

An Evaluation of Senior Secondary Schools Teachers' Qualifications on Application of Testing Skills for Service Performance and Quality Assurance

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Abstract

Testing is an integral part of teaching learning process. When its principles are applied properly by teachers during the internal examinations for the six years in secondary school, the result of external examination supposed to commensurate with the performance of students. In a situation where students who were promoted as having done well in internal examination for six years end up failing in external examinations, then method of school testing for assessment need to be evaluated. Therefore this study seek to find out how Teachers in Senior Secondary apply the skills of test planning, preparation, items analysis, administration, scoring and interpretation in Okene Local Government of Kogi State of Nigeria. A sample of 100 out of a 366 population of teachers was selected using simple random method. A 42 item 4 option Likert type questionnaire was used for data collection and the overall reliability was 0.68. Two hypotheses were formulated to guide the study and were tested using population t-test, and one way ANOVA at 0.05 level of significant level. The hypotheses are; the application of testing skills among secondary school teachers in Okene Local Government of Kogi State, Nigeria is not significantly high and there is no significant influence of teachers' qualification on the application of each component of the skills of testing. The result obtained among others was that, the testing skills of teachers is significantly high and that, there is significant influence of teachers qualification on the application of testing skills used in this study in favor of those with high qualification. The implication is that teachers with low qualification need re-training, refresher courses, and mentoring by the highly qualify teachers for effective performance and quality assurance with respect to students result in external examinations (WASC, NECO and JAMB).

Keywords: Evaluation, Testing, Skills, Construction and Assessment

Background to the Study

The role of teachers in knowledge transmission and skills to learners of all categories cannot be neglected. Teachers occupy a unique position in any educational system of any nation, including Nigeria. They are nation builders, human resource developer and character molder. They are therefore in the forefront of national development, in their efforts towards manpower development in Nigeria in all fields, including the present and future leaders of our nation.

According to (Ekpouido, 2002), immediately before and after independence, teaching career was the ultimate desire of most Nigerians. Then teaching profession was quite admirable, respectable, and honorable. Teachers were seen as special advisers to the community governing council. Stubborn children were either threatening to be taken to teachers resident, especially the Headmaster, and if they don't changed for good, they were actually taken to teachers/headmasters' before the shortest possible space such children change for good. But today things have negatively change in the affairs of teachers, due to students' poor performance in external examinations, teachers un-commitment to duties, poor salary structure or delay in payment of teachers' salaries and molestation of teachers by parent, especially the rich and the highly place.. These factors notwithstanding, teachers must fulfill their obligations including student's evaluation, which is achieved through testing. Considering the position of teachers both in the school and in the public, it can be concluded that teachers have enormous task of reporting to students, parents and the society what is going on in the school system, especially how they have carried out their responsibility.

To equip teachers for this enormous task, they are at one time on the other in their various level of educational training exposed to the rudiment of testing, through educational tests and measurement as a prerequisite for graduation from teachers training via higher learning institution. The basic reason behind such courses is to equip the teachers with the skill of testing so that in the course of teaching, they can obtain valid, reliable and useful information concerning learners' achievement. That is, teachers are exposed in their training years to possess the ability to measure their learners objectively so as to describe, understand, predict and control their behaviors precisely. Therefore it is important that teachers should harness the various testing skills during testing. Having being armed with testing skills, teachers are expected to determine what is be learned and then define same in such manner that the testing items constructed by them should have evoke the desired performance and serve useful purpose. Right assessment of learning is an essential aspect of teaching learning process. In addition to assess whether the objectives of learning has been achieved, test also serve the purposes of classification, guidance and counseling and research (Grondlund, 1985; Denga, 1987).

It is important to stress here that that the likelihood of preparing valid, reliable and useful tests is enhanced when the teacher has in the process of testing seen the need to apply all the skills of testing. These testing skills which include; testing plan, preparing the test items, carrying out analysis, test administration, grading the test and interpreting the test results. The skills apply to all types of tests placement, diagnostic, formative and summative. It is therefore necessary that all teachers should have as well as apply these skills in their interactions with learners if success is the target in the teaching and learning enterprise. According to (Aiken, 1988), who stated that, whatever kind of test or the goals of testing, the skills of test planning, preparing, item analysis, administering, scoring and interpreting must be seen as necessities.

