, test administration 0.85, item scoring 0.89, test score interpretation 0.89, item analysis 0.75 and entire instrument 0.79, indicating that the instrument was reliable. Research questions were answered using the mean while hypotheses were tested using one way analysis of variance (ANOVA) at 0.05 level of significance.

Results:

Research question 1:

Does teaching experience influence the application of testing skills among secondary school teachers in Abia State?

Table 1: Mean scores for the various years of teaching experience on the application of the components of testing skills among teachers

Years of experience	NO	A		B		C		D		E		F	
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
1-10years	223	40.1	5.26	39.6	5.56	40.1	5.88	38.1	5.28	38.1	6.98	38.8	7.79
11-20years	150	41.1	5.99	40.4	6.44	40.3	6.31	39.9	4.75	39.3	6.94	40.1	8.23
21 years and above	127	41.9	5.91	41.6	6.45	41.2	6.08	39.6	5.44	39.3	8.28	39.2	8.60

A-Test planning, B-item construction, C-test administration, D-item scoring, E-test score interpretation, F-test item analysis.

From table 1, the mean scores of the application of testing skills of teachers with 21 years and above were the highest, followed by those with 11-

20 years and the least were the teachers with 1-10 years of experience in all the testing skills components. Therefore, the teachers' teaching experiences influenced their application of testing skills.

Hypothesis 1:

There is no significant influence of teachers' teaching experience on their application of testing skills.

Table 2: One-way ANOVA of the influence of teaching experience on the application of the testing skills

		Sum of squares	df	Mean Square	F	Sig,
TEPT	Between Groups	282.351	2	141.175	4.413	.013
	Within Groups	15898.167	497	31.988		
	Total	16180.518	499			
ITCOT	Between Groups	354.004	2	177.002	4.815	.008
	Within Groups	18269.154	497	36.759		
	Total	18623.158	499			
TEADT	Between Groups	93.746	2	146.873	4.275	.010
	Within Groups	18273.206	497	36.767		
	Total	18366.952	499			
ITSCT	Between Groups	195.231	2	97.615	3.658	.026
	Within Groups	13263.569	497	26.687		
	Total	13458.800	499			
TESIT	Between Groups	183.029	2	131.514	4.708	006
	Within Groups	26635.126	497	33.592		
	Total	26818.152	499			
TEIAT	Between Groups	200.180	2	95.090	3.510	.022
	Within Groups	32937.570	497	26.273		
	Total	33137.750	499			

TEPT- Test planning, ITCOT – Item construction, TEADT – Test administration, ITSCT – Item scoring, TESIT – Test score interpretation, TEIAT – Test item analysis

From table 2, the one-way analysis of variance of the influence of the teachers' teaching experience on the application of all the components of testing skills revealed to be significant as they were all

<.05. The hypothesis is rejected, therefore there is a significant influence of teaching experience of the teachers on the components of their testing skills.

Research question 3:

Do teachers' qualifications influence their application of testing skills among secondary school teachers in Abia State?

Table 3: Mean scores for the various qualifications of teachers, on the application of the components of testing skills

Qualification	NO	A		B		C		D		E		F	
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
NCE	100	40.8	5.85	39.26	4.44	39.9	6.14	38.6	5.49	38.77	7.33	38.9	7.91
HND/B.Sc./B.A/B.Ed.	370	40.9	5.57	40.95	6.88	40.7	6.08	38.9	5.17	39.1	7.29	39.5	8.39
PGDE/MA/M.Ed. and above	30	39.9	6.70	36.7	6.17	38.2	5.26	37.1	4.25	34.6	6.84	37.0	5.20

A-Testing planning, B-Item construction C-Test administration, D- Item scoring, E-Test score interpretation, F-Test item analysis

Table 3 revealed that, the mean scores of the application of the components of testing skills of teachers with HND/B.Sc./B.A/B.Ed. were the highest followed by teachers with NCE and the least were teachers with PGDE/M.A/M.Ed. and

above. This shows that teachers' qualifications do influence their application of the components of testing skills.

