

ENTRY CRITERIA AS PREDICTOR OF ACADEMIC SUCCESS: A CASE OF SOLUSI UNIVERSITY, ZIMBABWE

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Abstract

This study examined the predictive validity of entry criteria on academic success of students in the Faculty of Business Programmes at Solusi University. The predictors are the modes of entry and qualifications for admission into the university while the criterion is the Final Cumulative Grade Point Average (CGPA) at the end of university education. The sample for the study consisted of four hundred and sixty three (463) faculty of Business students who graduated in years 2007, 2008 and 2009. The stepwise regression was used for data analysis. The major findings of the study are that in general, ordinary level Mathematics and advanced level Accounts are predictors of academic success, and that the Cumulative Grade Point Average (CGPA) at the end of pre-university examination predicts academic success of the pre-university entrants.

Keywords: Entry criteria, Predictive validity, Predictor, Criterion, Academic success

Introduction

Predictive validity is the ability of an instrument to predict some future event or events. It involves testing a group of subjects for a certain construct, and then comparing them with results obtained at some point in the future. Most educational and employment tests are used to predict future performance and as a result predictive validity is regarded as essential in these fields. According to Shuttleworth (2009), the most common use of predictive validity is inherent in the process of selecting students for university. Most universities use high-school grade point average to decide which students to accept in an attempt to find the most gifted and most dedicated students. He stated further that the basic assumption is that a high-

school pupil with a high grade point average will achieve high grades at university.

For the past decades some considerable research attention have focused on the examination of the relationship between entry criteria or previous exposure and the subsequent academic performance of students. This relationship has been examined from various angles and levels but the findings of the studies and conclusions on the subject of predictive validity of entry criteria on subsequent academic performance of students are inconsistent, thus making it necessary to study every situation.

According to Loretta, Steve and Stephen (2009) a number of studies have examined the relationship between students' A-level points on entry and their final degree classification to determine how previous educational attainment can be used to predict undergraduate performance and progression. Results have implications not only for admissions policies, but also for the cost of widening participation in Higher Education they added. Their study on the effect of gender, prior academic achievement, place of residence, age and attendance on first –year undergraduate attainment revealed a strong, statistical relationship between prior attainment and subsequent Year 1 results. McCarey, Barr and Rattray (2007) demonstrated that students with higher entry qualification attained consistently better grades than those with lower level qualification. Indeed, evidence suggests that students who performed well in secondary education usually continue this high performance throughout their students' life (McKenzie and Schweitzer 2001; Jansen 2004).

Conversely, Chapman (1996) found a significant positive correlation between entry qualifications and degree results from eight disciplines over a 21-year period. However, the strength of the relationship varied between subjects and at an institutional and departmental level, with some displaying consistently counter-intuitive combinations of above average entry qualification and below average attainment and vice versa. Sear (1983) conducted a cross-section analysis of graduates of British universities and found a significant, but weak, positive relationship between A-level scores and subsequent degree result.

Dalziel and Peat (1999) in their study of academic performance during student transition to university education using a sample of 169 Bachelor of Science students at the University of Sydney discovered that higher weighted average marks for first semester were predicted by higher levels of secondary school performance. In the same vein, Hall, Kathy, Marchant and Paul (2000) in their study of predictor of academic performance of teacher education students conducted in two higher institutions, one in England and the other in Republic of Ireland, discovered

that the effect of prior achievement scores were statistically highly significant.

Majasan and Bakare (1979) examined the predictive validity of Ibadan University entry qualifications. The study was designed, first to identify the predictive validity of the three entry qualifications (GCE 'O' level, HSC/ the GCE 'A' level and the Preliminary Year Examination) into the University of Ibadan and second, to compare the predictive validity of these entry qualifications with a view of establishing which one is the most predictive of university performance. The results showed that all the three entry qualifications possess rather low predictive validity since they only account for 9% to 25% of the variance in degree performance.

