Predictive Ability of Advanced Secondary School Students' Performance to First Year Undergraduate Students' Performance: The Case of University of Dar es Salaam Business School Students

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Abstract

There has been a complaint that a number of students admitted to various universities have been failing to complete their university studies, even though, they met the admission criterion. This study aimed at evaluating the predictive ability of advanced secondary school students' performanceto their first year undergraduate performance. The good pass marks are the only selection criteria to join university.

Data were collected form University of Dare es Salaam students' academic record database for 928 students for 2010/2011 and 2011/2012 academic years. Data were analyzedthrough regression analysis to predict the university students' performance based on their entry qualifications.Results indicated that there was a positive correlation between undergraduate performance (outcome variable) and theirentry qualification performance, whether analysis is done by sex or year of examination, subject combinations. In addition, it was found that only a tenth of undergraduate student's performance was explained by their entry level performance. The study recommends establishing other factors that affect university students' performance before selecting them to join for university education.

Key term: Predictive Ability, Student Performance

Introduction

Higher learning institutions (HLIs) set minimum admission requirements for various academic programs.The goal of having minimum admission requirements is to effectively predict future performance of all students thereby admitting only those likely to succeed (Pharr and Lawrence, 2007). Despite having met minimum requirements, some students either fail or perform poorly in their academic coursesalthough they had the minimum requirements for admission to HLIs(Bailey, Cloete and Pillay, 2011). Research has shown that previous performance can be a good predictor of future performance by candidates in their chosen disciplines for some subject programmes (Taher, Chen and Yao, 2011).Due to some problems of previous performance being not a good predictor for university studies, some universitiesuse standardized examinations to select among applicants for different programmes (Peiperl and Trevelyan, 1997).

According to Tanzanian educational system, secondary education consists of two tiers, the first is ordinary level (O-level),which refers to four years post-primary education and the second is advanced level (a-level), which is two years post o-level.The National Examinations Council of Tanzania (NECTA)is responsible for administration of all National Examinations (for both o-level and a-level) in Tanzania (NECTA, 2009)

Statement of the Research Problem

Different sources of information including newspapers, websites, and research reports have reported the issue of university students failing to complete their university studies worldwide. For example, the latest higher education statistics agency in United Kingdom figures show that drop-outs in Wales rose from 9 percent to 7.4 percent in 2009-2010 (BBC, 2012). In the United Kingdom, record numbers of students quitting university courses last year as the higher education drop-out rate soared

above 30,000 for the first time (Paton, 2012). In South Africa, researchers at the University of KwaZulu-Natal criticized an alarming increase in the student drop-out rate at universities (Mkamba, 2011).

University of Dar es Salaam (UDSM) has been admitting students who meet minimum admission qualifications. Some have excellent a-level performance but they fail to pass examinations in their first year of studies. Some are discontinued while others are required either to supplement or carry over some courses. There have been complaints by students failing examinations, leading them to appeal for university examination results (University of Dar es Salaam, 2011) after failing to attain pass grades in various subjects and some have been discontinued on these grounds. Such patterns can be seen even in other universities (Bailey, Cloete and Pillay, 2011; Gallacher, 1998). The said pattern brings in the issue whether entry qualifications truly reflect ability to perform in the next level or just has sufficient knowledge at higher level.

Objectives and Significance of the Study

The main purpose of this study was to evaluate predictive ability of secondary school performance to first year undergraduate performance. Specifically, the research intended to evaluate the predictive ability of a-level students' performance to first year undergraduate performance in various cohorts, by sex, year of examination, and degree programmes.

Findings from this research will contribute to knowledge development in the education sector specifically on admission to HLIs by using the strongest predictors (previous performance) to undergraduate performance as suggested by the findings. Among the four framework components for Primary Education Development Plan (PEDP) aimed at strengthening institutional arrangements that support planning and delivery of education,

findings from this study will assist policy makers to incorporate this into PEDP and so it has to be extended to Secondary Education Master Plan (SEMP).

