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ASSESSMENT OF THE PREDICTIVE VALIDITY OF ENTRANCE EXAMINATION QUESTIONS (EEQ) OF NIGERIAN BAPTIST THEOLOGICAL SEMINARY, OGBOMOSO

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ABSTRACT

Selection tests are tools used in higher institutions to select candidates for admissions. These tests are aimed at providing quality students for the task ahead. This study therefore aimed at assessing the predictive validity of the entrance examination questions (EEQ) of the Nigerian Baptist Theological Seminary (NBTS), Ogbomoso. The study adopted an ex-post-facto research design. The study population was 142 participants. A judgmental sampling technique was used to select 70 participants who had the required characteristics for the study. The instrument used was an archival source. Data were analyzed with regression statistics using SPSS version 20 and Microsoft Excel 2007. Findings from the study revealed that the entrance examination averages of regular students were able to predict their academic performances while entrance examination averages could not predict sandwich students' academic performances. Thus the study concludes that the entrance examination questions varied in the prediction of students' outcomes. We recommend that the management of NBTS should involve experts in test and measurement constructing entrance assessment tools.

KEYWORDS

Predictive validity, entrance examination questions, test, entrance examination average, cumulative student average.



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INTRODUCTION

Assessment entails the full range of information gathered and synthesized by teachers or test takers about their students, or examinees and their classrooms. It looks into how much change has occurred on the student's acquisition of a skill, knowledge or value before and after giving learning experience. Assessment of students has taken different forms and consequentially the Federal Government of Nigeria as cited in Queensoap and Memory stated that educational assessment and evaluation shall be liberalized by their being based in whole or in part on continuous assessment of the progress of the individual. (Queensoap & Memory, 2013). This reveals that educational assessment is institutional based. For instance, some institution used continuous assessment and final examination as tools of assessments of their students. Some institution use 30 percent and 70 percent respectively while some used only continuous assessment alone such as Finland educational system (Queensoap & Memory, 2013).

The performances of students are therefore matched with the same criteria needed to assess or judge them. (Ndubueze, Iyoke, Okoh, & Beatrice, 2015) In the quest to achieve the goal of educational system, teachers are sometimes expected to have competence in the assessment of student marking criteria which is being used to assess students' feedback as toward quest they are being given. Also assessment helps to standardize the grading as well. To students with low self-esteem competitiveness can be unhelpful but assessment when not carefully and properly designed can be extremely destructive in summative assessment criteria. Student consider formative assessment and feedback were necessary both when judging work and permitting learning to become study outcome. Student often advocate the need for more educating and emulative approaches of assessment process to be adopted.

Similarly, the types of assessment are summative assessment, continuous assessment and formative assessment (Ndubueze et al., 2015). Formative assessment is specifically used in order to give response or encourage students during leaning. It is not part of the summative grade but it encourages the student on how to improve in their performance. While summative assessment criteria contribute to the students' grade. Continuous assessment involves different task that are being assessed sometimes adding a final assessment to continuous assessment seem to be more appropriate.

Characteristic of the different assessment method have been documented in order to select choice of assessment. There is always need for the appropriate method of assessment to be applied in different learning processes (Race, 2006). Again Harndorf and Hall as cited in Craddock & Mathias (2009) stated that mode of assessment can have a powerful influence on the learning behaviour of students and assessing the performance of students is one of the most important activities educator/lecturers undertake. Available literatures resided several mode of evaluating or assessing students' examination scripts. Such include electronic, manual marking etc. all these forms of marking involved single lecturer or educator marking a script. However, group marking or round table marking which refers to the assessment or marking of the content of an answer script by multiple assessors or examiners became another mode of students' script assessment (Memory, Queensoap, Victor, & Albert, 2017).

To Ubolom, Uzoeshi, Amini, & Vipene (2019), forms of assessment techniques applied by teachers, test experts and examination bodies include the closed book assessment technique, the open book assessment technique, the republished assessment technique, open-time (take home) assessment

technique, oral assessment technique and practical work assessment techniques. These assessment techniques are utilized purposively by the examiner or the test expert depending on the goal of the assessment. Nevertheless, the test designed to be used for the assessment is fundamental to the accurate assessment, measurement and evaluation done on the outcome of the students.

