

Predictive Validity of Students' Entrance Examination and Junior Secondary School One (JSS1) Annual Examinations in Ignatius Ajuru University of Education Demonstration Secondary School, Port Harcourt

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Abstract

The study investigated the predictive validity of student's entrance examination scores and their junior secondary school one (JSS1) annual examinations in English Language and Mathematics of the Ignatius Ajuru University of Education. A descriptive survey design was adopted for the study. The population of the study was made up of all those students (300) who sat for the common entrance into the university's demonstration secondary school Ndele and were admitted. The sample was selected using cluster technique and data was collected using the scores of the entrance examination and the JSS1 annual examination scores. Two research questions and two hypotheses were raised to guide the study. The two research questions were answered while the two hypotheses were tested using Pearson product moment correlation co-efficient at 0.05 level of significant. The results showed that the relationship between entrance examination and JSS1 annual examination scores in mathematics and English Language students were positive while the Pearson product moment correlation co-efficient showed no significance difference when the two subjects were correlated. It was thus recommended that entrance examination be further strengthened since it is the only medium of admission. Also that Students should be engaged in extra-moral classes so as to enable them perform better in entrance examination.

Keywords: Predictive Validity, Students', Entrance Examination, JSS1, Annual Examinations, Secondary School, Port Harcourt, Nigeria.

INTRODUCTION

The quest for mass literacy which surrendered the year 2000 has thrown the gates of academic pursuit open to all kit and kin. However, the policy has been misconstrued by students who now feel that jettisoning the idea of repetition of classes and substituting it with mass promotion is a good thing that has come. The period has since witnessed a total collapse and decay in some

boarding facilities in some secondary schools. That notwithstanding some private schools that existed then were ill-fated and substandard. It was under this situation that the management of Rivers State College of Education then resolved to float a demonstration secondary school in which all the prerequisites for a boarding school are guaranteed.

This in turn gave rise to another level of challenge, as those in high socio-economic class desire to see their wards gain admission. It was on this premise that the management deemed it necessary to introduce aptitude test (entrance examination) in order to select those that performed well in the entrance examination. The new development on the side of the government showed that, the role of testing for predictive purposes, selection, classification and behavioural measurement and evaluation have been relegated to the background. The appropriate agency now operates test just to fulfill all righteousness as there is no failure in entrance examination and candidates are posted to the school of their choice as they take the examination.

Testing, no matter its form is absolutely indispensable to ensuring effective education (Denga 1983). And as a demonstration school, the essence of the test commonly referred to as entrance is expected to predict accurately and those selected, are expected to conveniently take on future challenges.

Cronbach (1998), is of the view that the purpose of testing for selection is to screen candidates for admission into colleges, universities and other institutions or screen for the purpose of prospective recruitment. It is only this way that testing a candidate can be adjudged positive or negative towards facing future challenges.

Mehrens and Lehman (1975) agreed that selection is closely followed by prediction, hence a test (entrance examination) is normally administered in order to assess candidate's academic ability, and other samples of behaviour that can be used as basis on which prediction can be made in the future.

Anatasi (1984) conceived test as "a sample of behaviour from which inferences can be made hence the essence of all test is to measure a sample of behaviour". Nonetheless, selection process of any test very sensitive, as it aimed at averting type I error which is committed when a good student is rejected for any reason while type II error is committed when a poor student is selected.

Following the clamour for the establishment of demonstration secondary school in Ndele in the face of absence of standard secondary schools in the mid 1985 this study decided to find out if those deemed to have passed the entrance examination actually performed well in their junior secondary school I annual examinations.

Purpose of the Study

The purpose of this study is to find out the relationship between the predictive validity of entrance examination and JSS1 examinations. The study is designed to equally achieve the following objectives:

- Determine whether those who performed above cut-off point in the entrance examination also obtained high scores in their first year of Junior Secondary school 1 examination subject in Mathematics.
- Determine whether those who scored above the criterion cut-off point performed in the same way in their junior secondary school one examination scores in English Language.

