

INFLUENCE OF TEACHERS' COMPETENCY IN TEST CONSTRUCTION ON STUDENTS' PERFORMANCE OF SENIOR SECONDARY SCHOOLS IN JIGAWA STATE

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Abstract This study was conducted to determine the influence of teachers' competency in test construction on students' performance of senior secondary schools in Jigawa state. Two objectives were tested and two hypotheses were formulated to guide the conduct of the study. Survey research design was employed with population of two thousand two hundred sixty eight (2268) teachers. Three hundred and twenty seven (327) teachers were selected from the population of the study as sample for this study. Stratified random sampling technique was used. The researcher adapted Teachers Construction Skills Inventory (TCSI) which was developed and validated by Agu (2013). The initial reliability index of the Teachers Construction Skills Inventory as reported by Agu (2013) was $r = 0.73$. Data collected was statistically analyzed by using t-test independent sample in Statistical Package of Social Sciences (SPSS). All the hypotheses were tested at 0.05 level of significance. The findings of the study revealed that there is no significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state. The result also found that there is significant difference in test construction competency among professional and non-professional teachers of senior secondary school in Jigawa State. Hence some of the recommendations offered were policy makers in the field of education should organize frequent seminars and work shop to the secondary school teachers on how to construct valid and reliable test. Government should employ professional and qualify teachers, this will really help in overcoming of constructing invalid and unreliable tests.

Keywords: Teachers' Competency, Test Construction Procedure, Teacher-made Test, Students Performance

Introduction

Tests is a measuring tool and a systematic procedure for observing an individual behaviour described by means of a numerical way. Test is a device or a procedure for confronting a subject with standard set of questions or tasks to which the student or examinee responds independently and the results of which can be treated in such away so as to provide a qualitative comparison of performance of different students or examinees. (Aggarwal, 2015). In his other definition, test is also defined as an instrument or systematic procedure for measuring sample of behaviour either in comparison with others or in comparison with a domain of performance tasks. So the tests measure the correct status of an individual with respect to proficiency in a given area of knowledge or skills. Tests are used for the determination of an individual intellectual abilities and non-intellectual traits to provides educational and vocational guidance, tests are also used to see whether a program is accomplished its goal or not and they are systematic tools of investigation of the worthy or merits (Aggawal, 2015). He also viewed test as an instrument or systematic procedure for measuring sample of behaviour ("how well does the individual perform either in comparison with others or in comparison with a domain of performance tasks"). So tests measure the correct status of an individual intellectual abilities and non-intellectual traits that provide

educational and vocational guidance. Tests are also used to see whether a program is accomplished its goal or not. And are systematic tools of investigation of the worthy or merits (Dodeen 2016).

Teacher-made tests have been used in Nigerian secondary schools, these are the tests produce by an individual teacher for his/her students to elicit a respond with accurate and useful information about knowledge retain by students in a particular subjects. These tests plays a vital role in educational process, they aimed in the assignment of grades and have advantage of objectivity and uniformity if properly constructed. These tests also have merits such as adequacy of content covering, the tests constitute an important remedial program and they are useful in identification of students with different educational needs (Dodeen 2016). Ugodulunwa (2008) defined Teacher-made Test as tests prepare and use by classroom teachers for specific class and designed to cover smaller area of content, knowledge or skills. While Stiggins (2011) sees Teacher-made Test as oral or written assessment that are not commercially produce and they are not standardized. Because teachers seem to lack knowledge of test construction procedures, that enable them to construct a valid and reliable tests. The quality of teachermade test is a thing of concern. Ugodunlunwa (2008) believes that goal of achievement testing is to obtain valid and reliable information about students' achievement that will guide decision making in school system. In order to achieve this goals the test need to be carefully planned and constructed. Therefore, teachers need to apply some acceptable degree of knowledge of tests construction in order to construct valid and reliable tests that will yield accurate feedback of students' achievement.

According to Anikweze (2017), feedback from well-constructed Teacher-made Tests could help to improve students' performance either through the correlation given by the teacher or by learners' effort to cover the lapses that account for failure. Testing provides feedbacks on which educational decision are made. These decisions may be the ones that require information about the success of learning programmed or about students who have particular levels of knowledge and skill. In this vein scholars believed that whatever type of information needed, educational decisions defend upon valid and reliable measures to inform those who have the responsibilities of making decision. A number of studies have suggested that faulty test items affect students' comprehension and ability to provide accurate answers to the items, the inference drawn about what a student knows and understands may be compromised. According to Paulson (2016) lacking knowledge of test construction by teachers is one of the major cause of examination malpractice in Nigerian secondary schools. The implication is that most teachers lack competencies in test construction, and may use poorly constructed test to measure students' achievements in various school subjects. And when students' achievement level are not properly measured and interpreted, the teachers and school and administration will not be able to provide educational opportunities and support students' needs. Teachers today need to be knowledgeable consumers of test information, constructors of assessment and protocols of test procedures.