Consequently, educational measurement and evaluation experts have identified that any test worth valued is one that possesses the psychometric properties of a test. These psychometric properties include validity, reliability and usability. This study focused on the validity of the entrance examination of the Nigerian Baptist Seminary Theology. Validity simply puts refers to the extent to which a test measures what it is supposed to measure (Orluwene, 2012). Validity is gives value to the test. In other words if a test is not valid for the purpose of used, it has little or no value. There are a few types of validity such as content validity, face validity, criterion-related validity and construct validity. A predictive validity is the degree to which predictions made from the test are confirmed by evidence gathered at some later time.

This current study was on the assessment of the Predictive Validity of Entrance Examination Questions of Nigerian Baptist Theological Seminary, Ogbomoso. The study variables include the entrance examination averages as an independent variable and the cumulative student average as a dependent variable. The entrance examination is seen as a selection examination which serves as the predictor variable while the cumulative student average is regarded as students' academic performance or outcome which denotes as criterion variable. Some scholars have carried out some empirical research on predictive validity on selection examination tests.

A study titled, "the predictive validity of the university student selection examination" was conducted by Karakaya and Tavsancil. The study focused on the predictive validity of the 2003 University Student Selection Examination (OSS). The study adopted a relational descriptive research design upon 2013 students from agricultural engineering, civil engineering, law, business administration, social sciences teaching, Turkish language and Literature programmes. Data obtained for the study were students' examination grade points and selection grade points. The collected data have been transformed into the SPSS 13.00 packet program. A stepwise regression analysis was done. The major finding of the study was that the FGPA is YEP which is used for the placement of agricultural engineering, civil engineering, and social studies education programme students, Y-OSS SAY scores which is not used for placement of business administration programme students and three YEP's (Y-OSS SOZ, Y-OSS SAY, Y-OSS EA) which is used for the placement of law program (Karakaya & Tavsancil, 2008). However, the article did not look at the extent of validity rather concluded with FGPA having negative correlation.

From the foregoing predictive studies it has been observed that all investigations are done outside the seminary education. The concern to ensure quality products stems from the selection examinations and such examinations are expected to be subjected into validation especially predictive validity. Apparently, this current study is breaking ground in the field of test and measurement as well as Seminary education. Seminarians are trained to be disciplined and sound in academics as well as spiritual vibrancy. Therefore, considering the core values of Nigerian Baptist Theological Seminary, Ogbomoso the need to assess the predictive validity of the entrance examination (Selection Examination) into various programmes became inevitably necessary.

2. METHODOLOGY

The study adopted an expos-facto research design. This design helped the researchers to make use of already existing records to ascertain the predictive ability of the Entrance Examination Questions (EEQ). The study population was consisted of all successful candidates who wrote the entrance examination of Nigerian Baptist Theological Seminary, Ogbomoso, and was admitted and had graduated from the institution. That is to say, 59 candidates for the 2014/2015 academic session for the Sandwich Masters of Divinity Theology programme and 83 candidates for the 2016/2017 academic session candidates who wrote the Entrance Examination for the regular Masters of Divinity programme. Thus, the target population stands at 142 participants.

This data was obtained at the archives of the registry of the Nigerian Baptist Theological Seminary, Ogbomoso. Based on the nature of the study, only those who had both entrance examination scores and a corresponding cumulative student average (CPA) were selected by judgmental sampling technique where only participants who had the required characteristics were selected for the study hence the sample of this study was 70, that is, regular applicants who were admitted and successfully graduated, and having both the Entrance Examination Average (EEA) and Cumulative Student Average (CSA) was 51 while the sandwich group consisted of 19 participants. The major study instrument was a record/documentary. Records of entrance scores and corresponding cumulative students' average at the end of their study were used.

The researchers considered the documents reliable and valid because they were certified by the registrar of the institution after assuring confidentiality before they were released for the research purpose. Demographic information of participants was presented with Bar chart and simple percentage. The research questions one and two were analyzed with mean and standard deviation while research question, three and four were analyzed with Linear Regression Statistics. The researcher made use of Statistical Package for Social Sciences (SPSS) version 20 and Microsoft office Excel 2007 for all statistical analysis.