Ojaleye and Ebeh (2002) carried out an investigation of a decade of correlation study between the entry qualification grade and National Certificate in Education (NCE) final examination to find out whether the admission qualification (entry qualification) is a predictor of the performance of students at the National Certificate in Education (NCE) in two colleges of education in Nigeria. Results showed that there is significant relationship between entry qualification and final grade of students in mathematics and that entry qualification is a predictor of final grade of students. A significant difference was found in the performance of students with Senior Secondary Certificate Examination (SSCE) entry qualification and those with Pre NCE entry at the final National Certificate of Education (NCE) in favor of SSCE entrants.

Soriyan in Ojaleye and Ebeh (2002) found a very low range of correlation coefficient between school certificate and higher school certificate grades. However, Ohuche also in Ojaleye and Ebeh (2002) study on entry qualification of students and their subsequent performance at the university degree examination, found that students who completed an equivalent of the sixth form performed academically better than the rest. Akanbi (1997) examined the reliability of West African School Certificate and Grade II Teachers' Certificate results as predictor of students' performance at NCE History course and found that the Grade II Teachers' certificate has a lower predictive validity than West African School Certificate (WASC) history result. Dike (2005) study of Students' SSCE Grades as correlate of academic performance in science in NCE at the Federal College of Education, Zaria revealed no statistical relationship between the students' pre-entry qualifications and their performance in science subjects.

In view of the fact that the findings of the studies and conclusions on the subject of predictive validity of entry criteria on subsequent academic performance of students are inconsistent, Ohuche in Ojaleye and Ebeh (2002)

advocated that it is necessary to give a continuous search on the subject of entry criteria in relation to final grade.

While the greater majority of studies on this problem have been carried out in the well developed countries, the problem itself has not been the exclusive preserve of these countries. At Solusi University, in Zimbabwe, for instance, contributing in no small measure to this problem is the fact that students are admitted through three entry criteria. The admission policy of the institution reveals that students are admitted into the University through different criteria which may be in a form of direct entry for candidates from Zimbabwe with A-level results, International students who have completed their secondary school education in a country where A-level courses are not available, are admitted provisionally, pending the successful completion of a one year pre-university requirement while some limited numbers of candidates are accepted on the basis of mature age, at the age of 25 years or above and on obtaining acceptable score on the Solusi University Mature Age Entry Examination.

The criteria for admission into Solusi University notwithstanding, no valid investigation has been carried out on the relationship between entry criteria and academic success of students in the university. This study therefore explored the relationship between entry criteria and academic success of Solusi University Faculty of Business undergraduate students; with the major objectives of finding out how predictive of university performance are the various entry subject grades as well as establish if the pre-university Cumulative Grade Point Average (CGPA) predicts academic success among the pre- university entrants

Research Questions

The researchers sought answers to the following research questions:

1. In general, which ordinary and advanced level subject grades predict students' academic success?
2. Among the various departments, which ordinary and advanced level subject grades predict students' academic success?
3. Does pre-university Cumulative Grade Point Average (CGPA) predict academic success among the pre- university entrants?

Research Hypothesis

1. Entry criteria are not predictor of academic success.

Research methodology

The study was an ex-post-facto research type because all the independent variables examined had already occurred and were not manipulated. These factors are entry criteria (direct entry, pre-university,

ordinary level grades, advanced level grades and CGPA at the end of pre-university examination), gender and students' departments. The dependent variable is students' academic success. The predictive validity of the independent variables on the dependent variable was examined.

The population for the study consisted of the 591 students who graduated from the Faculty of Business in years 2007, 2008 and 2009. The sample for the study consisted of a total of four hundred and sixty three faculty of Business students with complete records who graduated in years 2007, 2008 and 2009. This was made up of 448 direct entry and 15 pre-university entrants as no mature age entrant was found among the students. The only instrument for the study was a format designed by the researchers for recording all necessary information in respect of students that were used for the study. Information such as students' department, mode of entry into the university, grades at entry and the Cumulative Grade Point Average (CGPA) on graduation were obtained from the Registry Department of the university. The students' ordinary level and advanced level grades were converted from letter grades to numerical grades.