The researcher personal experience Show that most senior secondary school teachers in Jigawa state do not follow the test construction procedures when constructing test and this has negative effects to students' performance. Tests construction has been seems to be major source of anxiety among senior secondary school teachers especially the untrained ones, this anxiety stems lack of knowledge of test construction procedures as most of the teachers in Jigawa state are not really aware and following the requisite test construction procedures when constructing tests. Ugodulunwa (2008) has the opinion that the qualities of items in Teacher-made Tests are generally unknown and very low when compared to standardized test. Invariably, the quality of Teacher-made Test will determined performance of students in the tests. And test is valid when it measures what it claims to measure; also the reliability of a test refers to consistency in measurement. This means students get approximately the same scores in repeated testing, and the rule maintained that high validity of an instrument as a rule is accompanied by reliability.

Competency of test construction refers to the ability of a teacher to construct a valid and reliable test based on the standard, that express specific expectations for assessing knowledge or skills that the teacher should possessed in order to perform well in their evaluation effort (Ololube, 2008). However, Adodo (2014) defined

teachers' competency of test construction as the ability of the teacher to exhibit on the job the skills and knowledge gained as a result of training. These skills and knowledge prescribed in training programmed are apparently calculated by the curriculum planners to relate to be an instrumental to achievement of the desired education objectives. He further ascertain that it is important to know that teachers and others associated with classroom evaluation should appreciate competency and abilities such as the appreciation of the usefulness of evaluation, the ability to construct and evaluate instruments that are capable of revealing the degree to which have attained pertinent educational objectives. This research investigated the teachers knowledge of test construction with aims of finding out how teacher-made help in measuring the actual ability of students of senior secondary schools in Jigawa State.

Statement of the Problem

There is a great need to investigate the knowledge of teachers in test construction procedures in senior secondary school in Jigawa state, being these teachers are the producers of teacher-made achievement tests for determining the performance of students. As most of the senior secondary school teachers lack this knowledge that enable them to construct valid and reliable test which often considered as a cause of failure in promotional and standard examination. This is happening as a result of lack of accurate planning, writing and analysis of relevant tests item to be included in the tests.

Failure in examination indicates the need for determining the quality of every test with the aim of recommending the incorrect ones for improvement. Most senior secondary school teachers do not possesses the tests construction procedures in Jigawa state, so there is need of the teachers in the state to acquired and be conversant with the test construction procedures in order to construct valid and reliable test. However, in most cases the tests constructed by teachers are usually in accurate in terms of items analysis, table of specification etc. Which really influence the students' performances in test. Teachers need to be expert in educational measurement and evaluation to construct valid and reliable tests to the students.

In view of the above there is necessity of investigating the teachers, competency in test construction procedures and scrutinize its influence on students' performance of senior secondary school in Jigawa state.

Methodology

This study was conducted using survey research design with population of two thousand two hundred and sixty eight (2268) teachers. Three hundred and twenty seven (327) teachers were selected from the population of the study as sample for this study using stratified random sampling technique. The researcher adapted Teachers Construction Skills Inventory (TCSI) which was developed and validated by Agu (2013). The initial reliability index of the Teachers Construction Skills Inventory as reported by Agu (2013) was $r = 0.73$.

In establishing construct validity of Teachers Construction Skills Inventory, convergent validity, that is, one of the ways in which construct validity of a measurement established, were utilized. Convergent validity refers to the degree to which two measures of a construct that theoretically should be related are in fact related (Anastasi & Urbina, 2010). Construct validity is usually estimated using correlation coefficient. In order to establish the convergent construct validity of this TCSI, a TCSI developed by Agu (2013), was highly correlated with TCSI developed by Dodeen (2007). The two Teachers Construction Skills Inventory were administered concurrently on randomly selected 20 teachers from others senior secondary out of sample of the study in Jigawa State. Scores of the two Teachers Construction Skills Inventory were correlated and a correlation coefficient was $r = 0.79$. This shows a strong evidence of the construct validity of the instrument.

In order to find out the reliability of the data collection instrument a pilot testing was conducted using 20 teachers from senior secondary schools out of sample of the study. Cronbach alpha was calculated in order to establish internal consistency of items. The alpha was found to be 0.81 indicating strong significant internal consistency of test items.