In planning test construction and preparation of a test, it demands careful consideration of its specific purpose (s), this is because test can serve many different purposes, and the test construction process varies somewhat with the particular purposes for which the test is constructed for. An ideal construction of any test must begin by defining the variables or

constructs to be measured and specifying the test content (Grondlund, 1985). It therefore most needful that test designers particularly teachers adhere rigidly to a formal taxonomy specifying the objectives to be measured by a test. One of the most helpful tools in planning and assembling a test is to construct a two way table of specifications. No matter how careful a test is planned and constructed, the result will be useless unless it is administered and scored properly. Although the skill, personality, and behavior of an examiner during testing can influence how well examinees perform. This is in addition to situational variables, including the time and place of testing and environmental conditions such illumination, temperature, noise level, and ventilation etc. The other skill in testing, normally regarded as grading and interpretation of the test. It could be defined as the assignment of grades or marks. For interpretation of test scores, procedures can be quite complex depending on the type of test and purposes for which test is administered.

Having obtained the skills of testing, teachers are expected to utilize them effectively in the classroom situation thereby producing students who are totally developed. To be more specific, it is the duty of teachers generally to report on learners' progress to parent and need not to be treated with levity of hands. It is very important that the teachers must imbibe the culture, attitude and skill of testing on their students. It becomes necessary that teachers be assessed to find out how they apply the skills of testing in their dealings with their students, hence the need for this study.

Empirical Review of Literature

Some studies conducted by others scholar that are related to this study were reviewed. Egede (1984) in his study to find out the problems besetting physics teaching in Nigerian secondary schools discovered that the dearth of qualified physics teachers is one of the greatest problems militating against effective teaching of physics among others. Ejikeme (1995) sampled 12 NCE and 13 Bachelor degree science teachers for the study to find out the effect of teachers' qualification on their assessment skills in science practical. He concluded from his finding that the problem of poor assessment of students in science practical generally stem from the fact that most of our teachers are less qualified.

Furthermore, Edem (2001), investigated and found out that the difference in the performance of students taught by qualified and less qualified teachers to be significant. Impara et al (1991) who observed in their study that teachers with lower qualification made fewer errors responding to test questions on the basis of the score report than their higher qualification counterpart. Ashibi (2005), discovered in his study that teachers' qualification has significant influence on the application of testing skills among teachers in Northern Cross Rivers State.

Purpose of the Study: The purpose of this study was to assess the application of testing skills among senior secondary schools teachers in Okene Local Government Area of Kogi State, and to determine the influence of teachers' qualification on application of testing skills.

Objective of the Study

The specific objective is to evaluate the extent of senior secondary schools teachers' qualification on the application of testing skills in our internal assessment.

Research Questions

The following research questions were formulated to guide the study;

1. To what extent do Senior Secondary School teachers in Okene Local Government Area of Kogi State apply testing skills?
2. What influence does teacher's qualification have on application of each of the components of testing skills of planning, preparation, administration, grading, analysis and interpretation?

Theoretical Framework of the Study

There are three test theories, which are; Classical Test Theory (CTT), Item Response Theory (IRT) and Item Sampling Theory (IST). This three are referred to as the Psychometric bases of testing. But classical test theory is more relevant to this study. The central idea of Classical Test Theory (CTT) educational measurement is that test score is view as being made up of two components the true score and the error score. This is given by $X = X_o + X_e$, where X = observed score, X_o = actual score and X_e = error score.

The true score is viewed as been unchanged from one occasion to another. According to Akpan (1995), this component gave rise to the idea of Continuous Assessment (CA). The error component on the other hand is considered to be unique to the specific measurement which has been made. The error score can be traced to the measuring instrument, the examinee and/or the examiner. The theory holds that true score as such cannot be observed directly, and that the estimates of true score and the reliability coefficients that assess the ratio of the true score variance ($X = X_o + X_e$) to true score plus error score differ between testing and between tests that are not considered parallel.

From this theory we can assert that a decrease in the error score is as a result of right application of testing skills by teachers, hence the need to evaluate the testing skills of teachers, especially senior secondary school teachers in Okene local government area of Kogi State.

Hypotheses of the Study

Based on the research questions, two hypotheses were also formulated;

1. The application of testing skills among teachers in Okene Local Government Area of Kogi State is not significantly high.
2. There is no significant influence of teachers' qualification on the application of each of the components of testing skills and the overall testing skills.

Significance of the Study

The result of this study will be of benefits in no small measures. It will help the school administrators (Governors, Commissioners, Supervisors of school and Principals) to know that it is through teachers right application of testing skills that they can be aided in the selection and

classification of learners, educational and vocational placement of individuals, curriculum planning and evaluation, and programme evaluation improvement. Teachers will benefit from the knowledge that it is through their conducting tests properly, that they will be accorded the opportunity to evaluate learning outcomes, diagnose learning problems, predict future performance of learners and motivate them accordingly towards the attainment of set goals.

