

Senior School Certificate Examination (Ssce) Scores As Predictors Of Students Post-Unified Tertiary Matriculation Examination (Putme) Aptitude Test Performance In The University Of Port Harcourt.

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Abstract

The study investigated “Senior School Certificate Examination (SSCE) scores as predictors of students Post-Unified Tertiary Matriculation Examination (PUTME) Aptitude test performance in the University of Port Harcourt from 2013-2014 academic session. The study adopted correlational design. Four hypotheses tested at 0.05 level of significance guided the study. The sample size was made up of 400 students’ scores which were drawn through stratified random sampling technique from four faculties in the University of Port Harcourt. The instrument used for data collection where SSCE and PUTME students results from the university. All hypotheses were analyzed using simple regression analysis. The result of the study revealed that students SSCE scores do not significantly predict their Post-UTME Aptitude test performance in all the four faculties in the university.

Keywords: *Certificate examination, post-unified tertiary matriculation examination, aptitude test performance.*

Date of Submission: 29-03-2021

Date of acceptance: 12-04-2021

I. Introduction

Education has been recognized universally as the bedrock of development and seen to possess the adequate potentials for transforming, and assisting society in the achievement of its social, political and economic goals. Education has been diversely announced as the most basic variable that goads national change over the ages since it gives the human capital that drives the economy. It likewise gives centered authority that stars the nation's formative procedures and exercises (Izuagha & Afunobi, 2009). Thus, education is a long lasting procedure that has understanding in reason, sort and level. However, it must be appreciated that the educational system in any human society is dynamic; and it is so because the society which education is meant to serve is also dynamic. Thus, the changing nature of the society instigates that some changes should be brought into the educational system at any given time. In other words, educational reforms are necessary to accommodate the existing realities as they affect the society.

Federal Republic of Nigeria (2014, p.1) in the National Policy on Education characterized Education as "an instrument for national development and social change". By this, every stakeholder in government and non-governmental sectors see education as a viable entity in transforming the society. In other words, educational reforms are necessary to accommodating the existing realities as they affect the society.

Test, is an instrument which can be used to find out the qualities or characteristics possessed by somebody, an object or a thing. Tests have been defined in various ways both in clinical and educational context. Kpolovie (2002, p.1) defined test as “the presentation of a standard set of questions to be answered and which qualify as relevant information gathering instrument for effective evaluation of the examinees cognitive, affective and psychomotor trait”. Onunkwo (2002, p.1) characterized test as an instrument which can be used in distinguishing a few qualities, attributes, qualities, properties controlled by a man, an item or a thing . To Kaplan and Saccuzzo (2005), a test is an estimation gadget or method used to measure conduct or help in the comprehension and expectation of conduct. Ukwuije and Opara (2012) defined test as instrument for determining the degree of change that has occurred among individuals in things following the end of treatment conditions. Testing means the process of administering a test to a student or group of students. Various types of test exist, and they includeteacher made tests, standardized tests, achievement tests, aptitude tests, essay tests and objective tests. Chikwe (2017) averred that testing is used to determine the extent to which a learner have learned what have been taught in the teaching and learning process.

Aptitude test as noted by Orluwene (2012) as tests that are designed to measure the individuals’ specific ability/abilities in future or ones area/areas of specialization if given proper training”. Anastasi (2006,

p.491) asserted that, aptitude test is an aggregate impact of an assortment of experience in daily living. In other words, aptitude tests are used to determine student's potential to successfully learn future task. Thus, they are administered in order to predict future performance of students. There are two types of aptitude tests; general mental aptitude test and special mental aptitude test. The general mental aptitude test also called intelligence test, mental ability test, IQ test are tests which measure students general ability to learning. Universities and higher schools use aptitude test to select students in school programme. Before administering this test, it should be reliable.

According to Kpolovie (2002), a good measuring instrument should have some essential psychometric properties which include validity, reliability and usability. He defined validity as "the degree to which a test actually measure what it purports to measure". He classified validity into three sub-types: Content, construct and criterion related validity. On the criterion related validity, he said this is where two sets of measures (predictor and criterion) are required to establish validity.