In analysis of the data, the researcher employed t-test independent sample statistical inference to answer the hypotheses considering the nature of the variables of the study i.e. male and female teachers, professional and non professional teachers.

Objectives of the Study

The study aimed to achieve the following objectives:

1. To find out if there is gender differences in test construction competency among teachers of senior secondary schools in Jigawa state.
2. To investigate if there is difference in test construction competency between professional and nonprofessional senior secondary schools teachers in Jigawa state

Research Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state.
2. There is no significant difference in test construction competency between professional and nonprofessional senior secondary schools teachers in Jigawa state.

Results

Test of Hypothesis One

There is no significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state.

Table 1: Gender Differences in the Test Construction Competency.

Gender	N	Mean	S D	t-value	df	p-value
Male	257	77.77	9.51	.608	325	.713
Female	70	76.80	11.36			

In order to test the null hypothesis that there is no significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state an independent sample of t-test was performed. From table 1 the mean on test construction competency for each group was mean=77.77 for male teachers and M=76.80 for female teachers. The results revealed that the mean score on test construction competency for male teachers of Senior secondary schools mean=77.77, SD= 9.51) is not significantly different from that of

the mean score of female senior secondary schools teachers mean=76.80, SD=11.36) at t-value ($t=.608$, $df=325$, $p=.713$). Thus, our P value .713 is $> .05$.

Based on the obtained result, the stated null hypothesis that there is no significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state was upheld. The result revealed that no statistically significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state.

Hypothesis Two

There is no significant difference in test construction competency between professional and nonprofessional senior secondary schools teachers in Jigawa state.

Table 2: Difference in Test Construction Competency among professional and non-professional teachers of SSS in Jigawa State .

Qualification	N	Mean	S D	t-value	df	p-value
Professional	187	88.77	7.41			
				.308	325	0.02
Non Professional	140	86.80	9.57			

In order to test the null hypothesis that there is no significant difference in test construction competency between professional and non-professional senior secondary schools teachers in Jigawa state an independent sample of t-test was performed. From table 2 the mean on test construction competency for each group was mean=88.77 for professional teachers and Mean=86.80 for non-professional teachers. The results revealed that the mean score on test construction competency for professional teachers of senior secondary schools ($M =88.77$, $SD=7.41$) is not significantly different from that of the mean score of non-professional senior secondary schools teachers ($M=86.80$, $SD=9.57$) at t-value ($t=.308$, $df=325$, $p=.02$). Thus, our P value .02 is less than .05.

Based on the obtained result, the stated null hypothesis that there is no significant difference in test construction competency between professional and non-professional senior secondary schools teachers in Jigawa state was rejected. The result revealed that there is statistically significant difference in test construction competency among professional and non- professional teachers of senior secondary schools in Jigawa state.

Discussion of Findings

This section discussed the finding of two hypotheses. As predicted in hypothesis one, there is no significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state. In testing this hypothesis, teachers' responses on questionnaire were used as data for analysis, and t-test independent sample was also used as data analysis tool. The null hypothesis was upheld. This indicated that there is no significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state. This finding corroborates with finding of Darazo (2015), which conducted a research on assessment of senior secondary school teachers' knowledge of test construction procedures in Gombe state. Correlation research design was employed. The population of the research were all teachers of (116) senior secondary school teachers in the state, but eleven senior secondary schools were used as sample of the study. Test Construction Skills Inventory (TCSI) was used as instrument for data collection with reliability of 0.73.

Mean score was used for the research question and t-tests independent sample was used in testing the hypotheses of the research. The result indicated that there is significant difference between male and female teachers,

But for hypothesis two, the result indicated that there is significant difference in test construction competency among professional and non-professional teachers of SSS in Jigawa State. This finding did not corroborates with the finding of Darazo (2015) which found that there is no significant difference between qualified and unqualified teachers in the knowledge test construction procedure.

Conclusion

Based on the result generated from the analysis of the data, it was concluded that there is no significant gender difference in test construction competency among teachers of senior secondary schools in Jigawa state. The result also found that there is significant difference in test construction competency among professional and non-professional teachers of senior secondary school in Jigawa State.

Recommendations

In the light of the research findings, the researcher has made some recommendations as follows:

1. Government should organize frequent seminars and work shop to the secondary school teachers on how to construct valid and reliable test.
2. Government should employ professional and qualify teachers, this will rely help in overcoming of constructing invalid and unreliable tests.

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