Methodology

Research Design: Since the independent variables have already occurred and the researcher did not have a direct control of independent variables, the study was therefore based on survey research design as recommended by (Denga and Ali, 1988).

Research Area: The area of the study is Okene Local Government Area of Kogi State. It is located in central senatorial district of the state. They are majorly farmers, traders and educated elite. They speak Ebira language and are called the Ebiras.

Population of the Study: The population of this study comprises of all senior secondary teachers in the local government area which is made up of 251 males and 115 females, making a total of 366 as at 2012/2013 in sixteen schools (Zonal Director: 2013).

Sampling and Sampling Procedure: From the total of 366 teachers spread across the 16 schools, samples of 100 teachers used were selected through simple random sampling.

Reliability: Split half reliability was used for estimation of the instrument of evaluation and the result for each testing components ranges from 0.64 to 0.77, while that of overall testing skill was 0.68. These values were considered high enough to justify the use of the instrument for the study.

Data Analysis and Results

Hypothesis one is tested with the population test t- test and the result is reflected on table two

Table 1: Population t test analysis of the extent of the application of testing skills among teachers Okene Local Government Area Kogi State

SN	Variables	Mean	SD	t – value	Df	Sig
1.	Test planning	19.930	2.095	95.132*	99	0.00
2.	Test Preparation	19.610	2.506	78.248*	99	0.00
3.	Test administration	20.100	2.418	83.110*	99	0.00
4.	Test scoring	17.360	2.576	67.3 86*	99	0.00
5.	Test interpretation	19.020	3.165	60.087*	99	0.00
6.	Test item analysis	19.570	2.422	80.817*	99	0.00
7.	Overall testing skills	19.265	.530	77.463*	99	0.00

P < 0.05, critical t = 1.984, N = 100

From table 1, for each component of the testing skills, the calculated t values were very high above the critical values of t (1.984). That is, the overall application of the testing skills of 77.463 values was far higher than the critical value of 1.984 at 99 degrees of freedom. What this implies is that the senior secondary school teachers in Okene local government area significantly applied the testing skills, therefore the null hypothesis that application of testing skill is not significantly high was rejected, and the alternative hypothesis was accepted.

Table 2: One way Analysis of Variance (ANOVA) of the influence of teacher's qualification on the application of the skill of test planning among secondary school teachers in Okene Local Government of Kogi State

Group: Qualification	N	SD		
1. NCE	26	19.08	1.57	
2. B.SC (ED)/B. SC	38	20.21	1.96	
3. PGDE	22	20.18	2.61	
4. M.ED/M.SC	8	21.63	1.41	
5. PH.D	6	19.93	1.86	
Source of variation	SS	Df	MS	F-ratio
Between groups	55.87	4	13.97	3.504*
Within groups	378.64	95	3.99	
Total	434.51	99		

* $P < 0.05$, Critical $F_{4,95} = 2.46$

The result as reflected on table 2 shows that there is significant influence of teachers' qualification on the application of test planning skill. This is because the F-calculated (3.504) is greater than F- critical (2.46) at 0.05 significant level and 4 and 95 degree of freedom. The null hypothesis was therefore rejected and the alternative retained.

Table 3: One way Analysis of Variance (ANOVA) of the influence of teacher's qualification on the application of the skill of test preparation among secondary school teachers in Okene Local Government of Kogi State

Group: Qualification	N	SD		
1. NCE	26	19.48	3.24	
2. B.SC (ED)/B.SC	41	19.95	2.31	
3. PGDE	22	19.18	1.74	
4. M.ED/M.SC	8	20.63	1.41	
5. PH.D	3	18.33	3.39	
Source of variation	SS	Df	MS	F-ratio
Between groups	76.623	4	6.738	1.076
Within groups	545.510	95	6.281	
Total	621.790	99		

$P > 0.05$, Critical $F_{4,95} = 2.46$

Table 3 reveals that there is no significant influence of teachers' qualification on the application the test preparation in Okene local government area of Kogi State. As reflected on the table, the calculated F-value is 1.076 which is less than the critical value of 2.46. From this result, the null hypothesis was not rejected but accepted. In other words, teachers of all categories of qualification prepare their test before using them.