Predictive validity is the extent to which test scores are related to standard scores. Kpolovie (2002) defined predictive validity as "a situation to which a stated interval occurs between the predictor and the criterion tests". According to Odili (2006), in Nigeria admission management of tertiary institutions are controlled by five bodies, namely: National Board for Technical Education (NBTE), National Commission for Colleges of Education (NCCE), National University Commission(NUC), Federal Ministry of Education(FME) and the Joint Admission and Matriculation Board (JAMB) which incidentally is part of the focus of this study. Furthermore, it should also be noted that before students gain entrance into the tertiary institution, it is expected that they acquire the prerequisite educational qualification that will permit them into various tertiary programmes. Such educational prerequisite is the Senior Secondary School Certificate also known as West African Senior School Certificate or O' level certificate.

The Senior School Certificate Examination (SSCE) serves as an end-of-course evaluation for all secondary school graduates. The purpose of this examination is to ascertain to what degree students in a particular course have achieved the course or educational objective (Offor, 2001). In view of the economic social significance connected to senior school certificates, and the open doors for advanced education for the individuals who have such endorsement, the recompensing of this testament is a standout amongst the most imperative occasions in the Nigerian academic calendar. It thus goes without saying that much is expected from the certificate examining and awarding bodies in terms of ensuring that the spirit and focus of the examinations is not misplaced (Kpolovie, Ololube & Ekwebelem, 2011). It is also expected that after the senior school certificate examination, the students should also partake in the university matriculation examination.

The Post Unified Tertiary Matriculation Examination was presented by some Nigerian universities in 2006 couple of months after the UTME results and the specialist reactions that trailed it by a few scholastics, sentiment pioneers and whole masses (Osakuade, 2011). These universities where of the feeling that they could no more depend entirely on JAMB scores for the determination of their students but instead need another examination to go about as a method for decreasing deficient candidates. The PUTME is assumed to be a set of standardized aptitude tests that ought to anticipate an individual's capacity to study in a particular vocation. Due to high level of competition among candidates, prospective students usually pass through serious readiness to reach the cut-off point of the examination (Kpolovie et al. 1999). The individuals who succeed in meeting these necessities are required to adjust and perform positively in their particular courses of study.

In discussing SSCE as predictor of PUTME, Oyebola, Adewoye, Iyaniwura, Alada, Fasanmade and Raji (2000) investigated the admission process used in the admission of the first set of medical students into the College of Medicine that was newly established in Ado-Ekiti. The university admitted two groups of students, those admitted on the basis of a combination of JAMB scores and O'level grades in Physics, Chemistry, Biology and Mathematics those admitted on the basis of their JAMB scores alone (five students) and in the latter group, the JAMB scores and O' level grades were given equal rating (50% of mark obtainable each) and all applicants were ranked on the basis of their combined scores. The 127 top scorers based on this ranging were given a written interview test and an oral interview. At the end of the exercise, 40 candidates were admitted. Eventually, 31 of the group and four out of the five candidates admitted with JAMB scores along registered for 100 level courses. A comparison of the academic performance of the two groups of students in science and general studies courses at 100 level showed that all students in the JAMB and O' level group were far better than students in the JAMB alone group. Certainly, the previous group had an exceptional performance while 50% of the second group could not cope. It was finalized that the use of O' level grades is very important and active in selecting academically sound students and should be used in admissions into Medical Schools alongside aptitude tests.

Achor, Aligba and Omananyi (2010) examined the admission grades of Senior School Certificate Examinations (SSCE) and Joint Admission Matriculation Board (JAMB) examinations in relation to their performance at the aptitude test scores, at the University of Ibadan medical school. A descriptive, cross sectional study was carried out from December, 1998-April 1999. Records of students admitted into the University in 1991/92 sessions were studied. The results showed a stronger correlation between the performance of the

students at the SSCE grades than their JAMB scores and aptitude test scores. Students on merit according to JAMB scores performed averagely above than their other counterpart with JAMB scores. This result demonstrated that the SSCE scores are a better predictor of performance at aptitude test. More attention needs to be placed on the quality of SSCE scores during admission into the University, he concluded.