Furthermore, findings from this research will present knowledge to admission officers, registrars and higher learning bodies responsible for admitting students to universities and colleges on how to use the best predictor of performance in higher learning institutions. Hence, improve the quality of graduating student and also avoid admitting students who might fail to complete studies. This will also improve the institutions' image to the public by decreasing or even eliminating discontinuation of students.

Literature Review

Theoretical Framework

Prediction theory and conceptual model of evaluations formed the base of this study. Prediction theory is concerned with approximating future in terms of the observed past when the covariance function and the past of a stationary process are known (Pourahmadi, 2001). Pourahmadi (2001) tells that the purpose is to express the predictor in terms of known past values and the second order moments of the process. Several studies have used the prediction theory in predicting performance (Korb, 2009; Waiyamai, 2003; Fearn-Wannan, 1985; Sembiring, Zarlis, Hartama, Ramliana and Wani, 2011). The conceptual model of evaluation outlines factors that determine individual performance results (Holton, 1996). The conceptual model posits that individual performance is a function and can be predicted by several precedent variables such as prior academic performance, motivation, and ability to learn. Holton's (1996) conceptual model has been widely also empirically tested (Yang and Lu, 2001).

This research sought to predict performance of the prospective student during the selection process. Prediction theory provides insights on how to approximate future performance based on past performance. Hence, making the best selection and eliminating possibilities of admitting students who will fail to complete their studies at the university. However, prediction theory, tells that the basis for predicting the first year students' performance should be on previous performance. But, some research found that individual difference factors act as latent trajectories in predicting future performance (Garger, Thomas and Jacques, 2010).

Empirical Framework

Research conducted in Nigeria examined an ordinary level as predictor of students' academic performance in chemistry in South-West Nigeria universities (Kolawole, Oginni and Fayomi, 2011). they (ibid) used grades of all chemistry weights for students selected from the directorate of admission and statistics, while the cumulative grade points were selected from chemistry department of the sampled universities. Results revealed that ordinary level chemistry results related poorly with their respective universities' results. However, in another study using mathematics, the study revealed that mock examination results in Mathematics could be used to predict success in students academic performance in Mathematics (Ajayi, Lawani and Muraina, 2011). In another study, it was also found that the cognitive entry graded contributed significantly to the final overall GPA of the selected students in Mathematics at Bachelor of Science in education level (Kolawole and Ilugbusi, 2007).

A research conducted in Tanzania aiming at examining education services delivery, with particular attention to enrolment, access and performance of girls revealed that performance is more determined by school characteristics than an individual student characteristics (Mbelle and Katabaro, 2003).

Mbelle and Katabaro (2003) found that private tuition depicted ambiguous results just like continuous assessment grades when correlated with examination results.

Obioma and Salau(2007) determined the extent to which scores in examinations conducted by the West African Examination Council (WASSCE), National Examinations Council (SSCE) and National Business and Technical Examination Board (NBCE/NTCE) in conjunction with the Joint Admissions and Matriculation Board (UME) predict future academic achievement of students in university degree examinations. Records on performance in the public examinations of a random sample of 4904 candidates were obtained from 22 Nigerian universities that satisfied predetermined criteria. In addition, the candidates' academic records were obtained from the universities in eight core disciplines. The study revealed that there were low but positive relationships ($0.118 \leq r \leq 0.298$) between each of the predictor variables under study. Although, generally public examinations poorly predicted students' university academic achievement, when compared individually with other predictors, WASSCE was the best single predictor of the students' Cumulative Grade Point Average (CGPA). The study in Nigeria relates to this research in the sense that the methodology and objectives were almost similar. The aim was to predict the GPA based on secondary school results, which this research similarly employed.

