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Teachers' Level of Awareness, Academic Qualification and Application of Test Blue-Prints in Learners' Assessment in Secondary Schools in Cross River State, Nigeria

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Abstract
This study investigated the influence of teachers' level of awareness, academic qualification and application of test blue-print in learners' assessment in secondary schools in Cross River State. The study adopted a survey research design. Three null hypotheses guided the study. Stratified random sampling technique was adopted in selecting 400 teachers for the study. The data were collected through a validated questionnaire with a reliability co-efficient of 0.89 that was established using the Cronbach alpha method. Data were statistically analysed using population t-test and one-way ANOVA at .05 level of significance. The result showed that application of test blue-print among secondary school teachers in Cross River State was significant. There was no significant influence of years of experience on teachers' application of test blue-print as F = 1.885, P>.05. The other three variables, teachers academic qualification, level of awareness and extent of application of test blue-print were found statistically significant with F=9.420, P>.05 p<.05, and t=147.72, p<.05 respectively. It was recommended that teachers should be trained on the use of test blue-print through regular workshops and placement of emphasis during their professional training in colleges and universities to ensure that their instruments are valid measures of the learners' ability.

Keywords: Learners assessment, test blue-print, utilization, teachers' variables, teachers' gender, years of experience, academic qualification.

Introduction
Measurement of knowledge of the learner has become an important aspect of the teaching and learning process in our educational system. Although many scholars have argued intelligently that examination is not a true test of learners' ability but the teacher in the classroom setting has better alternative to testing in assessing learning outcome. Where tests are not utilized, Oyinka (2007) noted that it leaves the

teachers in a difficult situation of ascertaining the extent to which instructional objectives have been achieved, the appropriateness of a chosen methodology, and teachers' general competencies in delivery of lesson. Test therefore becomes an indispensable tool in the hand of the teachers. Denga (2003) noted that like a measuring rule in the hands of the carpenter, tape in the hands of the tailor, clinical thermometer for the medical doctor, compass for a surveyor, so is the test in the hands of the teacher.

Joshua (2005) defined test as an instrument for systematic measure of a sample of behaviour. Umoinyang and Nenty (2003) defined test as an instrument used systematically to elicit response from respondent in order to determine the presence of a particular ability. Unlike in the physical sciences where their instruments are calibrated and standardized, measurement in the behavioural science and education involves frequent calibrations and the teacher is faced with the challenge of developing and validating instrument that will be valid and reliable. Validity in this context cannot be achieved until the various processes that any test construction must follow are strictly followed. Gronlunds as cited in Joshua (2005) noted that test follows the following first steps in its constructions:

i. Determination of the purpose of testing
ii. Development of the test blue-print
iii. Selecting appropriate item types and;
iv. Preparing relevant test item

However, researches have suggested that the construction of a good test involves more than these steps. As suggested by Joshua (2005), Nwogwugwu (2001), Olatunji and Onofeghara (2008), steps in construction of a test range from purpose of the test, test blue-print development… that there cannot be any valid instrument in the cognitive domain that do not follow the processes of test construction especially, the development of a test blue-print. Joshua (2005) noted that the test blue-print is a two way dimensional table relating instructional objectives to course content. This is a means of achieving adequate representation of items and thus content validity.

Notar, Zuelke, William and Yunker (2004) posited that a table of specification helps teachers to align objectives, instruction and assessment. Although, it could be used in varieties of assessment method, it is usually utilized with cognitive test. It shows the total number of items allocated contents taught at their various levels of cognitive (knowledge, comprehension, application, analysis, synthesis and evaluation). Megregor (2000) noted that it is an essential step in the development of

a test as it helps to combine properly the objectives and content area, bearing in mind the importance and weight attached to each area.
In outlining the relevance of test blue-print, Gregory (2006) noted that it enhances effective representation of items in content of a subject. Notar et al. (2004) observed that the table blue-print serves to clearly define the scope and focus of the test. It ensures that the teacher includes items that tap different kind of cognitive complexities when measuring students' achievements.

Akon and Borch as cited in Bassey (2007) outlined that the purpose of test blue-print will ensure that;

i. Teachers prepare items in a text according to topics covered and thus reflect what students have learnt.
ii. Content covered are not omitted in the test.
iii. Ensure the validity of the test is achieved.
iv. Only those objective hitherto stated are clearly assessed.

But Ujah (2001), Silker (2003) and Ali (1999) noted that test construction requires utilization of skills that enable a teacher to develop a test with precision, appropriateness of language use, objective communication, items validation and good grading scales. Teachers must not be experts in measurement and evaluation to construct valid and reliable instrument needed. They need to acquire the general test construction skills to ensure that items are structured to elicit clear and bring response appropriate to the learner's age, abilities and other noticeable differences (Ali, 1999). The lack of test construction skills may result in poor performance and false assessment of students' achievement. Simon (2002) still noted it is the poor test construction that has warranted examination malpractices, academic dishonesty in most secondary schools in Nigeria.