Table 4: One way Analysis of Variance (ANOVA) of the influence of teacher's qualification on the application of the skill of test administration among secondary school teachers in Okene Local Government of Kogi State

Group: Qualification	N	\bar{X}	SD	
1. NCE	26	20.08	2.67	
2. B.SC (ED)/B.SC	41	21.16	2.16	
3. PGDE	22	18.55	1.60	
4. M.ED/M.SC	8	21.54	2.45	
5. PH.D	3	18.00	0.89	
Source of variation	SS	Df	MS	F-ratio
Between groups	126.647	4	32.162	6.784 *
Within groups	450.353	95	4.741	
Total	579.000	99		

*P < 0.05, Critical $F_{4,95} = 2.48$

The calculated F value in table 4 is 6.784 which is higher than the critical value of 2.46. with this, the null hypothesis teachers qualification does influence the skill of test administration is to be rejected. In other words teachers' qualification significantly influences the skill of test administration in Okene Local Government Area of Kogi State.

Table 5: One way Analysis of Variance (ANOVA) of the influence of teacher's qualification on the application of the skill of test grading among secondary school teachers in Okene Local Government of Kogi State

Group: Qualification	N	\bar{X}	SD	
1. NCE	26	16.62	3.21	
2. B.SC (ED)/B.SC	41	17.37	2.47	
3. PGDE	22	17.73	2.39	
4. M.ED/M.SC	8	18.00	1.93	
5. PH.D	3	18.33	0.52	
Source of variation	SS	Df	MS	F-ratio
Between groups	26.347	4	6.587	0.992
Within groups	630.890	95	6.649	
Total	579.040			

P > 0.05, Critical $F_{4,95} = 2.48$

From table 5, there is no significant influence of teachers' qualification on the application of test grading. In other words, teachers in the study area applied the skill of test grading rightly no matter their level of qualification.

Table 6: One way Analysis of Variance (ANOVA) of the influence of teacher's qualification on the application of the skill of test interpretation among secondary school teachers in Okene Local Government of Kogi State

Group: Qualification	N	\bar{X}	SD	
1. NCE	26	18.15	2.90	
2. B.SC (ED)/B.SC	41	20.16	2.09	
3. PGDE	22	19.36	2.56	
4. M.ED/M.SC	8	17.00	2.33	
5. PH.D	3	17.00	4.98	
Source of variation	SS	Df	MS	F-ratio
Between groups	128.432	4	32.108	3.53*
Within groups	863.528	95	9.090	
Total	991.960	99		

P > 0.05, Critical $F_{4,95} = 2.48$

Comparing the value of F- ratio (3.53) as shown on table 6 with the critical F- value (2.46), the calculated value F of is greater than the critical value of F, we therefore accept the null reject the null hypothesis, and accept the alternative hypothesis, which states that there significant influence of teachers' qualification on the application of test interpretation.

Table 7: One way Analysis of Variance (ANOVA) of the influence of teacher's qualification on the application of the skill of test item analysis among secondary school teachers in Okene Local Government of Kogi State

Group: Qualification	N	\bar{X}	SD	
1. NCE	26	19.48	1.67	
2. B.SC (ED)/B.SC	41	20.89	1.97	
3. PGDE	22	18.27	2.80	
4. M.ED/M.SC	8	18.13	3.18	
5. PH.D	3	18.87	1.03	
Source of variation	SS	Df	MS	F-ratio
Between groups	126.205	4	31.331	8.60*
Within groups	454.305	95	4.782	
Total	580.510			

*P < 0.05, Critical F_{4,95} = 2.48

Here the calculated F value of 8.60 is greater than the critical value of 2.46 at 4 and 95 degrees of freedom. In other words, there is significant influence of teachers' qualification on the application of item analysis, the B.SC degree holders had a higher mean, follow by the NCE holders, while three groups have closer range of mean.

Table 8: One way Analysis of Variance (ANOVA) of the influence of teacher's qualification on the overall application of testing skills among secondary school teachers in Okene Local Government of Kogi State

Group: Qualification	N	\bar{X}	SD	
1. NCE	26	16.62	3.21	
2. B.SC (ED)/B.SC	41	17.37	2.47	
3. PGDE	22	17.73	2.39	
4. M.ED/M.SC	8	18.00	1.93	
5. PH.D	3	18.33	0.52	
Source of variation	SS	Df	MS	F-ratio
Between groups	90.19	4	6.587	4.081*
Within groups	553.871	95	6.649	
Total	644.06			

*P < 0.05, Critical F_{4,95} = 2.48

From table 8, teacher qualification has significant influence on the application of overall testing skills. Since the calculated value of F ratio (4.081) is higher than the critical value of F ratio (2.46) at 4 and 95 degrees of freedom, the null hypothesis no significant influence was rejected and the alternative hypothesis was accepted. Going by the mean, those with Masters; and Ph.D Degrees has a higher means (18.00 and 18.33 respectively), the B. Sc holders had a mean of 17.73 and the PGDE holders had a mean of 17.73, and the NCE hold had the lowest mean of 16.62. On the overall, qualifications exert a significant in the manner at which teachers apply testing skills in favour of the highly qualified teachers.