Garger, Thomas and Jacques (2010) conducted research to confirm the predictive validity of several antecedents to students' early perceptions of future performance on collegiate courses. A non-experimental design was used to test a proposed model based on review of relevant literature and students completed surveys that captured the constructs. A total of 279 undergraduate students enrolled in 12 sections of seven management/

business courses at a mid-sized, comprehensive, regional university returned completed surveys. The study sought to estimate students' perceptions on internal locus of control, social integration, academic self-concept and expected course grade. Students completed a 35-item survey approximately three weeks from the start of each student's respective course. It was found that students' internal locus of control predicted their perceptions on social integration, academic self-concept and grade point average (GPA), while social integration significantly predicted academic self-concept. Moreover, academic self-concept significantly predicted early perceptions of expected grades beyond the student's current level of performance as measured by his/her current GPA. Unfortunately, these factors are not easily incorporated in admission criteria. In relation to this paper, students' GPA positively correlates with their perceptions on expected course performance, For instance, if previous performance was good , then it is expected that the next performance will be good (Garger, Thomas and Jacques, 2010).

Subject Combination by Student

Pharr and Lawrence (2007) researched on admission requirements for transfer and non-transfer students. The main objective was to examine efficacy of admission requirements as predictors of academic success in core business coursework, and as a rationing mechanism for limited course capacity for transfer and non-transfer students following integration of the core business curriculum in USA (ibid). The methodology used by researchers (ibid) was regression analysis to test efficacy of admission standard in explaining transfer and non-transfer students' performance in the core business curriculum, before and after curricular revision. The researcher (ibid) used fisher's r-to-z transformation to test the difference between student groups and core curriculum formats. It was found that following introduction of a new curriculum, efficacy of the admission

standard for transfer students decreased. It was adequate for all students taking traditional business core, while much less effective predictor for success for transfer students, a modified admission standard for transfer students restored efficacy to previous levels.

Mbamba's (2010) study in Tanzania on contribution of school size to academic performance revealed that there was a significant difference in performance based on school size. Students from small schools performed better than those from large schools and academic division decreased from higher to low as one moved from small to a large school. The same results were obtained when performance results were segregated by year of study and subject combination except for combinations that involved economics. The methodology was as follows: ACSEE results from 2004 to 2009 were obtained from NECTA website. A total of 170 schools were used by the study. The 170 schools were categorized into five groups based on number of students by school whereby each group contained 34 schools. Data were analyzed using two techniques namely, ANOVA and chi-square test. It means that students from large schools could be shallower in terms of what they studied in a-level than those from smaller schools, which, in turn, may affect their first year undergraduate performance.

A study was done at the University of Malaysia Pahang with the aim of applying kernel method of data mining techniques to analyze the relationship between students' behavior and their success as well as to develop a model of students' performance predictors (Sembiring, Zarlis, Hartama, Ramliana, and Wani, 2011). Results from the study reported a model of students' academic performance by employing psychometric factors as variable predictors. Variables that were used in questionnaire were interests, study behavior, engage time, belief, and family support. In relation to this study, interests and belief are variables that could influence a student to make choices about subject combinations to take at a-level studies.

Summary of Empirical Framework

From presented literature review, it is found that in order to predict future performance; the basis has to be on several variables other than a single variable. However, grade point average (GPA) obtained in previous studies was found to be the strongest predictor variable (Garger, Thomas and Jacques, 2010; Pharr and Lawrence, 2007). There was a positive linear relationship between the predictor variable and the outcome variable (Kolawole and Ilugbusi, 2007). It was also observed that GPA positively correlated with the perception of students' expectation on course performance. The efficacy of admission standard for transfer students decreased after introducing the new curriculum. It was adequate for all students taking traditional business core, while much less effective predictor for success for transfer students, a modified admission standard for transfer students restored efficacy to previous levels (Pharr and Lawrence, 2007). Results from the study reported a model of students' academic performance by employing psychometric factors as variable predictors, interest and beliefs (Sembiring, Zarlis, Hartama, Ramliana and Wani, 2011) which also influence on choice making by students regarding subject combinations to take.

Other variables that determine students performance include school characteristics, for example, size (Mbamba, 2010), location as well as ownership [private or government owned) Mbelle and Katabaro, 2003].

