PREDICTIVE VALIDITY

Assessment of Predictive Validity of Entry Mode on Academic Performance of Science Undergraduates of Ekiti State University, Ado Ekiti

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Abstract

The study investigated assessment of predictive validity of entry mode on academic performance of Science undergraduates of Ekiti State University, Ado Ekiti; and determines the extent to which entry mode can be used to predict Science undergraduates' academic performance in Ekiti State University. The study employed an ex-post facto design. The study's population comprised 1,338 undergraduates from the Faculty of Science, out of which a sample of 121 was selected using simple random sampling and purposive sampling techniques. The present Cumulative Grade Point Average (CGPA) of the undergraduates was collected through a pro forma. The data collected for the study was subjected to inferential analyses based on the hypotheses formulated. Linear regression analysis, correlation analysis and t-test analysis were used to test the hypotheses. The results revealed that undergraduates admitted through the UTME performed significantly better than those admitted through the pre-degree at all levels. It also showed that pre-degree and UTME when taken together, significantly predicted undergraduates' CGPA in the Faculty of Science; there existed high positive composite relationship between pre-degree scores, UTME scores and CGPA of undergraduates in Faculty of Science. Based on the findings of the study, it was concluded that the graduate admitted through UTME performed significantly better than pre-degree undergraduates. It was therefore recommended that in the admission of undergraduates into degree programmes in the Faculty Science, priority should be given to UTME entry mode while pre-degree entry mode should be properly taken care of for better success.

Keywords: academic performance; mode of entry; predictive validity; pre-degree; UTME

1 Introduction

Education is an essential instrument used in the transformation of the political, economic and scientific sectors of any society. This is why no society can afford to treat matters of citizen education lightly, as this would result in slow progress. The educational objectives of a country, as spelled forth in its national education policy, reflect those components of the government's goals that are regarded attainable through formal education. Nigeria has known for more than three decades that its educational institutions are failing to fulfill their statutory obligations. Undergraduates' education is the post-secondary education prior to the postgraduate education. It includes all bachelor degree programmes. The universities should be able to produce better undergraduates that are sound morally and academically. However, it appears that Universities are not living up to expectations in discharging its obligations in producing qualified graduates that could solve the present economic, political and scientific problems in Nigeria. Onah (2012) and Emaikwu (2012) affirmed that the fall in the standard of achievement by students at all levels of education has been awfully reported and acknowledgement by all and sundry in Nigeria. The higher education system in Nigeria today, seem to

require restructuring, this reform is required to improve the performance of higher education in the country.

The World Education News Review (WENR, 2013) affirmed that the numbers of students seeking admission into universities for undergraduates' programmes are numerous and the government is incapacitated and seriously hard pressed to meet this demand. At the undergraduates' level, the number of students has grown from about 15,000 in 1970 to approximately 1.2 million (WENR, 2013). As a result of the huge surge in demand, hundreds of thousands of applicants seeking for admission into universities are not admitted annually. WENR (2013) further stated that 1.7 million students registered for Nigeria's Joint Admissions Matriculation Examination to compete for the half a million vacancies available; potentially leaving over a million qualified college-age Nigerians without a post-secondary place. In fact, the numbers of available places have grown significantly in recent years as the government establishes new institutions in its efforts to meet demand. Since 2005, the number of universities established in Nigeria has grown geometrically, while capacities at existing universities have been stretched to its limits.

The formula for access to higher education makes provision for admission based on academic merit, residential zones, and discretion. Competition for success to limited places has led to practices such as cheating in examinations, bribery for admission, and manipulation of examination of examination scores. Many intending students failed to secure their admission based on their performance in the senior secondary school certificate examination (SSCE). Akindele (2013) lamented that several professionals and researchers in education have argued that the glorious period of high academic performance and enviable achievement among Nigeria students have reached a vanishing point and has called for education summit to rescue the situation. Academic performance is inevitable in any formal educational institution. It expresses the learning achievement of an individual or a group at the end of an academic programme. It is a criterion for ascertaining the capabilities of a student from which his potentials could inferred.