Kale (2004) studied and reported that combining O' level scores, JAMB scores and aptitude test scores for assessing suitability of applicants for admission into a university is outstanding procedure for admission. A comparison of the performance in the 100 level examinations of the students admitted with JAMB scores only with those admitted with JAMB scores and O' level grades combined as well as JAMB scores, O' level scores and aptitude test scores reveals that students in group III had better academic achievements than those in group I. This reveals that apart from JAMB scores, including the quality of O' level grades at the admission stage in deciding who should be admitted ensures that students who can cope academically are those that get admitted in addition to aptitude test.

Asuk (2012) investigated the predictive validity of West African Senior School Certificate Examination (WASSCE), the Unified Tertiary Matriculation Examination (UTME) and the Post Unified Tertiary Matriculation Examination (PUTME) scores on students' Academic performance (CGPA) in Rivers State Tertiary institutions 2005-2009. The study adopted correlation and ex-post facto design. The sample was made of 2310 students' scores from WASSCE, UTME and Post-UTME purposely drawn from six faculties in the University of Port Harcourt and Rivers State University of Science and Technology. The multiple regressions were used to answer the research question and tested the hypothesis to find out the degree of prediction in each of the dependent variable. The results revealed that the combination of scores of the three independent variables greatly influence the prediction of student's academic performance (CGPA) in the faculties. The independent variables were significant at predicting CGPA.

It is obvious that the Post UTME aptitude test performance of students may be affected by a number of factors. According to Iqbal (2006), students' performances in an examination are being affected by earlier examinations. On this note, it could be that one of such factors affecting students Post UTME aptitude test performance could be their SSCE itself.

Statement of the Problem

Nigerian universities and polytechnics responsible for the award of certificate, diploma and degree have been confronted with a great deal of criticism due to the low performance or poor quality of their students. It is additionally noticed that alumni from Nigerian universities and polytechnics who happen to go for further studies abroad are regularly made to confront further examination before being admitted.

The foregoing presents a desolate and troubling picture of Nigeria education system considering that before now, Nigerian universities had been declared to have delivered world-class graduates who have distinguished themselves in their areas of accomplishments.

As a remedy and to rectify the poor performance, there have been diligent calls from various quarters for the examination of the present methods of selecting students for entrance into the different degree programmes in Nigerian universities with a perspective to deciding the validity of each of the admission criteria. Candidates' performance in SSCE and their consequent attainment in university degree examinations have eventually resulted in the Post-UTME screening exercise. Therefore to what extent does students' SSCE and UTME scores predict their performance in Post-UTME aptitude test examination?

Hypotheses

The following null hypotheses testable at 0.05 level of significance guided the study:

1. Students' performance in SSCE does not significantly predict their Post-UTME aptitude test in Faculty of Education.
2. Students' performance in SSCE does not significantly predict their Post-UTME aptitude test in Faculty of Humanities.
3. Students' performance in SSCE does not significantly predict their Post-UTME aptitude test in Faculty of Business Studies.
4. Students' performance in SSCE does not significantly predict their Post-UTME aptitude test in Faculty of Social Sciences.

II. Methodology

The design of this study is correlational. Correlational survey was defined by Nwankwo (2006) as a study to find out whether there is any relationship between two or more variable. He maintained that two sets of data (one set from the) predictor or independent variable and another from the criterion or dependent variable should be correlated to determine the direction and magnitude of the relationship.

Regression technique best suits the design of the study. Based on the principles of correlation for the analysis of linear relationship that exists between one predictor (independent) variable and one criterion variable in which the dependent variable(PUTME) value is equated with waited value of the independent variable in addition to a constant term. Kpolovie (2010) stated that regression is concerned mainly with the development of a linear equation and its application in the prediction of one variable from dependable knowledge of another variable in addition to obtaining accurate measures of the degree of linear association between the two variables. Ogidi (2018) stated that regression analysis is used for testing significance of null hypothesis in studies that are predictive in nature. The choice of this research design was useful following the nature of this study which is SSCE scores as predictors of Post-UTME, aptitude test performance of students in University of Port Harcourt

The population of the study consisted of 3163 candidates that wrote the SSCE and chose the university as their choice and consequently wrote the Post-UTME aptitude test in 2013/2014 session and were admitted. Simple random sampling technique was used to draw a sample of 400 students from the population of five faculties of the university that was used for the study.