Conceptual Framework

The concept involved predictive ability of secondary school students' performance to first year undergraduate performance whereby three hypotheses were developed. The hypotheses were answering whether or not a-level grades which are used to select students to join business schools are good predictors. Data were tested based on sex, subject combinations, and year one university examinations.

Research Methodology

Research Design

The research used causal/longitudinal research design where quantitative data were collected and analyzed.

Population and Sampling Frame

Population for this study included first year undergraduate students in Tanzania. The admission of first year undergraduate is around 40,000 per year. The researchers found it easier to access data from the University of Dar es Salaam. It was also convenient to choose the first year business students because they all take almost the same courses in their first year of study. The research used secondary data for all students who were admitted in 2009/2010 and 2010/2011 academic years respectively. Students must have done a-level in either 2009 or 2010, while completed o-level in either 2007 or 2008.

Regression Analysis and Model Quality

Regression analysis involves identification of the relationship between a dependent variable and one (simple regression analysis) or more (multiple regression analyses) independent variables (Greener, 2008). A model of the relationship is hypothesized, and estimates of the parameter values are used to develop a regression equation. According to Chattefuee and others (2006), validity of a statistical method, such as regression analysis, depends on assumptions. The model tested almost all major assumptions. The regression model, formulated as a linear model, explains the relationship between the dependent variable (USP) and independent variables (F6PTS).

USP= β0+ β1F6PTS

Where,

USP is the Undergraduate Student's Performance
F6PTS is a-Level Student's Performance
β0 is a constant (intercept), when all the dependent variables are zero
β1 is regression coefficients (are unknown constants to be determined from the data).

The model may seem to be simple representation of complex issues. However, given the only criteria used to select students for admission, this model incooporates all variables that are used for selection to join undergraduate programmes. Furthermore, almost all predictions models for university performance use regression analysis (Olaleye and Salami, 1997; Yang and Lu, 2001; Hsieh and Hu, 2005; Abdulrahman, 2009; De Winter and Dodou, 2011).

The Durbin–Watson statistic is used to detect the presence of a relationship between values separated from each other by a given time lag in the prediction of errors from a regression analysis. The Durbin-Watson statistic ranges in value from 0 to 4. A value closer to 2 indicates non-autocorrelation, while a value toward 0 indicates positive autocorrelation and a value toward 4 indicates negative autocorrelation. For this analysis, Durbin Watson of 2±0.25 indicated non-autocorrelation.

Variance inflation factor (VIF) quantifies severity of multi-collinearity in regression analysis. It provides an index that measures how much variance of an estimated regression coefficient is increased because of co-linearity. The value of VIF is always equal or greater than 1, (VIF=1/Tolerance). For a weaker model, a value of 2.5 might be a concern.

Operationalization of Concepts

A-Level Student's Performance

Performance classified by Division I, II, III, IV and O was calculated

based on grade points, A=1, B=2, C=3, D=4, E=5, S=6 and F=7. At a-level, three subjects from subject combination (mathematics, English, physics and so on) are used to calculate the division. Division I has 3 to 9 points, division II has 10 to 12, division III has 13 to 17 points, division IV has 26 to 33 points, and division O has 34 -35 points. The study used admission points as calculated by universities based on the best three subjects, excluding divinity and Islamic knowledge, where A=5, B=4, C=3, D=2, E=1, S=0.5 and F=0.

Subject Combination by Student

These are three best performed principal subjects at a-level.

Undergraduate Students' Performance

GPA was used to explain the undergraduate performance whereby each grade was assigned number of points (A=5, B+=4, B=3, C=2, D=1, and E=0).

Data Analysis and Research Findings

Students' performance record for 2010/2011 and 2011/2012 academic years were obtained from the Business School, whereby a total of 1034 students' records (o-level performance, a-level performance, subject by combination, and first year undergraduate performance). Furthermore, 928 were analyzed, while the rest were eliminated because either they were incomplete (postponement of examinations or studies), did not do ACSEE in Tanzania, or used equivalent entry qualifications for the degree studied. Sample characteristics are presented in Table 1. From Table 1, it is obvious that the sample was good in terms of representations of all categories of study units.