3. RESULTS

Data obtained for the study was analyzed and presented as follows:

Presentation of Demographic Information of Subjects

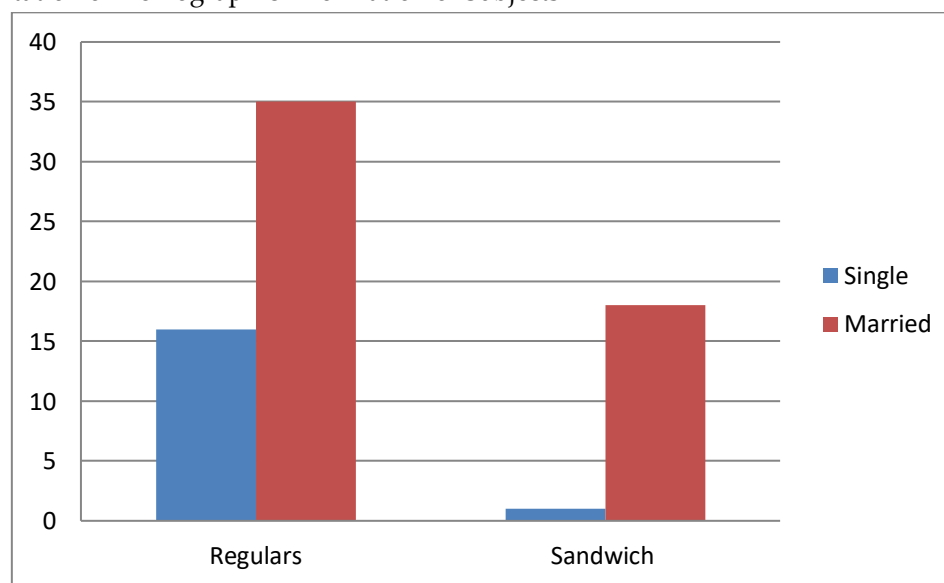


Figure 1: Distribution of Subjects by Marital Status

Figure 1 above showed the marital status distribution of subjects. The blue bar represents single subjects while the red color bar represents married subjects at the point of entry into the Seminary. The graph showed that out of 51 regular students understudy 16 (31.4%) were single while 35 (68.6%) were married subjects. Meanwhile, for the sandwich the graph reveals that married persons were 18 (94.7%) while singles was 1 (5.3%) out of 19 students under study. Therefore, the study observed that there were more married persons in the seminary education than the singles.

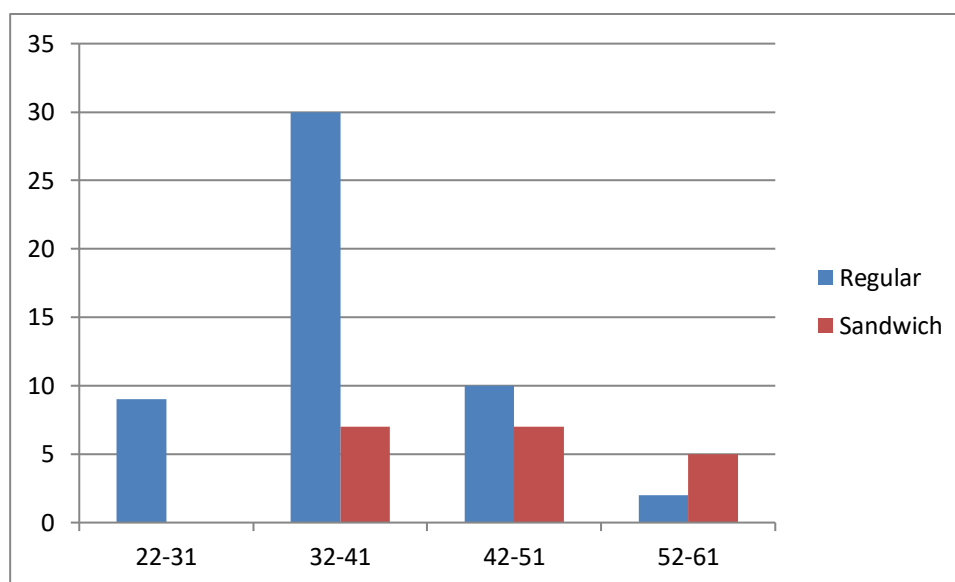


Figure 2: Distribution of Subjects by Age

Figure 2 showed the distribution of subjects by Age. The age of the subjects was grouped in an interval of 10. The graph revealed that age group 22-31 was 17.6% (9) and 0 for regular and sandwich respectively. Age group 32-41, the regular was 58.8% (30) while that of the sandwich was 36.8% (7). Age bracket 42-51 indicates 19.6% (10) for regular students and 36.8% (7). Also, age interval 52-61 reveals 0.4% (2) for regular and 26.3% (5). This implies that the regular students' average age was 37.5 while that of the sandwich was 45.5. It means therefore that the regular students have younger participant than the sandwich participants.