Regression analysis was carried out to determine the predictive validity of ordinary level and advanced level subject grades on academic success for direct entry students while the CGPA at the end of pre-university examination was used for the pre-university entrants.

Results

Research Question 1

In general, which ordinary and advanced level subject grades predict students' academic success?

Tables 1a and b below show the predictive validity of ordinary level subjects (Mathematics, English Language, Science and Geography) on the final Cumulative Grade Point Average of students. The table revealed that ordinary level mathematics accounted for 10.1% variance in academic success of students in the faculty of Business. The F value of 33.921 was found to be significant thus indicating that the result of the regression and correlation are indeed true and not the consequence of chance. This indicates that the better the grades of students in ordinary level mathematics the better their academic success in business related courses. This finding agrees with that of Alcock, Cockcroft and Finn (2009) which showed that students who pass more advanced secondary Mathematics subject perform significantly better in introductory Business courses and that the 'Mathematics effect' was found to be significantly stronger than the effect of other business related secondary subjects.

Table 1a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.322(a)	.104	.101	.30606	.104	33.921	1	293	.000

a Predictors: (Constant), O Level Mathematics
F = 33.921, Significant level = .000

a. Predictors: (Constant), O Level Mathematics

Table 1b: Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.232	.071		31.374	.000
	O Level Mathematics	.155	.027	.322	5.824	.000

a Dependent Variable: Final Cummulative Grade Point Average

Among the advanced level subjects only A Level Accounts was found to predict students’ academic success as shown in Tables 2a and b below. The adjusted R square indicated that it accounted for 9.6% variance. The F value of 16.063 was found to be significant. The positive beta value of .085 indicates that the better the grades of students in advanced level accounts the better their academic success in business related courses.

Table 2a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.320(a)	.102	.096	.25954	.102	16.063	1	141	.000

a Predictors: (Constant), A Level Accounts
F= 16.063, Sig. = .000

Table 2b: Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.543	.049		51.515	.000
	A Level Accounts	.085	.021	.320	4.008	.000

a Dependent Variable: Final Cummulative Grade Point Average

Research Question 2

Among the various departments, which ordinary and advanced level subject grades predict students’ academic success?

Accounting Department

Tables 3a and b below present the result of the predictive validity of ordinary level Accounts and advanced level Accounts on Cumulative Grade Point Average of students from Accounting Department. The regression and correlation analysis revealed that A Level Accounts is a predictor of academic success in the department with a predictive validity of 10.9%.

The F value of 10.404 was found to be significant an indication that the result of the regression analysis is true.

Table 3a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig. F Change
1	.347(a)	.120	.109	.27651	.120	10.404	1	76	.002

a Predictors: (Constant), A Level Accounts
F= 10404, Sig. =.002

The positive beta value of .094 indicates that the better the grades of students in advanced level accounts the better is their academic success Accounting Department. This finding agrees with that of Sera (1983) who found significant positive relationship between A-level scores and subsequent degree result.

Table 3b: Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.546	.074		34.510	.000
	A Level Accounts	.094	.029	.347	3.226	.002

a Dependent Variable: Final Cummulative Grade Point Average

Business Management and Marketing Department

Tables 4a and b show the predictive validity of advanced level Business Management and ordinary level Mathematics on the academic success of student from Business Management and Marketing Department. Ordinary level Mathematics was found to account for only 4.5% of students’ success. The F value of 4.241 was found to be significant an indication that the result of the regression analysis is true and not by chance.

Table 4a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.242(a)	.059	.045	.29863	.059	4.241	1	68	.043

a Predictors: (Constant), O Level Mathematics
F= 4.241, Sig. = .043

The positive beta value of .128 indicates that ordinary level mathematics is a predictor of academic success in the Business Management and Marketing Department. This finding agrees with the assertion of Aliyu (2005) that whichever area a graduate one decides to specialize, the knowledge of mathematics is very important in enhancing the productivity of such graduate.