Table 1: *Sample Characteristics*

	Frequency	*Percent*
Degree Programme		
B. Com. in Tourism and Hospitality Management	38	4.09
Bachelor of Commerce – Banking	138	14.87
Bachelor of Commerce – Accounting	392	42.24
Bachelor of Commerce - Human Resources Management	91	9.81
Bachelor of Commerce – Marketing	121	13.04
Bachelor of Commerce – Finance	148	15.95
Total	928	100
Sex		
Female	424	45.69
Male	504	54.31
Total	928	100
A Level Subject Combinations		
CBA	1	0.11
CBN	1	0.11
ECA	63	6.79
GCB	4	0.43
GME	271	29.2
GPM	2	0.22
HGE	446	48.06
HGK	29	3.13
HGL	52	5.6
HKL	32	3.45
PCB	6	0.65
PCM	21	2.26
Total	928	100

	Frequency	*Percent*
Year Did University Examination		
2011	450	48.49
2012	478	51.51
Total	928	100
A Level Points		
5	3	0.32
5.5	2	0.22
6	25	2.69
6.5	6	0.65
7	126	13.58
7.5	11	1.19
8	158	17.03
8.5	9	0.97
9	237	25.54
10	197	21.23
10.5	1	0.11
11	92	9.91
12	35	3.77
13	19	2.05
14	6	0.65
15	1	0.11
Status after First Year Results		
Discontinued	19	2.05
Pass	590	63.58
Supplementary	319	34.38
Total	928	100

Source: *Data Analysis (2013)*

Undergraduate Performance Against a-level Performance

Table 2 provides the test whether or not advanced level (a level) performance can predict undergraduate performance. Table 2 shows that only 10 percent of performance is based on a-level (model summary table),

model is significant (ANOVA table) and both constants and coefficient of alevel performance are significantly different from zero (coefficient table).

Table 2: *Predictive Ability of F6 Points to First Year Undergraduate*

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
0.323	0.104	0.103	0.563	0.104	107.808	1	926	0.000	1.448

ANOVA (b)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	34.134	1	34.134	107.808	.000(a)
Residual	293.187	926	.317		
Total	327.321	927			

Coefficients(a)

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.014	0.106		19.015	0.000
F6Pts	0.119	0.012	0.323	10.383	0.000

Source: *Data Analysis (2013)*

Undergraduate Performance Based on Subject by Combinations at a-level

Another analysis was based on subject combinations. The subject combinations were Chemistry, Biology and Agriculture (CBA); Economics, Accountancy, and Commerce (ECA); Geography, Mathematics and Economics (GME); Physics, Chemistry and Biology (PCB); Geography, Chemistry and Biology (GCB); Physics, Chemistry and Mathematics (PCM); Physics, Geography and Mathematics (PGM) ; History, Geography and Economics (HGE); History, Geography and Kiswahili (HGK); and History, Kiswahili and English Language (HKL). Some subject combinations had less than 30 students and made interpretations challenging

due to their smallness. For combinations with more than 30 students, GME had good predictions, followed by HGE (these models are also significant). These are also reflected in standardized better coefficients (Table 4).

Table 2: *Predictive Ability of F6Points to First Year Undergraduate*

Combi	R	R Square	Adjusted R Square	Std. Error of the Estimate	**Durbin-Watson**
ECA	.358[a]	.128	.114	.44307	1.673
GCB	.561[a]	.314	-.029	.43169	1.146
GME	.534[a]	.285	.282	.45933	2.009
GPM	1.000[a]	1.000	.	.	.200
HGE	.375[a]	.141	.139	.48342	1.960
HGK	.307[a]	.094	.061	.59906	1.684
HGL	.407[a]	.166	.149	.41648	1.922
HKL	.279[a]	.078	.047	.67827	1.764
PCB	.445[a]	.198	-.002	.26157	.952
PCM	.599[a]	.359	.325	.51742	2.387