The teacher is solely involved in preparing and utilizing this instrument to ensure that what he/she teaches and sets in a test corresponds with the course contents in order to avoid systematic error. Chan (2009) noted that classroom teachers pay little attention to the design and development of reliable assessment tool. Many have speculated that the inappropriate construction of a test instrument is due to lack of knowledge or low level of awareness on the part of teacher, inadequate experience in the preparation of a test blue-print as well as gender differences in issues of table of specification. It could also be that level of application of this blue-print is low.

It is against this backdrop that this study sought to examine the influence of teachers' level of awareness, academic qualification on application of test blue-prints in learners' assessment.

Statement of the problem

Validity and reliability remain essential qualities of a good test. In test construction, one of the key areas is to ensure that any test instrument developed to measure achievement of students must have content validity. A test is valid if it is suitable for the intended objective. On the other hand, a test is reliable if it consistently measures a trait under all conditions.

The most instructionally relevant achievement tests are teachers–made tests if they are constructed in a way that will provide the teacher with the feedback of students' trend of achievement in a subject matter. Agu (2013) pointed out that teachers, perhaps more than ever, have a need to be knowledgeable consumers of test information. Ebinye (2001) observed that test construction had been found to be a major source of anxiety among teachers in Nigerian schools. Esomou (2002) and Paulson (2003) have noted that these anxieties are as a result of poor knowledge of the relevance of test blue-print and rigorous processes involved in the development and utilization of test blue-print. These have resulted to examination malpractices, invalid and unreliable instrument for assessment. More so, teachers do not utilize test blue-print in assessment of the learners. It is this basis that prompted this study to examine teachers' level of awareness, level of knowledge (academic qualification) and application to table of specification in secondary schools in Cross River State, Nigeria.

Research questions

i. What is the extent of teachers' application of test blue-print in learners' assessment in secondary schools?
ii. To what extent does teachers' level of awareness influence application of test blue-print in learners' assessment in secondary school?
iii. To what extent does teachers' academic qualification influence application of test blue-print in learners' assessment in secondary school?

Statement of hypotheses

The following null hypotheses were formulated for the study:

i. The extent of teachers' application of test blue-print in learners' assessment in secondary schools is not significantly high.
ii. There is no significant influence of teachers' level of awareness on application of test blue-print in learners' assessment in secondary schools.
iii. There is no significant influence of teachers' academic qualification on application of test blue–print in learners' assessment in secondary schools.

Methodology

The study used survey research design in view of the widespread coverage of information; also the use of sample without any manipulation or control of sample subjects and variables justified the adoption of survey design. The population of the study consisted of all 8486 Cross River State government employed teachers in post primary schools. A sample size of 400 teachers was selected through stratified random sampling technique. The entire state was divided into three education zones which corresponded with three existing political districts (North, South and Central). Thirty (30) schools were selected (10 from each zone).

Two hundred and forty (240) teachers were selected from north and central, that is, 120 from each of the two districts; and 160 teachers from the southern district. In both the north and central districts, 12 teachers were selected from each school, while 16 teachers were selected from each school in the south through a systematic sampling tecnique. In each of the schools used, teaching staff disposition was used as a working document for sampling.

Teacher perception questionnaire was used for data collection. The instrument was constructed by the researchers and validated through a trial study and a panel of five experts. The researchers conducted the trial study using a small sample of 50 teachers chosen from outside the designated main areas of data collection. A total of 15 items on a 4-point rating scale were constructed. This included five items on level of awareness and 10 items on application of test blue-print. In each of the school visited, the researchers personally administered the copies of the questionnaire assisted by the vice principal, an exercise that lasted for 3 weeks. The repeated visits of the researchers to the sample schools produced a 100 percent return of appropriately filled copies of the questionnaire.

Presentation of results

Hypothesis one: The extent of teachers' application of test of blue-print in learners' assessment in secondary schools is not significantly high.

Table 1: Population t-test analysis on teachers' level of application of test blue-print in learners assessment in secondary schools

Variable	N	X	S.D	DF	T	Sig
Application of test blue-print	400	34.94	4.73	399	147.72*	0.000

The result of the analysis as presented in table 1 shows that at 399 degrees of freedom with a mean value of 34.94 and standard deviation of 4.73, the t-value of 147.72 was obtained with a p-value of 0.000. Since the p-value is less than alpha, the null hypothesis is rejected which implies that the extent of teachers' application of

test blue-print in secondary schools in Cross River State, Nigeria is significantly high.

Hypothesis two: There is no significant influence of teachers' level of awareness on application of test blue print on learners' assessment in secondary schools.