Theoretical Framework

Self-Gratification Theory (SGT)

The major theory adopted for this work is “self-gratification theory (SGT). The theory was propounded by Obowu-Adutchay (2015). The “self-gratification theory” posits that the concept of gratification is a strong drive in the process of achieving success in every human endeavor and unless and until this gratification is satisfied, the “self” will be restless. The theory postulates that self is usually exposed to exceptional myriad of daunting recipes on how to meet the expectation of the self-gratification, and when this is achieved, the self-settles down and peace is restored into the entire system.

This researcher is poised on how to arrive at the ideal predictive validity of the issue at hand in other to ensure that the quest to mobilize all relevant factors may ignite the self-gratification. In addition, unless and until the solutions are found on the spot, the “self” will become fully gratified and satisfaction is achieved. This is what underlies the “Self Gratification Theory” (SGT).

Research Questions

The study attempted to answer the following research questions:

- What is the relationship between student entrance examination scores in mathematics and their junior secondary school I?
- What is the relationship between students’ scores in English language and their junior secondary school I annual examinations scores in English language?

Hypotheses

The researchers tested the following hypotheses stated in null form at 0.05 level significance:

- There is no significant relationship between students’ scores in mathematics and their junior secondary school I annual examination scores in mathematics.
- There is no significant relationship between students’ entrance examinations in English language and their junior secondary school I annual examination scores in English language.

METHODS

The study adopted the correlational survey method, which seeks to establish whether two or more variables were related. The study was carried out in Demonstration secondary school Ndele, Ignatius Ajuru University of Education.

The population of the study comprised of students admitted in the 1995 academic session, out of which three hundred (300) students were sampled using cluster sampling technique. The instrument for data collection was the entrance examination raw scores obtained in Mathematics and English Language as well the annual examination scores in the same subjects. The researcher worked on the assumption that the scores were products of face and content validities.

The raw scores were transformed to t-scores which are standard scores before applying Pearson product moment correlation in order to discover the magnitude of relationship (r) coefficient. At the end, the two subjects were subjected to correlation between the scores of entrance examination and that of junior secondary school I annual examinations.

RESULTS

Research Question 1

What the relationship between students entrance examination scores in Mathematics and their Junior Secondary School I examinations in Mathematics?

Table I: Correlation of entrance examination scores in Mathematics and JSS1 examination scores

Variables	N	$\sum x$	$\sum y$	$\sum x^2$	$\sum y^2$	$\sum xy$	Co-efficient (R)
Entrance scores in Mathematics	300	15048		785164		772967	0.06
JSS I Examination in Mathematics			15027		782729		

Table I above shows that, there is a correlation between students entrance examination scores and their Junior secondary school 1 examination scores in Mathematics with $\sum x=15048$ and $\sum x^2=785164$ while JSS1 examination had an $\sum y=15027$ and $\sum y^2=782729$. These scores resulted on a $\sum xy$ of 772967 with a correlation coefficient of 0.06.

Research Question 2

What is the relationship between students' entrance examination scores in English Language and their JSS1 annual examination scores in English language.

Table 2: Correlation of students' scores in English Language in their entrance examination and JSS1 annual examination

Variables	N	$\sum x$	$\sum y$	$\sum x^2$	$\sum y^2$	$\sum xy$	Co-efficient (R)
Entrance scores in English Language	300	14948		776671		760406	0.39
JSS I annual Examination scores in English Language			15016		781660		

Table 2 above shows that 0.39 is the degree of relationship between students' entrance examination scores in English Language in entrance and their JSS1 annual examination scores in English language. This result is an indication that a positive relationship between students entrance examination scores in English language and their JSS1 annual examination scores in English Language.

Hypothesis I: There is no significant relationship between students' entrance examination scores in Mathematics and their JSS1 annual examination scores in mathematics.

Table 3: Z-ratio analysis of students' scores in Mathematics in entrance examination and JSS1 annual examination scores

Variables	N	$\sum x$	$\sum y$	$\sum x^2$	$\sum y^2$	$\sum xy$	Observed (r)	Calculated z-ratio	Critical z-ratio
Entrance scores in Mathematics	300	15048		785164		772967	0.06	0.65	1.96
JSS I scores in Mathematics annual Examination			15027		782729				

Table 3 above shows that the calculated z-ratio 1, is lesser than the critical z-ratio 1.96 at 0.05 level of significance hence, the null hypothesis accepted. This result implies that there is no significant relationship between students entrance examination scores in mathematics and their JSS I annual examination scores in Mathematics.