ANOVA (b)

Combi		Model	Sum of Squares	Df	Mean Square	F	Sig.
ECA	1	Regression	1.765	1	1.765	8.990	.004[a]
		Residual	11.975	61	.196		
		Total	13.740	62			
GCB	1	Regression	.171	1	.171	.917	.439[a]
		Residual	.373	2	.186		
		Total	.544	3			
GME	1	Regression	22.631	1	22.631	107.264	.000[a]
		Residual	56.755	269	.211		
		Total	79.387	270			
GPM	1	Regression	.500	1	.500	.	.[a]
		Residual	.000	0	.		
		Total	.500	1			

HGE	1	Regression	16.999	1	16.999	72.741	.000[a]
		Residual	103.759	444	.234		
		Total	120.758	445			
HGK	1	Regression	1.006	1	1.006	2.804	.106[a]
		Residual	9.690	27	.359		
		Total	10.696	28			
HGL	1	Regression	1.720	1	1.720	9.917	.003[a]
		Residual	8.673	50	.173		
		Total	10.393	51			
HKL	1	Regression	1.161	1	1.161	2.523	.123[a]
		Residual	13.801	30	.460		
		Total	14.962	31			
PCB	1	Regression	.068	1	.068	.988	.376[a]
		Residual	.274	4	.068		
		Total	.341	5			
PCM	1	Regression	2.850	1	2.850	10.647	.004[a]
		Residual	5.087	19	.268		
		Total	7.937	20			

Coefficients (a)

			Unstandardized Coefficients		*Standardized Coefficients*		
Combi	*Model*		*B*	*Std. Error*	*Beta*	*t*	*Sig.*
ECA	1	(Constant)	2.046	.447		4.580	.000
		F6Pts	.165	.055	.358	2.998	.004
GCB	1	(Constant)	2.098	1.043		2.012	.182
		F6Pts	.126	.132	.561	.957	.439
GME	1	(Constant)	1.784	.158		11.276	.000
		F6Pts	.179	.017	.534	10.357	.000
GPM	1	(Constant)	-5.350	.000		.	.
		F6Pts	1.000	.000	1.000	.	.
HGE	1	(Constant)	1.853	.134		13.829	.000
		F6Pts	.122	.014	.375	8.529	.000
HGK	1	(Constant)	1.368	.729		1.876	.071
		F6Pts	.134	.080	.307	1.675	.106
HGL	1	(Constant)	1.805	.295		6.120	.000
		F6Pts	.097	.031	.407	3.149	.003
HKL	1	(Constant)	1.221	.794		1.539	.134
		F6Pts	.138	.087	.279	1.588	.123
PCB	1	(Constant)	4.423	1.056		4.187	.014
		F6Pts	-.118	.119	-.445	-.994	.376
PCM	1	(Constant)	1.346	.616		2.184	.042
		F6Pts	.222	.068	.599	3.263	.004

Does Predictive Ability of F6points Differ by Sex?

In order to check whether or not there was any difference in predictive ability data were analyzed separately, for males and females. Results for the analysis are presented in Table 3. The predictive ability was almost the

same (10%) for males as well as females. In addition, both models are significant, and in both cases, constants and coefficients of F6Pts were almost the same. One can conclude that there is no difference between males and females in business performance.

Table 3: *Predictive Ability of F6Points to First Year Undergraduate by Sex*

Sex	*Model*	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Durbin-Watson*
F	1	.323[a]	.105	.103	.52478	1.512
M	1	.308[a]	.095	.093	.59326	1.433

ANOVA (b)

Sex	*Model*		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
F	1	Regression	13.582	1	13.582	49.318	.000(a)
		Residual	116.216	422	.275		
		Total	129.798	423			
M	1	Regression	18.583	1	18.583	52.799	.000(a)
		Residual	176.685	502	.352		
		Total	195.268	503			

Coefficients (a)

			Unstandardized Coefficients		*Standardized Coefficients*		
Sex	*Model*		*B*	*Std. Error*	*Beta*	*t*	*Sig.*
F	1	(Constant)	2.050	.144		14.277	.000
		F6Pts	.117	.017	.323	7.023	.000
M	1	(Constant)	1.919	.170		11.269	.000
		F6Pts	.128	.018	.308	7.266	.000

Are there any Differences in Predictive Ability by a Degree Programme one is Admitted?