Table 2: One–way ANOVA result of teachers' levels of awareness on application of test blue-print on learners' assessment in secondary schools

Levels of awareness	**N**	**X**	**S.D**		
High	128	35.898	3.87		
Moderate	120	35.533	3.80		
Low	152	33.671	5.69		
Source of variation	SS	Df	MS	F	Sig.
Between groups	404.57	2	202.28	9.420	0.000*
Within groups	8525.09	397	21.474		
Total	8929.677				

Summary of L.S.D Post Hoc analysis of means of level of awareness

Source of difference	Mean difference	Sig
Low – Moderate	-1.862	0.536
Low-high	-2.227	0.000*
High-Moderate	0.365	0.001*

The result in the table above reveals that at 2 and 397 degrees of freedom, the F value stood at 9.420 with a significant value of 0.000. Since the significant value is less than 0.5, the null hypothesis is rejected. This implies that teachers' level of awareness significantly influence their utilization of test blue print in learners' assessment. The multiple comparisons had to be carried out to ascertain the area of the differences. As revealed in table 2, the differences is at low-high level of awareness (0.000*) and high-moderate level of awareness (0.000*).

Hypothesis three: There is no significant influence of teachers' academic qualification on utilization of test blue-print on learners' assessment in secondary schools

Table 3: One-way ANOVA result of teachers' level of knowledge on utilization of test blue-print on learners' assessment in secondary schools.

Levels of awareness	**N**	**X**	**S.D**		
N.C.E	152	36.92	5.28		
B.Sc/B.Ed	164	34.58	4.71		
M.Ed-above	76	34.23	2.96		
Source of variation	SS	Df	MS	F	Sig.
Between groups	394.84	2	197.42	9.035	0.000*
Within groups	8500.27	397	21.86		
Total	8895.120				

Summary of L.S.D Post Hoc analysis of means of level of awareness

Source of difference	Mean difference	Sig
N.C.E – B.Ed/B.Sc	-0365	0.500
N.C.E-M.Ed-above	-2.6900	0.000*
B.Ed-M.Ed – above	2.33	0.000*

The result in table 3 reveals that at 2 and 397 degrees of freedom, the F value stood at 9.035 with a significant value of 0.000. Since the significant value is less than .05, the null hypothesis is rejected. This implies that teachers' academic qualifications significantly influence their utilization of test blue-print in learners' assessment. The multiple comparisons had to be carried out to ascertain the area of the differences. As revealed in table 3, the differences is at N.C.E – M.Ed-Above level of qualification (0.000*) and B.Ed-M.Ed-Above (0.000*).

Discussion findings

The study is an investigation of the influence of teachers' level of awareness, level of knowledge (academic qualification) on application of test blue-print in learners' assessment in secondary schools. Three variables were identified for the study which are teachers' level of awareness and academic qualification (independent variables) and extent of application of test blue-print in learners' assessment (dependent variable). The result in table 1 revealed that teachers' extent of test blue-print application is significantly high.

Hypothesis two as contained in table 2 revealed that the mean scores of teachers with low, moderate and high level of awareness are 33.671, 35.533 and 35.898 respectively while their respective standard deviation are 5.695, and the p-value is 0.000*. This implies p (.00) is less than .05. The null hypothesis two is therefore rejected. This implies that there is a significant influence of teacher level of awareness on their application of test blue–print in learners' assessment. The findings were in line with that of Agu (2013) that found that the level of awareness

of the teacher in terms of developing the instrument and its importance in enhancing learners' academic achievement as well as reducing certain problems that are associated with non- preparation and utilization of table of specification will help in the effective utilization of test blue-print.

Hypothesis three as contained in table 3 revealed that the mean scores of teachers N.C.E, B.Ed/B.Sc, M.Ed/M.Sc – above was 36.92, 34.58 and 34.23 respectively, while their respective standard deviations are 2.96, 4.71 and 5.28. The inferential statistics obtained showed that the F-ratio is 9.035 and the p-value is 0.000*. This implies p(.000) is less than .05. Thus, the null hypothesis is rejected. Thus, there is a significant influence of teachers' academic qualification on their application of test blue-prints in learners' assessment. The result was consistent with that of Notar, Zuelke, William and Yunker (2004) that found that teachers' academic qualification determines the knowledge of the procedure of test blue-prints development. They further posited that teachers who utilize test blue–print in learners' assessment are mostly those with high knowledge of the techniques and strategies in developing the instrument as well as understanding the relevance of the content validity in cognitive assessment.

Conclusion

Based on the finding of the study, it is concluded that teachers' application of test blue-print in learners' assessment is significantly high. Moreover, teachers' level of awareness and academic qualification significantly influence their application of test blue-prints in learners' assessment in secondary schools in Cross River State, Nigeria.

Recommendations

In view of the findings of the study, the following recommendations are made:

1. Teachers should be encouraged to utilize test blue-prints in cognitive assessment.
2. Teachers-in-training in colleges of education and universities should be exposed to the technicalities of preparing these tables in order for their assessment instrument to be valid.
3. Government should make provision for teachers to attend workshops, seminars and conferences on assessment procedure in order to update and sustain teachers' application of test blue-prints in learners assessment in schools.

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