The University of Port Harcourt admission unit was the primary source for the collection of data/relevant information that facilitated to the success of this study. Consequently, an inventory form was designed by the researchers for the selection of the information needed for the study. The inventory form sought information on the following: SSCE and Post-UTME results of students for 2013/2014 session.

The SSCE questions (test) were designed by subject specialists and experts in test and measurement using the appropriate syllabus for the construction of test items.. Similarly, the Post-UTME is also designed by experts in the field of test and measurement. They possessed content validity before they were administered.

The validity and reliability coefficients of SSCE, and Post-UTME aptitude test questions were not determined by the researcher because they were not developed by the researcher but by subject specialist and test experts in conformity with the syllabus of the various examination bodies. Therefore it is believed that the instruments have gone through the necessary processes of standardization and is confirmed to be reliable before administration.

The researcher therefore, collected the PUTME print out in the University of 2013/2014 Session respectively. The researcher also collected the SSCE results of students in the five faculties for the period under review and this SSCE results were scored as following: A1=6, B2=5, B3=4, C4=3, C5=2, and C6=1 for various grades in the SSCE result.

All hypotheses was analyzed using simple regression analysis. Beta values and standardized and standardized regression coefficient (B) associated with the regression was used to determine the degree of prediction of the predictor variables on the criterion variable at 0.05 alpha level of significance.

III. Result

The result of the analyzed data for each hypotheses and its interpretation are presented below.

Hypothesis One: Students performance in SSCE does not significantly predict their Post-UTME aptitude test in Faculty of Education.

Table 1.1: Students Performance in SSCE and Post-UTME Aptitude Test in Faculty of Education
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	203.619	7.098	28.687	.000	189.533	217.705
	SSCE	.262	.371	.071	.704	-.475	.998

a. Dependent Variable: PUTME

The regression output has shown the mean and standard deviation for each variable. The correlation coefficient between the predictor (SSCE) and the criterion (PUTME) variables are also given as 0.071 which is not significant at 0.241. The model summary has indicated that the R is 0.071 and R is 0.005.

The coefficient which is the greatest importance and the main concern to this study has shown standardized regression coefficient (B) of 0.262. The standardized regression coefficient(Beta) is 0.071 which is not significant at even 0.483 as the P value(sig) is 0.483.

Therefore, since Beta=0.071,P=0.483, two tailed, the null hypothesis of no significant linear regression coefficient between SSCE and PUTME is not rejected. That is, students performance in SSCE does not significantly predict their Post-UTME Aptitude test in faculty of Education.

The fact that the sub-table of the result has shown that at 95% certainty, the confidence interval within which the population regression slope or coefficient falls is between -0.475 for lower and 0.998 for upper, a range which is totally or completely above zero. It can be concluded on this basis alone that the standardized

regression slope or coefficient of 0.071 is not statistically significant. Therefore the null hypothesis is not rejected at 0.05 alpha level of significance.

Hypothesis Two: Students performance in SSCE does not significantly predict their Post-UTME aptitude test in Faculty of Humanities.

Table 1.2: Students Performance in SSCE and Post-UTME Aptitude Test in Faculty of Humanities

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	204.485	8.080		25.309	.000	188.451	220.518
	SSCE	-.078	.442	-.018	-.177	.860	-.955	.799

a. Dependent Variable: PUTME

The regression output has shown the mean and standard deviation for each variable. The correlation coefficient between the predictor (SSCE) and the criterion (PUTME) variables are also given as -0.018 which is not significant at 0.430. The model summary has indicated that the R is 0.018 and R squared is 0.000.

The coefficient sub-table has shown standardized regression coefficient (B) of -0.078. The standardized regression coefficient (Beta) is -0.018 which is not significant at even 0.860 as the P value (sig) is 0.860.