Table 4 presents summary of predictive ability of F6points to first year undergraduate. The predictive ability was higher for Bachelor of Commerce in Tourism and Hospitality Management than other programmes.

Table 4: *Predictive Ability of F6Points to First Year Undergraduate by Degree Programme*

degree	*R*	*R Square*	*Adjusted Square*	*R Std. Error of the Estimate*	*Durbin-Watson*
Bachelor of Commerce - Accounting	.289[a]	.084	.081	.52353	1.630
Bachelor of Commerce - Finance	.283[a]	.080	.074	.57355	1.827
Bachelor of Commerce - Human Resources M	.054[a]	.003	-.008	.56146	1.503
Bachelor of Commerce - Marketing	.250[a]	.062	.055	.50533	2.026
Bachelor of Commerce - Tourism and Hospi	.481[a]	.231	.210	.46810	2.060
Bachelor of Commerce - Banking	.251[a]	.063	.056	.55347	1.542

ANOVA(b)

Degree	*Model*		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Bachelor of Commerce - Accounting	1	Regression	9.773	1	9.773	35.658	.000[a]
		Residual	106.894	390	.274		
		Total	116.668	391			
Bachelor of Commerce - Finance	1	Regression	4.173	1	4.173	12.687	.000[a]
		Residual	48.028	146	.329		
		Total	52.202	147			

Degree	*Model*		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Bachelor of Commerce - Human Resources M	1	Regression	.083	1	.083	.263	.609[a]
		Residual	28.056	89	.315		
		Total	28.139	90			
Bachelor of Commerce - Marketing	1	Regression	2.025	1	2.025	7.930	.006[a]
		Residual	30.388	119	.255		
		Total	32.413	120			
Bachelor of Commerce - Tourism and Hospi	1	Regression	2.370	1	2.370	10.817	.002[a]
		Residual	7.888	36	.219		
		Total	10.259	37			
Bachelor of Commerce - Banking	1	Regression	2.808	1	2.808	9.165	.003[a]
		Residual	41.661	136	.306		
		Total	44.469	137			

Coefficients (a)

			Unstandardized Coefficients		*Standardized Coefficients*		
degree	*Model*		B	Std. Error	Beta	*t*	*Sig.*
Bachelor of Commerce - Accounting	1	(Constant)	2.253	.166		13.599	.000
		F6Pts	.108	.018	.289	5.971	.000
Bachelor of Commerce - Finance	1	(Constant)	2.158	.327		6.606	.000
		F6Pts	.115	.032	.283	3.562	.000
Bachelor of Commerce - Human Resources M	1	(Constant)	2.488	.307		8.106	.000
		F6Pts	.018	.035	.054	.513	.609
Bachelor of Commerce - Marketing	1	(Constant)	2.233	.250		8.932	.000
		F6Pts	.080	.029	.250	2.816	.006
Bachelor of Commerce - Tourism and Hospi	1	(Constant)	1.363	.403		3.379	.002
		F6Pts	.185	.056	.481	3.289	.002
Bachelor of Commerce -Banking	1	(Constant)	2.070	.330		6.272	.000
		F6Pts	.105	.035	.251	3.027	.003

Based on Years Did Examinations at UDSM

Results may differ from one academic year to another. In order to test this, data were analyzed separately for the two academic years in which students were at the UDSM in their first year of their study. Results of these analyses, predictive validities varied (adjusted r squared). They were both significant as well as constants and coefficients were almost the same.