Table 4b: Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.262	.155		14.633	.000
	O Level Mathematics	.128	.062	.242	2.059	.043

a Dependent Variable: Final Cummulative Grade Point Average

Computer Information and Management Systems

Tables 5a and b reveal the predictive validity of ordinary level mathematics and science on academic success of students from the department of Computer Information and Management Systems. Mathematics was found to be the predictor of academic success accounting for 32.3% of variance. The relationship was found to be substantially significant as indicated by the correlation coefficient of 0.584 and the F value of 18.614 was found to be significant. The positive beta value of .284 shows that the better the O level mathematics grades of students, the better is their academic success in the department of Computer Information and Management Systems. This finding is in agreement with that of Aliyu (2005) who found out that students with credits in mathematics at the Senior Secondary Certificate Examination level performed better in computer application than those who scored pass in mathematics.

Table5a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.584(a)	.341	.323	.27205	.341	18.614	1	36	.000

a Predictors: (Constant), O Level Mathematics
F= 18.614, Sig. = .000

Table:5b: Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.817	.192		9.444	.000
	O Level Mathematics	.284	.066	.584	4.314	.000

a Dependent Variable: Final Cummulative Grade Point Average

Finance Department

Table 6a and b below show the predictive validity of ordinary level Mathematics, Geography and Accounts on the final CGPA of students from the Finance department. Mathematics with a correlation coefficient of 0.523 and F value of 13.149 accounted for 25.2% variance in students’ academic success. The correlation coefficient indicates substantial relationship. The positive beta value of .254 revealed that the better the O level mathematics grades of students, the better is their academic success in the department of Finance. This finding is in agreement with that of Wong and Chia (1996) who showed that a higher degree of proficiency in mathematics was associated with high level of performance in financial accounting.

Table 6a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df 2	Sig. F Change
1	.523(a)	.273	.252	.31632	.273	13.149	1	35	.001

a Predictors: (Constant), O Level Mathematics
F= 13.149, Sig. = .001

Table 6b: Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.925	.193		10.001	.000
	O Level Mathematics	.254	.070	.523	3.626	.001

a Dependent Variable: Final Cumulative Grade Point Average

Research Question 3

Does Pre-university Cumulative Grade Point Average (CGPA) predict academic success among the Pre- University entrants?

Tables 7a and b show the predictive validity of the pre-university Cumulative Grade Point Average at the end of pre-university examination on academic success of the Pre-university entrants. The table revealed that Pre-university CGPA accounted for 64.4% of variance in academic success among the Pre-university entrants in the faculty of Business under study. The correlation coefficient of 0.818 and F value of 26.281 indicates a strong positive relationship.

Table 7a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.818(a)	.669	.644	.17402	.669	26.281	1	13	.000

a Predictors: (Constant), Preuniversity Cumulative Grade Point Average
F=26.281, Sig=000

The positive beta value of .677 indicates that the better the performance (Cumulative Grade Point Average) of students in the pre-university examinations, the better is their academic success at the end of their university programme.

Table 7b: Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.659	.353		1.867	.085
	Preuniversity Cumulative Grade Point Average	.677	.132	.818	5.126	.000

a Dependent Variable: Final Cumulative Grade point Average

Findings

Following are the findings of the study:

1. In general ordinary level Mathematics and advanced level Accounts are predictors of academic success of students in the faculty of Business.
2. Advanced level Accounts is a predictor of academic success of students in the Accounting Department.
3. Ordinary level Mathematics is a predictor of academic success of students in the Business Management and Marketing, Computer Information and Management Systems and Finance Departments
4. The Cumulative Grade Point Average (CGPA) at the end of pre-university examination was found to predict academic success of the pre-university entrants with a strong positive relationship.

Conclusion

From the findings of the study, it was evident that ordinary level Mathematics is a predictor of academic success in the faculty of Business programmes, which is in line with the requirement of Solusi University that any student wishing to enter for Bachelor of Business Administration (BBA) programme should present an ordinary level credit in mathematics. This notwithstanding, for maximum academic success, students in the Accounting department should have good points in advanced level Accounts in order to enhance their chance of success.

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