Students who pass the Unified Tertiary Matriculation Examination (UTME) conducted by the Joint Admission and Matriculation Board (JAMB), direct entry admission with JAMB, and those who pass through remedial programs run by individual universities respectively (Pre-Degree) with JAMB are the three major categories of students admitted into universities in Nigeria. There are certain pre-requisite that any candidate interested in gaining admission into higher institution has to meet before he/she can be considered eligible for the admission.

Ekiti State University (EKSU) usually admitted students into their first degree programmes, the candidate to be admitted must have been subjected to serious academic scrutiny. The candidate is expected to have passed Senior Secondary Certificate Examination (SSCE) conducted by West African Examination Council (WAEC) and/or National Examination Council (NECO) with at least five relevant ordinary-level subjects with minimum of credit pass in each subject; must have got the minimum Unified Tertiary Matriculation Examination (UTME) scores as well as other requirements by the department into which the candidate is seeking admission.

The Joint Admissions and Matriculations Board (JAMB) is a Nigerian entrance examination board for tertiary-level institutions that was established by the act 2, of 1978, subsequently amended in 1989 and 1993. The board conducts entrance examinations for prospective undergraduates into Nigerian Universities. The board is also charge with the responsibility to administer similar examinations for applicants to Nigerian public and private monotechnics, polytechnics, and colleges of educations. All

of these candidates must have obtained the west Africa School Certificate, now West African Examinations Council WAEC, or its equivalent, National Examination Council (Nigeria), NECO.

Pre-degree is one of the modes of entry into the Nigeria University which was initiated due to rampant cheating with impunity in the process of conducting UTME. Pre-degree was also introduced because from the previous performance of undergraduates, there was no correlation between UTME scores and undergraduates CGPA in the University. There are certain requirements that the intended candidates into Pre-Degree programme need to meet, they are expected to have a minimum of five O'level credits at one/two sittings including English Language, credits in Mathematics and three other science subjects for all science-based courses. Credits in Mathematics and three other social science subjects for all social science-based courses and credits in four Art subjects for all Arts based courses. All the candidates to be considered for Pre-Degree programme will also be screened through an entrance examination.

Predictive validity is the extent to which a score on a scale or test predicts scores on some criterion measure. This was affirmed by Popoola (2016) that predictive validity is concerned with the usefulness of test score in predicting or estimating how the individual will perform on some subsequently criterion task. This is a type of validity which focuses on how an instrument ascertains the prospects of an individual to perform future tasks. The criterion is set after a time lag. The present study focuses on predictive validity because it takes care of the prediction of entry scores of students on their academic performance in the University.

2 Statement of the problem

It is necessary to explore several entry modes into university undergraduate programs in order to identify which is the most successful in terms of assisting students in improving their academic performance. These forms of entry are supposed to give students with improved cognitive capacities and skills so that they can perform better academically in their future academic program, but rather appear to be in a regressive condition that demands quick and urgent attention. For ages, there has been debate over the superiority and inferiority of one entry mode over the other, which has never been empirically proven. Some people believe that students who enroll in a pre-degree program are academically inferior to those who enroll in other modes of entry because they believe that only those who fail the JAMB-conducted UTME will enroll in Pre-degree and that the bright ones who pass the UTME will never underrate themselves to enroll in Pre-degree. It is critical to understand and assess the predictive validity strength of the various entry modes in order to recommend the optimum entry mode for halting the decline in undergraduate academic performance in Nigerian universities.

3 Purpose of the study

The study looked into the assessment of predictive validity of entry mode scores on academic performance Science undergraduates of Ekiti State University, Ado Ekiti. The performances of undergraduates who joined the University through the UTME and Pre-Degree programs is compared in this study. The study's objectives are to:

1. determine the overall performance of Pre-degree undergraduates at all levels in the University as well as the overall performance of UTME undergraduates at all levels in the University.

2. determine the extent to which the Cumulative Grade Point Average performance of undergraduates at the final year can be predicted by their Pre-degree and UTME scores.

3. determine whether Pre-degree entry scores and UTME entry scores contributed to the Cumulative Grade Point Average of undergraduates of Ekiti State University

4 Research hypotheses

The following research hypotheses were formulated from the above stated objectives.

1. Science undergraduates' Pre-degree scores will not significantly predict their Cumulative Grade Point Average in the University.

2. Science undergraduates' UTME scores will not significantly predict their Cumulative Grade Point Average in the University.