Therefore, since Beta=-0.018, P=0.860, two tailed, the null hypothesis of no significant linear regression coefficient between SSCE and PUTME is not rejected. That is, students' performance in SSCE does not significantly predict their Post-UTME Aptitude test in faculty of Humanities. The confidence interval within which the population regression slope or coefficient falls is between -0.955 for lower and 0.799 for upper. It can be concluded on this basis alone that the standardized regression slope or coefficient of -0.018 is not statistically significant. Therefore the null hypothesis is not rejected at 0.05 alpha level of significance.

Hypothesis Three: Students performance in SSCE does not significantly predict their Post-UTME aptitude test in Faculty of Business Studies.

Table 1.3: Students Performance in SSCE and Post-UTME Aptitude Test in Faculty of Business Studies

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	204.467	7.403		27.621	.000	189.777	219.157
	SSCE	.338	.390	.087	.867	.388	-.436	1.112

a. Dependent Variable: PUTME

The coefficient sub-table has shown standardized regression coefficient (B) of 0.338. The standardized regression coefficient (Beta) is 0.087 which is not significant at 0.388 as the P value (sig) is 0.388.

Therefore, since Beta=-0.087, P=0.388, two tailed, the null hypothesis of no significant linear regression coefficient between SSCE and PUTME is not rejected. That is, students' performance in SSCE does not significantly predict their Post-UTME Aptitude test in faculty of Business studies.

The fact that the sub-table of the result has shown that at 95% certainty, the confidence interval within which the population regression slope or coefficient falls is between -0.955 for lower and 0.799 for upper. The standardized regression slope or coefficient of -0.018 is not statistically significant. Therefore the null hypothesis is not rejected at 0.05 alpha level of significance.

Hypothesis Four: Students performance in SSCE does not significantly predict their Post-UTME aptitude test in Faculty of Social Sciences.

Table 1.4: Students Performance in SSCE and Post-UTME Aptitude Test in Faculty of Social Sciences

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	200.912	6.925		29.014	.000	187.170	214.654
	SSCE	.415	.363	.115	1.143	.256	-.306	1.137

a. Dependent Variable: PUTME

The coefficient sub-table has shown standardized regression coefficient (B) of 0.415 The standardized regression coefficient (Beta) is 0.115 which is not significant at 0.256 as the P value (sig) is 0.256.

Therefore, since $\text{Beta} = -0.115$, $P = 0.256$, two tailed, the null hypothesis of no significant linear regression coefficient between SSCE and PUTME is not rejected. That is, students' performance in SSCE does not significantly predict their Post-UTME Aptitude test in faculty of Social Sciences.

The result has shown that at 95% certainty, the confidence interval within which the population regression slope or coefficient falls is between -0.306 for lower and 1.137 for upper, a range which is totally or completely above zero. It is concluded that the standardized regression slope or coefficient of 0.115 is not statistically significant. Therefore the null hypothesis is not rejected at 0.05 alpha level of significance.

IV. Discussion

All the result of the study which is students' performance in SSCE does not significantly predict their Post-UTME Aptitude test performance in all the four Faculty is not in agreement with Oyebola, Adewoye, Iyaniwura, Alada, Fasanmade and Raji (2000) who arrived at the result that the use of O' level grades is very important and active in selecting academically sound students and should be used in admissions into Medical Schools alongside aptitude tests.

The result of the study is not also in agreement with the result of the study carried out by Achor, Aligba and Omananyi (2010) which showed that a stronger correlation between the performance of the students at the SSCE grades than their JAMB scores and aptitude test scores. Students on merit according to JAMB scores performed averagely above than their other counterpart with JAMB scores.

And also that of Asuk (2012) who arrived at the conclusion that SSCE, UTME and Post-UTME greatly influence the prediction of student's academic performance (CGPA) in the faculties.

It is only the study carried out by Kale (2004) which revealed that apart from JAMB scores, including the quality of O' level grades at the admission stage in deciding who should be admitted ensures that students who can cope academically are those that get admitted in addition to aptitude test is the only study in line with the present study.

V. Conclusion

In summary, the study unveiled that students' performance in SSCE do not significantly predict their Post-UTME Aptitude test performance in the University.

VI. Recommendations

Based on the results of the study, the following recommendations have been made.