Research Question 1: To what extent do candidates performed in the Entrance Examination Questions (EEQ) in Nigerian Baptist Theological Seminary, Ogbomosho?

Table 1: Summary of Descriptive Statistics

Variables	Number	Mean	Standard Deviation
EEQ for Regular candidates	51	60.27	8.66
EEQ for Sandwich candidates	19	60.21	5.90

Table 1 on the previous page has shown that while regular candidates have a mean of 60.27 and a standard deviation of 8.66, sandwich candidates have a mean and standard deviation of 60.21 and 5.90, respectively for their Entrance Examination Questions performances. This implies that the 51 regular candidates performed better in the entrance examination than the 19 sandwich candidates because the mean of the regular candidates is greater than that of the sandwich candidates ($60.27 > 60.21$). Meanwhile, the sandwich candidates performances was more clustered to the mean than the

performances of the regular candidates ($5.90 < 8.66$), indicating that those that have higher scores with lower scores are closer than in the case of the regular.

Research Question 2: To what extent do students' performed in the course of study as regards their Cumulative Students Averages (CSA) in Nigerian Baptist Theological Seminary, Ogbomoso?

Table 2: Summary of Descriptive Statistics

Variables	Number	Mean	Standard Deviation
CSA for Regular Students	51	63.91	4.82
CSA for Sandwich Students	19	65.48	3.14

It can be discerned from table 2 above that 51 regular students have a mean of 63.91 and a standard deviation of 4.82 while 19 sandwich students have 65.48 and 3.14, mean and standard deviation respectively for their cumulative students' average. This implies that the sandwich students record high performances than the regular students because the mean of the sandwich was greater than that of the regular students, that is, $65.48 > 63.91$. Again, table 2 depicted that performance of the sandwich students was around the mean more than that of the regular students. This is evident on the various standard deviations, $3.14 < 4.82$, indicating that most of the scores of the sandwich students are within average and the gap between the highest level and the lowest level was close.

Research Question 3: To what extent do admitted regular candidates' entrance averages predict their cumulative students' average in Nigerian Baptist Theological Seminary, Ogbomoso?

Table 3: Summary of Linear Regression Statistics for Regular M. Div. (Th.)
Correlations

Variable pairs	Number	correlation	P > 0.05	Decision
Entrance Examination Average (EEA) Cumulative Student Average (CSA)	51	.368	.004	Rejected

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.368	.136	.118	4.53

Coefficients^a

Model	Unstandardized coefficients B	Standardized coefficients Beta (β)	t	Sig.
1 (constant)	51.540		11.444	.000
EEA	.205	.368	2.774	.008

a. Dependent variable (CSA)

Table 3 on previous page consisted of the summary of the regression output for the regular students. The regression output has shown the correlation coefficient between the predictor (EEA) and criterion (CSA) variables as .368 which is significant at .05, alpha level. This implies that the EEA has significant relationship with the CSA. Also, the model summary has indicated that R is .368 and R square is .136, that is, a coefficient determination is 13.6%. Of the greatest importance and main concern here is the Coefficients sub-table which has shown unstandardized regression coefficient (B) of .205. This implies that for every 1 unit increase in EEA level, there is an increase of .205 in CSA level for regular students.

The standardized regression coefficient (Beta or β) is .368. This indicates that the β or standardized regression coefficient of .368 is significant at .05 as the *P value* (Sig.) is .008. Therefore, since the $\beta = .368$, $P = .008$, two-tailed, the null hypothesis of ‘no significant linear regression coefficient between entrance examination averages and cumulative student average for regular students’ is rejected. That is, the entrance examination questions of the Nigerian Baptist Seminary, Ogbomoso can be used to predict the outcome of criterion variable (cumulative student average).