3. There is no significant difference between the academic performance of undergraduates with Pre-degree and UTME entry modes.

5 Methodology

The research design used was ex-post-facto. The population of the study comprised of 1,338 undergraduates in the Faculty of Science in the Ekiti State University, Ado Ekiti that gained admission into 100 level through pre-degree and UTME in the year 2011/2012 academic session. A sample of 121 undergraduates drawn from some selected departments in Faculty of Science of Ekiti State University. One Faculty was selected from all the Faculties in Ekiti State University using simple random sampling technique. Six departments were randomly selected from the Faculty of Science. Purposive sampling technique was also used to select the entry mode and undergraduates involved in the study. The entry mode scores used for this study were collected from the admission office and the pre-degree office of the Ekiti State University. The present Cumulative Grade Point Average (CGPA) of the undergraduates was collected through a pro forma containing: Sex, mode of entry, entry scores, year of admission, matric number and CGPA for 100 level to 400 level of each student in the faculty selected for the study. The data collected for the study was subjected to inferential analyses based on the hypotheses formulated. Linear regression analysis, correlation analysis and t-test analysis were used to test the hypotheses.

6 Results

6.1 Hypothesis one

Research Hypothesis One: Science undergraduates' Pre-degree scores will not significantly predict their Cumulative Grade Point Average in the University.

Table 1. Science undergraduates' pre-degree scores as predictors of CGPA in the university.

Level / model		Sum of Squares	df	Mean Square	F	Sig.	R_n	R^2_n	Adj. R^2_n
100	Regression / residual / total	16.218 16.679 32.897	1 48 49	16.218 .347	46.675	.000	0.702	0.493	0.483

Level / model		Sum of Squares	df	Mean Square	F	Sig.	R_n	R^2_n	Adj. R^2_n
200	Regression / residual / total	18.504 18.207 36.711	1 48 49	18.504 .379	48.783	48.783	0.710	0.504	0.494
300	Regression / residual / total	15.327 16.226 31.553	1 48 49	15.327 .338	45.340	.000	0.697	0.486	0.475
400	Regression / residual / total	15.031 15.635 30.666	1 48 49	15.031 .326	46.146	.000	0.700	0.490	.480

Significant at $p < 0.05$.

Table 1 shows that Science undergraduates' pre-degree scores significantly predict their CGPA in 100 level ($F_{1,48} = 46.675$, $p < 0.01$, $R_1 = 0.702$, $R^2_1 = 49.3\%$), 200 level ($F_{1,48} = 48.783$, $p < 0.01$, $R_2 = 0.710$, $R^2_2 = 50.4\%$), 300 level ($F_{1,48} = 45.340$, $p < 0.01$, $R_3 = 0.697$, $R^2_3 = 48.6\%$), 400 level ($F_{1,48} = 46.148$, $p < 0.01$, $R_4 = 0.700$, $R^2_4 = 49\%$) in each case. The null hypothesis is rejected. This implies that there is significant very high positive composite relationship between Science undergraduates' pre-degree scores and their CGPA in 100 level ($R_1 = 0.702$, $p < 0.01$), 200 level ($R_2 = 0.710$, $p < 0.01$), 300 level ($R_3 = 0.697$, $p < 0.01$) and 400 level ($R_4 = 0.700$, $p < 0.01$). Science undergraduates' pre-degree scores have higher, or have stronger predictive strength that could predict undergraduates' CGPA than that of Science undergraduates' UTME score. Science undergraduates' pre-degree scores have average predictive strength that could account for 49.35%, 50.04%, 48.06% and 49% of the prediction of their CGPA in 100 level, 200 level, 300 level and 400 level respectively.

6.2 Hypothesis two

Research Hypothesis Two: Science undergraduates' UTME scores will not significantly predict their Cumulative Grade Point Average in the University.

Table 2. Science undergraduates' UTME scores as predictors of CGPA in the university.

Level / model		Sum of Squares	df	Mean Square	F	Sig.	R_n	R^2_n	Adj. R^2_n
100	Regression Residual Total	23.905 32.817 56.722	1 69 70	23.905 .476	50.26	.000	0.649	0.421	0.413
200	Regression Residual Total	20.257 29.943 50.200	1 69 70	20.257 .434	46.68	.000	0.635	0.404	0.395
300	Regression Residual Total	16.132 21.052 37.184	1 69 70	16.132 .310	52.10	.000	0.659	0.434	0.426
400	Regression Residual Total	14.348 20.739 35.086	1 69 70	14.348 .301 47.736	47.73	.000	0.639	0.409	0.400

Significant at $p < 0.05$.