Table 4: ***Predictive Ability of F6Points to First Year Undergraduate by Subject Combinations***

Year	*Model*	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Durbin-Watson*
2011	1	.229[a]	.052	.050	.62857	1.411
2012	1	.433[a]	.188	.186	.48378	1.807

ANOVA(b)

Year	*Model*		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
2011	1	Regression	9.753	1	9.753	24.685	.000[a]
		Residual	177.002	448	.395		
		Total	186.755	449			
2012	1	Regression	25.750	1	25.750	110.023	.000[a]
		Residual	111.405	476	.234		
		Total	137.155	477			

Coefficients(a)

Year		*Unstandardized Coefficients*		*Standardized Coefficients*		
		B	*Std. Error*	*Beta*	*t*	*Sig.*
2011	(Constant)	2.159	.179		12.083	.000
	F6Pts	.096	.019	.229	4.968	.000
2012	(Constant)	1.902	.121		15.655	.000
	F6Pts	.139	.013	.433	10.489	.000

a Dependent Variable: GPA

Source: *Data Analysis (2013)*

Summary, Conclusions and Implications of Research Findings

Results from data analysis showed that a-level had a positive and moderate association with undergraduate performance. However, it predicted around 10 percent. Almost the same results were obtained if data analysis was conducted separately for various subject combinations, sex and years of attempting examinations at UDSM. The results were almost the same when data were done separately by sex, various academic years, various degree programmes admitted as well as various subject combinations taken at ACSEE.

The study mainly aimed at finding out the predictive ability of secondary school students' performance to their first year performance. Literature review was used to develop the conceptual framework on undergraduate students' performance and their a-level performance as well as subject combination.

HLIs have been admitting a student who meets minimum admission requirements. But some students fail to complete their studies due to various reasons and some of them get discontinued on academic grounds. Such rising needs of admitting students who will successfully complete their studies would not be met unless there is an efficient way of selecting and admitting the most qualified students who will, in turn, graduate with good grades.

The study also found that there is a positive correlation between students' subject by combination to first year undergraduate performance This relationship is explained by the prediction theory. Students who took some subject combinations at a-level performed better in their first year undergraduate studies. Empirical study result revealed that previous performance is a moderate predictor for future performance. The results from this study supports some studies (El-Mouzan, Luffi and Absood, 1991; Ajayi, Lawani and Muraina, 2011) but differ from other studies (Kolawole, Oginni and Fayomi, 2011) and specifically the study has shown that admission criteria have weak or moderate predictive ability (Hsieh

and Hu, 2005). Furthermore, this study supports that sex is not a predictor of performance (De Winter and Dodou, 2011) while it does not support on Elvina and MdNor (2005) as well as Abdulrahman (2009). This research moderately supports the two theories, Pourahmadi's (2001) prediction theory and Holton's (1996) conceptual model of evaluation. Holton's (1996) model includes more variables such as motivation and ability to learn may be more relevant in this study. The predictive ability for this study was lower than other studies (Yang and Lu, 2001).

Limitation of the Study

The researchers found some few challenges in the course of conducting this study. The first one was sample size. This study involved only one institution that was due to the fact that time could not allow the researchers to request data from all universities (over 40 institutions) in Tanzania.

The second challenge was that even by selecting only one institution, there are many degree programmes at University of Dar es Salaam. If a study was to consider all the degree programs, then results could have brought into light some hidden issues that were not revealed by this study.

Areas for Further Study

This study examined the predictive ability of a-level students' performance, and subject by combination to their first year undergraduate performance. Further areas of study could involve the third year (or finalist) undergraduate students' performance. In so doing, researchers would be able to provide a better picture on the predictive power of both a-level students' performance to students who will eventually graduate successfully. Hence provide vital information on factors to be considered by admission officers and bodies that are responsible for admitting students to universities.

This study involved only one university, the University of Dare es Salaam. The researchers propose that further areas of research should involve more than one institution and more than one degree programme.

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