Hypothesis 2:

There is no significant influence of teachers' qualifications on their application of the components of testing skills.

Table 4: One-way ANOVA of the influence of the qualifications of teachers on the application of the components of testing skills

		Sum of squares	df	Mean square	F	Sig.
				Square		
TEPT	Between Groups	30.538	2	15.269	.470	.625
	Within Groups	16149.980	497	32.495		
	Total	16180.516	499			
ITCOT	Between Groups	652.929	2	326.464	9.029	.000
	Within Groups	17970.229	497	36.157		
	Total	18623.158	499			
TEADT	Between Groups	207.951	2	103.976	2.856	.059
	Within Groups	18159.001	497	36.537		
	Total	18366.952	499			
ITSCT	Between Groups	91.914	2	45.957	1.709	.182
	Within Groups	13366.886	497	26.895		
	Total	13458.800	499			
TESIT	Between Groups	556.569	2	278.284	5.267	.005
	Within Groups	26261.583	497	52.840		
	Total	26818.152	499			
TEIAT	Between Groups	200.180	2	90.090	1.510	.222
	Within Groups	32937.570	497	26.273		
	Total	33137.750	499			

TEPT- Test planning, ITCOT – Item construction, TEADT – Test administration, ITSCT – Item scoring, TESIT – Test score interpretation, TEIAT – Test item analysis

Table 4 revealed a significant influence of the qualification of teachers on the application of the following components of testing skills: item construction and test score interpretation was significant ($<.05$), thus the hypothesis is rejected; while test planning, test administration, item scoring and test item analysis were not significant ($>.05$), the hypothesis is accepted.

DISCUSSION

The adage rightly goes that, "experience is the best teacher". This is evident in the mean scores on table 1, which shows that in almost all the components of testing skills, teachers with 21 years and above teaching experience had highest mean score followed by those with 11-10 years and then, those with 1-10 years of experience. When the collected data were subjected to statistical testing, it revealed that the teachers teaching experience influenced their application of the components of testing skills. This may be because people learn from experience, so the more the teachers practiced the act of testing over the years, their skills improved with time. This finding agrees with Offor (2008) who found out that teaching experience influenced the application of testing skills among secondary schoolteachers in Bayelsa State. Conversely, this finding disagrees with Noah (2004), who found out that teaching experience did not influence the application of testing skills practices of teachers in Northern Cross River State. Contradictions in this study may be because of differences in the location and sample sizes used in the study.

Also, the result from table 3, the results showed that, in all the testing skills, teachers with HND/B.Sc./B. A/B.Ed. had the highest mean scores, followed by those with NCE and then, those with PGDE/M.A/M.Ed. and above. This implies that professional teachers master most of these skills better in actual practice. When the data was subjected to statistical testing, it revealed that teachers' qualifications had influence on their application of item construction and test score interpretation components of testing skills; while it did not have any influence on their test planning, test administration, item scoring and test item analysis components. This finding agrees with the findings of Ubi & Ibe, (2020) and Quansah, Amoako & Ankomah (2018) who found out that, teachers in secondary schools do not adequately apply testing skills when administering

tests or examinations because they have limited skills in test construction. This finding is clearly not in agreement with the finding of Ekpoudom (2014), who found out that testing skills application by secondary school teachers in Ikot Ekpene Education Zone of Akwa Ibom State was high.

CONCLUSION AND RECOMMENDATIONS

From the findings of this study, it can be concluded that secondary school teachers' experience and qualifications could influence their application of the components of testing skills and test construction. It is therefore recommended that:

- 1) Teachers should be given refreshers' courses from time to time, to enable them be acquainted with testing skills.
- 2) Teachers who are well experienced should be in charge of testing students by overseeing how this is done in their various departments.
- 3) Teachers who are less qualified should be trained and retrained; and possibly be encouraged to further their education.
- 4) Teaching should be professionalized to avoid it being an all-comer's affair.

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