The result in table 2 reveals that Science undergraduates' UTME scores significantly predicted their Cumulative Grade Point Average in 100 level ($F_{1,70}$ = 50.263, p < 0.01, R_1 = 0.649, R^2_1 = 42.1%), 200 level ($F_{1,70}$ = 46.681, p < 0.01, R_2 = 0.635, R^2_2 = 40.4%), 300 level ($F_{1,70}$ = 52.108, p < 0.01, R_3 = 0.659, R^2_3 = 43.4%) and 400 level ($F_{1,70}$ = 47.736, p < 0.01, R_4 = 0.639, R^2_4 = 40.9%) in the University. Therefore, the null hypothesis is rejected. This implies that Science undergraduates' UTME scores will significantly predict their CGPA at all levels in the University. Science undergraduates' UTME scores have predictive strength of 42.1%, 40.4%, 43.4% and 40.9% of prediction of their CGPA in 100 level, 200 level, 300 level and 400 level respectively. It means Science undergraduates' UTME score has an average predictive strength but significantly strength in predicting undergraduates' academic performance. Also, there is high significant relationship between UTME score performance and undergraduates' performance at all levels.

6.3 Hypothesis three

Research Hypothesis Three: There is no significant difference between the academic performance of undergraduates with Pre-Degree and UTME entry modes.

Table 3. t-test of the academic performance of undergraduates with pre-degree and UTME entry modes.

Level / mode of entry		N	Mean	SD	df	t_{cal}	t_{table}
100	Pre-degree	125	2.37	0.82	264	3.022	1.960
	UTME	141	2.68	0.87			
200	Pre-degree	125	2.44	0.80	264	3.343	1.960
	UTME	141	2.77	0.82			
300	Pre-degree	125	2.57	0.76	264	3.723	1.960
	UTME	141	2.91	0.73			
400	Pre-degree	125	2.71	0.77	264	3.596	1.960
	UTME	141	3.04	0.72			

Significant at p < 0.05.

Table 3 reveals that there is a significant difference between the academic performance of undergraduates in pre-degree and UTME mode of entry in 100 level (t = 3.022, p < 0.05), 200 level (t = 3.343, p < 0.05), 300 level (t = 3.723, p < 0.05) and 400 level (t = 3.596, p < 0.05). The null hypothesis is rejected. This implies that there is significant difference between the academic performance of undergraduates in pre-degree and UTME mode of entry.

7 Discussion

The findings of the study showed that UTME undergraduates performed better than pre-degree undergraduates at all level. The findings showed that undergraduates admitted through UTME mode of entry performed progressively better than those admitted through pre-degree mode of entry. This is not in agreement with the submission of Thomas and Paschal (2013), Adeyemi (2011) and Otokune (2011) that the performance of undergraduates who gained admission into the University through UTME is not better than those who gained admission through pre-degree. This also negates the findings of Olajide et al. (2015) that the graduates admitted through Basic Studies Programme performed remarkably better than those admitted through UTME. The result showed that mode of entry significantly predicted undergraduates' academic performance among undergraduates' performance. The findings of this study negate the finding of Faleye (2015) who reported that UTME scores do not

significantly influence the academic performance of graduates. The present study which revealed that mode of entry has a significant predictive strength with CGPA is in agreement with the findings of Adeyemi (2011).

8 Conclusion

The study concluded that Science undergraduates' UTME and pre-degree scores predicted academic performance of Science students in the University. It was also concluded that graduates admitted through UTME performed better than pre-degree undergraduates in the Faculties of Science. The undergraduates admitted through UTME entry mode performed progressively better than those admitted through pre-degree entry mode. This study concluded that there is significant difference between the academic performance of undergraduates in pre-degree and UTME mode of entry.

9 Recommendation

It was therefore recommended that in the admission of undergraduates into degree programmes in the Faculty Science, priority should be given to UTME entry mode while pre-degree entry mode should be properly taken care of for better success.

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