Hypothesis 2: There is no significant relationship between students' scores in English Language and their JSS1 annual examination scores in English language.

Table 4: Correlation cum z-ratio analysis of students' scores in for English Language for entrance examination and JSS1 annual examination scores.

Variables	N	$\sum x$	$\sum y$	$\sum x^2$	$\sum y^2$	$\sum xy$	Observed (r)	Calculated z-ratio	Critical z-ratio
Entrance examination scores for English Language	300	194948		776674		760406	0.39	0.65	1.96
JSS I annual examination scores for English Language			15016		781660				

Table 4 above shows that, the calculated z-ratio is 0.65 with a critical or table value of 1.96 at 0.05 level of significance. Since the calculated value is lower than the critical z-ratio the hypothesis stands accepted. This implies that there is a significant relationship between students entrance examination scores in English language and their JSS1 annual examination scores in English Language.

DISCUSSION

The research question one gave rise to hypothesis one which states that “there is no significant relationship between students’ scores in entrance examination scores in mathematics and their JSS I annual examination scores in Mathematics”. The result was presented in table 3 in applying Pearson product moment-correlation and z-ratio analysis. The observed $r=0.06$ was determined by the use of Pearson moment correlation earlier on mentioned. The z-ratio was also calculated and evaluated by close reference to table of areas under the normal curve. The calculated z-ratio was (1) which was lesser than the critical z-ratio of 1.96 at 0.05 level of significance. With this, the null hypothesis was accepted. The result revealed that there was no significant relationship between students’ entrance examination scores in mathematics and their JSS1 annual examination scores in Mathematics. This finding is in line with Nze (2008) who found out in his study of the same subject Mathematics applying the same Pearson proved that the students were focused showing that the entrance examination actually selected those that were better.

Research question two gave also rise to hypothesis two which states that “there is no significant relationship between students’ entrance examination scores in English and their JSS1 annual examination scores in English Language. The result was presented in table 4 using Pearson product moment correlation including z-ratio analysis. The observed r was 0.39 while the table or critical value was 1.96 at 0.05 level of significance. The hypothesis was thus subjected to testing the $r=0.39$. The z-ratio had a 0.65 since that was lesser than 1.96 meaning that the hypothesis was thus accepted that there was no significant relationship between the two sets of scores entrance examination and JSS1 annual examination scores. This is a clear indication that entrance examination as a test is predictive and that those who passed the entrance would do better in their JSS1 annual examination. Interestingly, the obtained co-efficient of 0.06 which is the coefficient of determination whereas that of the common entrance and JSS1 scores is 36% the proportion of the variance of the variance not accounted for could be due to extraneous variables like incentives and zeal of the students to be consistent. That is a way of justifying admission through entrance in their first year of admission JSSI scores. The findings of this study are in line with that of Olorundare (2008). While exploring the use of (ICT) Information and Communication Technology in learning Mathematics and using entrance examination to predict performance in a future task, he also found that no significant difference existed in the variables under consideration.

CONCLUSION

The study investigated the predictive validity of student’s entrance examination scores and their Junior Secondary School I annual examination scores in mathematics and English language respectively. The demonstration secondary school Ndele was used as a case study. Two research questions and two hypotheses were postulated for the study. The research questions and hypotheses were tested using Pearson Product Moment Correlation and z-ratio at 0.05 level of significance. In summarizing the results, it could be deduced that, there is a positive relationship between student’s entrance examinations scores in English Language and their JSS1 annual examination scores in English language. It could be also deduced that there is a positive relationship between students’ entrance examination in scores in Mathematics and their JSSI annual examination scores in Mathematics.

Recommendation

Based on the findings of the study, the following recommendations are made:

- That entrance examination should be properly strengthened so that it could be the only medium for selection of students for admission.
- That educational administrators, guidance counsellors and parents/teachers association should ensure that the students are conscious of entrance examinations at all levels are essential if the target is to perform well in future task.
- That the predictive validity study should be consistent with the criterion scores of the predictor scores as well increases the degree of validity therefore extramural classes should be organized for the students.
- That in the case of any incidence of entrance examination and junior secondary school examination, the psychometric properties of the both test or examination should be properly scrutinized to ensure that they are reliable.

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