Research Question 4: To what extent do admitted sandwich candidates’ entrance averages predict their cumulative students’ average in Nigerian Baptist Theological Seminary, Ogbomoso?

Table 4: Summary of Linear Regression Statistics for Sandwich M. Div (Th.)

Correlations				
Variable pairs	Number	correlation	P > 0.05	Decision
Entrance Examination Average (EEA)	19	.445	.025	Rejected
Cumulative Student Average (CSA)	19			

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.445	.198	.151	2.89

Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B		Beta (β)		
1 (constant)	51.252			7.344	.000
EEA	.236		.445	2.048	.056

a. Dependent variable (CSA)

Table 4 above showed the linear regression output for sandwich students. Table 4 presents the correlations coefficient between the predictor (EEA) and criterion (CSA) variables are given as .445 which is significant at .025. The model summary reveals that the R is .445 and R square is .198, indicating a coefficient determination of 19.8%. This denotes the extent of relationship between the predictor (EEA) and criterion (CSA) variables as 19.8%.

The coefficients sub-table showed unstandardized regression coefficient (B) of .236. This implies that every 1 unit increase in EEA level there is an increase of .236 in CSA. Meanwhile, the standardized regression coefficient (β or Beta) is .445. The β or standardized regression coefficient of .445 is not significant at .05 as the *P value* (Sig.) is .056. Therefore, since the $\beta = .445$, $p = .056$, two-tailed, the null hypothesis of ‘no significant linear regression coefficient between Entrance Examination Averages (EEA) and Cumulative Student Averages’ is not rejected. That is, Entrance Examination Questions cannot be used to predict the outcome of the cumulative student averages for the sandwich students.

4. DISCUSSION

This study was to assess the predictive validity of the Nigerian Baptist Theological Seminary Entrance Examination Questions. The study made use of 70 Master of Divinity (Theology) students who had both entrance average values and cumulative students’ averages. This current research choose the 2016/2017 regular students and 2014/2015 sandwich students. The study observed that there were more male than female students undergoing seminary education. Similarly, among the

participants there were more married than single students. The study observed that the average age of the regular students was 37.5 while that of the sandwich was 45.5, indicating that there were younger participants in the regular than the sandwich programme.

Consequently, the results of the regression analysis which was done to predict students' academic achievements (CSA) showed that the 51 regular candidates performed better in the entrance examination than the 19 sandwich candidates because the mean of the regular candidates was greater than that of the sandwich candidates. The reason of this difference in performances for regular and sandwich cannot be fully ascertained however some authors had asserted that variables like learning preference, age, gender, and entry qualification are some factors that affect academic performances of students in higher institution (Queensoap, Arogo, Memory, Ogbari, & James, 2017). Most institutions use high score to decide which students to accept or admit in an attempt to find the capable ones to run the programmes available (Shuttleworth). This is in line with the opinion of Ogundipe stating that any candidate who scored above 40, depending on some other criteria will be admitted. The implication is that NBTS admits candidates that score a minimum entrance examination average range of 40-45 depending on other salient factors or criteria. The study result confirms this position because all EEA of both regular and sandwich candidates were greater than 40-45.

Previous studies had examined the determinants of academic performance in various subjects and came up with a number of individual factors such as age, gender, domicile, ethnicity, prior academic achievement, discipline of study, institution and mode of study (Richardson, 2012). This assertion becomes informative because the regular students performed better in the entrance examination than the sandwich students. This is different from the findings reported by Crawford and Wang that UK sandwich students are academically better than UK full-time students in their selection examinations (Crawford & Wang, 2014).

The study discovered that students' performances in the course of their study regards their cumulative students average, the sandwich students record high performances than the regular students because the mean of the sandwich was greater than that of the regular students. This indicates that the sandwich students consistently outperformed students during course of study after being admitted. It shows that sandwich students are academically better. This finding supports that of Crawford and Wang studies. In their paper, it was discovered that sandwich students consistently and significantly outperformed full-time students at all levels (Crawford & Wang, 2014). This difference may not be farfetched from the teaching-learning methods adopted for the different sets (regular and sandwich). Also, the sandwich higher performance rate could be attributed to learning preferences because most of the sandwich students were elderly and thus learning preferences can set in to make the difference. This submission is in line with that of Lateju's position that selection of educational pedagogies is influenced by age and thus different methods are ascribed for different age groups (Lateju, 2016).