1. The examination bodies should involve subject specialists and professionals in test construction in all examinations to ensure valid, reliable and quality test items are generated for all the examinations.
2. That more improvement should be made to curtail extraneous variables that could hamper performance in standardized examinations like examination malpractice as this may be one of the causes of discrepancies in performance of candidates in the various examinations.
3. The students thumb-printing and ID card should be used in all the examinations to check-mate impersonation in the examinations.
4. Various schools should endeavor to get their students ready and qualified to partake in the SSCE.

References

- [1]. Achor, E.E. Aligba, S.O. & Omananyi, O.E. (2010). Predictive power of two selection examination scores on senior school certificate examination result of pre-degree science students of Benue State University, Makurdi, Nigeria. *African Journal of Biomedical Research*, 8(1), 51-57.
- [2]. Anastasi, A. (2006). *Psychological testing*. Dorling Kindersely Publisher.
- [3]. Asuk, U.W. (2012). *Predictive validity of WASSCE, UTME and PUTME scores n student academic performance (CGPA) in tertiary institution in River State*. Unpublished M.Ed Dissertation, University of Port Harcourt.
- [4]. Chikwe, C. K. (2017). *Fundamentals of test, measurement and evaluation in education*. Emmanest Ventures Publishers.
- [5]. Federal Republic of Nigeria, (2014). *National Policy on Education*. NERD Press.
- [6]. Ibeh, C. (2015). SSCE and UTME scores as predictors of POST UTME aptitude test performance of students in university of Port Harcourt. Unpublished M.Sc Dissertation submitted to Department of Guidance and Counselling, University of Port Harcourt.
- [7]. Izuagba, A.C & Afurobi, A.O. (2009). Quality education through innovation: examples of tertiary institutions in Nigeria. *European Journal of Social Science*, 10(4), 605-613.
- [8]. Kale, O.O. (2004). An educational system in decline; lecture 3 of "nigeria in distress; *A trilogy on the Nation's health status*". Odua Printing and Publishing Company.
- [9]. Kpolovie, P. J. (2010). *Advanced research methods*. Springfield Publishers.
- [10]. Kpolovie, P.J. (2002). *Test measurement and evaluation in education*. Emhai Printing and Publishing.
- [11]. Kpolovie, P.J. (2006). *Advance research method*. Springfield Publishers.
- [12]. Kpolovie, P.J. Olulube, N.P & Ekwebelem, A.B.I. (2011). Appraising the performance of secondary school students on the WAEC and NECOSSCE from 2004 to 2006. *International Journal of Scientific Research in Education*, 4(2), 105-114. <http://www.ijrsre.com>

- [13]. Nwankwo, O.C. (2006). *A practical guide to research writing*. Pam Unique Publishers.
- [14]. Ofor, E.I. (2001) *Content validity of senior secondary school certificate examination (SSCE) chemistry*. Unpublished M.Ed. thesis, Department of Education, Imo State University.
- [15]. Ogidi, R. C. (2018). *Inferential statistics for psychology, education and other behavioural sciences: Learners' approach* (pp. 218-223). Pearl Publishers International.
- [16]. Onunkwo, G.I.N. (2002). *Fundamentals of educational measurement and evaluation*. Cape Publishers International.
- [17]. Opara, I.M. (2014). *Psychological testing: Principles and techniques*. Career Publishers.
- [18]. Orluwene, G.W. (2012). *Introduction to test theory and development process*. Chris Ron Integrated Service.
- [19]. Osakuade, J.O. (2011, August 11). Effectiveness of university matriculation examination and post-university matriculation examination on the academic performance of Nigerian undergraduate students. *Journal of Education and Practice*, 4(2).
- [20]. Oyebola, D.D.O., Adewoye, O.E, Iyaniwura, J.O, Alade. A.R.A, Fasamade, A.A. & Raji, Y. (2000): A Comparative study of students performance in Aptitude test assessment by multiple choice and short essay questions. *African journal of medical science* .29, 201-205.
- [21]. Saccuzzo, D.P & Kaplan, R.M (2005). *Psychological testing principles, application and Issues*. Thomson Wadsworth.