Discussions

The result of this study is quiet revealing, on the application of testing skills (planning, preparation, administration, grading, interpretation and item analysis skills) by senior secondary school teachers in Okene local government of area of Kogi State. Population t-test was used to analysis the hypothesis, the calculated t-values for the various testing skills and the overall were found to be greater than the critical value at 0.05 alpha level and 99 degree of freedom. Therefore teachers in the study area significantly apply the skills in their interaction with students with respect to testing. Supporting this study is Ashibi (2005), who discovered in his study that teachers' qualification has significant influence on the application of testing skills among teachers in Northern Cross Rivers State.

Using the characteristics of teachers' qualifications to ascertain if they are all applying the skills rightly with the use of ANOVA, the findings reveal that the calculated F-values of test administration and grading skills (1.076 and 0.992) were less than the critical value of F (2.46), that is, teachers' qualification does not significantly influence the application of these two testing skills. On the other components (test planning, preparation, interpretation and item analysis), there is a significant influence of teachers' qualification on their application. And the overall result indicated that there is significant influence of teachers' qualifications on the application of the testing skills in favour of highly qualify teachers. On the whole, it then implies that the qualification a teacher holds influences how he/she applies testing skills.

This finding was in agreement with Edem (2001), who investigated and found out that the difference in the performance of students taught by qualified and less qualified teachers to be significant. The result of this finding is contrary to the findings of Impara et al (1991) who observed in their study that teachers with lower qualification made fewer errors responding to test questions on the basis of the score report than their higher qualification counterpart.

Conclusion

From the findings of this study, the following conclusion can be deducted;

- a) Teachers are exhibiting the benefit of training in test and measurement. It is helping them to some extent, especially in application of testing skills.
- b) Qualification of teachers' has significant influence in the application of testing skills in favour of highly qualified teachers.
- c) On the basis of the findings, teachers should be send for re-training programme to keep and improve their performance
- d) In service training should be encourage among the low qualified teachers.

Recommendation

Based on the findings the following recommendation can be made;

- a. Since teachers in the Okene local government area are rightly applying testing skills as discovered in this study, they should send for re training on testing and examinations on regularly basis, to enable them keep fits the skills of testing for quality assurance in both internal and external examinations.

- b. That teachers with low qualification need re-training, refresher courses, and mentoring by the highly qualify teachers for effective performance and quality assurance with respect to students result in external examinations (WASC, NECO and JAMB).
- c. And that in - service training with support from the government should be encourage among the low qualified teachers, to encourage them to enroll.

References

- Aiken, L. A. (1988). "Test and Examination: measuring abilities and performance. New York: John Wiley and Sons.
- Ashibi, N. (2005). "An assessment of the application of testing skills among senior secondary school teachers in Northern Cross Rivers State of Nigeria". An unpublished M. Ed thesis. University of Calabar.
- Denga, D. I. (1987). "Educational measurement, continuous assessment and psychological testing". Calabar: Rapid Educational Publihers.
- Denga, D. I. & Ali, A. (1988). "An introduction to research methods and statistics in education and social sciences". Calabar: Rapid Educational Publisher.
- Edem, U.U. (2001). "Effect of teacher qualification on students' academic performance in integrated science in the 1998/99 JSS3 final examination in Calabar Municipal Council". A B. Ed project, University of Calabar
- Ejikeme, C. N. (1995). "A study of the problems involved in organizing secondary school biology class". Unpublished B. Sc (Ed) project. University of Nigeria, Nsukka.
- Egede, B. A. J. (1984). "Non-cognitive correlate of secondary school students' achievement in physics". Journal of science Teachers Association of Nigeria. 22, (2), 78 88.
- Ekpoudo, A. A. (2002). "Teachers' motivation and attritional tendencies". An unpublished M. Ed Thesis, University of Calabar.
- Grondlund, N. E. (1985). "Measurement and evaluation in teaching (5th ed)". New York: Macmillan.
- Impara, J. C., Divine, K. P., Bruce, F. A., Liverman, M. R. & Gay, A. (1991). "Teachers' ability to interpret standardized tests scores". Educational Measurement: Issue and Practice, 10 (4), 16 -18.
- Zonal Director (2013). "Senior secondary teachers' record of statistics". Zonal Education office, Okene Kogi: Nigeria.