It has been further observed that the regression output has shown the correlation coefficient between the predictor (EEA) and criterion (CSA) variables as 0.368 which is significant at 0.05, alpha level. This implies that the EEA has significant relationship with the CSA however the correlation was a weak one as posited in Alias, that in cases where statistical significant correlation is found, the correlation is a weak one, that is, between 0.24 – 0.38 (Alias, Faizal, & Zain, 2006). This suggests that the relationship between the entrance examination average and the cumulative student average was weak for the regular students. Consequently, the model summary has indicated that R is .368 and R square is 0.136, that is, a coefficient determination is 13.6 percent. This means that the extent of relationship was just 13.6 percent which stands as very low value of correlation determination.

Some authors accredited low correlation between entry qualification and cumulative grade point average to candidates having just senior secondary school certificate and thus recommended that universities should use national diploma (ND), national certificate of education (NCE) and its equivalent as entry qualification for undergraduate admission programs in Nigerian to complement the admission of candidates with good and genuine SSCE and UME results. Adopting this recommendation may improve the quality of academic performance of students in Nigerian higher institutions (Gbore, 2013). Meanwhile, this study's participants were all graduates level students having first degree or its equivalent. Therefore, in as much as the findings of this study is in line with previous studies, the recommendation of using national diploma and the likes to complement UME and SSCE does not hold much water. It indicates that other factors may necessitate low correlation coefficient between selection examinations and students' academic outcome.

Of the greatest importance and main concern here is the Coefficients sub-table which has shown unstandardized regression coefficient (B) of 0.205. This implies that for every 1 unit increase in EEA level, there is an increase of 0.205 in CSA level for regular students. This shows the extent at which the EEA could predict the CSA of the regular students. Meanwhile, the standardized regression coefficient (Beta or β) is 0.368, indicating that, the null hypothesis of 'no significant linear regression coefficient between entrance examination averages and cumulative student average for regular students' is rejected. That is, the entrance examination questions of the Nigerian Baptist Seminary, Ogbomoso can be used to predict the outcome of criterion variable (cumulative student average) better than Zero. This finding is in line with the findings of another study which concluded that a cognitive admission test has a high predictive validity with respect to academic performance (Kennet-Cohen, Turvall, Saar, & Oren, 2016).

The entrance examination averages of the sandwich candidates showed positive correlation with their cumulative averages, however, showed that the EEA cannot be used to predict the cumulative student averages of sandwich students. This informed that the Entrance Examination Question has no predictive validity in respect to sandwich students' academic performance in their final year. The study was limited to ascertain the factor responsible for such differences but sufficed to admit that the several factors that affect students' performances in selection test assumed to be responsible. This assumption supports that there are many factors that can determine outcomes in the real world that are not measured by any one test. Indeed, some influences can be the results of events that occur after applicant has been admitted (Bell, 2006).

Besides, it is of the obvious that the entrance examination questions used for sandwich and regular students were teacher made test and not standardized tests. Standardized test usually produced very similar result when different persons administer and score the measure following the instructions given and for which normative data are presented to describe how subjects from specified population will perform.

5. Conclusion

Based on the findings of this study, the entrance examination question has predictive validity in respect to cumulative student average performance of the regular students. On the other hand, the entrance examination question has no predictive validity in respect to cumulative student average performances of sandwich students. The reason cannot be farfetched since the entrance examination questions are not standardized tests but teacher-made tests. Standardized tests possess psychometric properties such as reliability, validity and usability. It became necessary to conclude that the entrance examination questions of Nigerian Baptist Theological Seminary, Ogbomoso has low ability to predict

students' academic success at the end of their programmes. However, the study was limited by the fact that the oral interview scores were not used for the analysis hence a further on predictive validity of candidates' Oral Interview scores for admission in NBTS, Ogbomoso can be done to cover the gap.

6. Recommendations

Following the findings of this study and the conclusion drawn, the researcher recommends that:

1. Management of Nigerian Baptist Theological Seminary should involve experts in the field of Test and Measurement in the construction of the entrance examination questions
2. Non-secular institution of learning should be introduced to psychometric education as conventional institutions have taken as a priority for students
3. Management of the institution should encourage post-graduates students to carry out research in this area as a way to evaluate the core value in respect to sound academics

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