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Determinants of Academic Performance of Students: Case of Wolaita Sodo University

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ABSTRACT: *Education is one of the most important factors in producing human resource that is necessary for economic development of a country. The quality of educational system of any country may reflect the development attempts to be made in social, economic and political aspects. Furthermore, in this era of globalization and technological revolution, education is considered as a first step for every human activity. Indeed, education in higher institution can be influenced by some many factors these variables are inside and outside school that affect students' quality of academic achievement or academic performance. These factors may be termed as student factors, family factors, school factors and peer factors. The main objective of this study is to identify the major determinants or factors which influence the academic performance of students at Wolaita Sodo University (WSU). Out of 6,553 students a sample of 367 students was taken from 38 departments of Wolaita Sodo University using stratified random sampling with proportional allocation to size. Both secondary a well as primary sources of data were used through student filled questionnaire. To estimate the effect of the socio-economic, demographic variables, academic motivation, academic self-concept, environmental factors and psychological factors on academic performance (achievement) were considered. The cross tabulation with Chi-square test and binary logistic regression were employed to analyze the data. The result of cross tabulation with Chi-square test show that age, study outside class, amount of money received from family and first choice of department have significant association with academic performance at 5% level of significance. Also the result of the logistic regression analysis revealed that preparing time table, father's education level, peer influence; combining ideas and good life later on (motivation) have a significant relation with academic performance at 5% level of significance. It can be concluded that to increase and improve students' academic performance some crucial steps regarding securing first choice of department and advising about peer influence should be taken into consideration. It can be recommended that the university should set programs to strength self-concept to make them confident on their potential.*

KEYWORDS: Wolaita Sodo University, Logistic Regression Analysis, Academic Performance, Peer Influence, Motivation, Securing First Choice of Department.

INTRODUCTION

Education is one of the most important factors in producing human resource that is necessary for economic development of a country. Education, in a broad sense, is any act or experience that has a formative effect on mind, character or physical ability of an individual. The role of education plays and contributes to intellectual growth and development of society which becomes the common concern in both developed and developing countries (Hanushek, 2006). The quality of educational system of any country may reflect the development attempts to be made in social, economic and political aspects. Furthermore, in this era of globalization and technological revolution, education is considered as a first step for every human activity. It

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plays a vital role in the development of human capital and is linked with an individual's well-being and opportunities for better living (Battle & Lewis, 2002).

Schools, colleges and universities have no worth without students. Students are most essential asset for any educational institute. The social and economic development of a country is directly linked with student academic performance. Student academic performance measurement has received considerable attention in previous research, it is challenging aspects of academic literature, and science student performance are affected due to social, psychological, economic, environmental and personal factors. These factors strongly influence on the student performance, but these factors vary from person to person and country to country. Indeed, academic performance can be influenced by some many factors these variables are inside and outside school that affect students' quality of academic achievement. These factors may be termed as student factors, family factors, school factors and peer factors (Crosnoe, Johnson & Elder, 2004).

It is assumed that the number of determinants or factors other than university entrance result may significantly affect the academic performance of students in universities. The factors might be the type and location of secondary school attended, type of admission, quality of teaching, life in university, study habit, economic and educational background of parents, references and textbook availability in a university, students placement by their first choice etc. In our study, we take GPA of students can measure student academic performance. This idea supported by (Hijaz & Naqvi, 2006) stated that GPA in university is commonly used indicator of student academic performance.

Therefore, academic performance of students in universities can be measured by using CGPA (Cumulative Grade Point Average) or GPA (Grade Point Average) which is influenced by the above stated factors. Thus, the main objective of the current study was to identify the major determinants or factors that influence student academic performance.

DATA AND METHODOLOGY

Data Source, Sampling design and Method of data analysis

Both secondary as well as primary source of data were used. The primary data was obtained questionnaire filled by students. The sampling design was employed by using stratified random sampling with probability proportional to size allocation of each department we take a sample of 367 sampled students out of 6553 students in the university of all batch. The cross-tabulation with chi-square and binary logistic regression analysis were employed to analyze the data.

Variables used in this study

The Response Variable

The response variable of this study is "academic performance". For our study purpose the response variable "academic performance" is coded 0 if a student is not ok status and the coding for ok status is 1. The response variable for the i^{th} student is represented by a random variable Y_i with two possible values coded 0 and 1. In view of this, the response variable of the i^{th} student Y_i was measured as a dichotomous variable.

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The Explanatory Variables: The predictor variables considered in this analysis include age of student, parents' educational background, securing first choice of department, availability of textbooks and references, environmental factor, study habit, place of residence before joining university and others.

Description of variables and coding

The description of response and explanatory (predictor) variables about academic performance of students is presented below.

No	Variables	Categories
1	Academic performance	(0) Not ok status ($< 2.00 GPA$) (1) Ok status ($\geq 2.00\ GPA$)
2	Sex	(0) Female (1) Male
3	Category of Age(**CAGE**)	(0) 18-23 years (1) ≥24 years
4	High school study attended	(0) Private (1) Government
5	Place of high school attended	(0) Rural (1) Urban
6	Father's education level	(0) Illiterate (1) Primary level (2) Secondary level (3) Certificate and above
7	Mother's education level	(0) Illiterate (1) Primary level (2) Secondary level (3) Certificate and above
8	Good life (**M10**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
9	Better preparation(**M11**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
10	Personal satisfaction(**M12**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
11	Continue to learn (**M13**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
12	Frustration (**M14**)	(0) No (1) Yes

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13 Counseling and guidance(**M15**)	(0) No (1) Yes
14 Happy in studying(**S16**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
15 Hate studying(**S17**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
16 Better in Mathematics(**S18**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
17 Combing ideas (**S19)**	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
18 Peer influence (**E20**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
19 University living environment(**E21**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
20 Sufficient reference and textbook(**E22**)	(1)Strongly agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree
21 Securing first choice(**E23**)	(0) No (1) Yes
22 Frequency of attending tutorial class(**E24**)	(0) Not attended (1) Attended
23 Preparation of timetable (**E25**)	(0) No (1) Yes
24 Category of study time(**CST**)	(0) <48 hours (1) ≥48 hours
25 Frequency of allocating study time(**E27**)	(0) About exam time (1) Always
26 Category Amount of money send from family(**CAM**)	(0) <1500 birr (1) ≥1500 birr

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RESULTS AND DISCUSSIONS

Based on the results in Table 1, out of the number of factors were considered, age, father's level of education, good life later on, preparing study time table, arranging study time outside class, amount of money received from family and securing first choice of department have a significant relation with academic performance (status). From Table 2, the result of the logistic regression analysis revealed that preparing time table, father's education level, peer influence; combining ideas and good life later on (motivation) have a significant relation with academic performance.

The result of chi-square test show that age, study outside class, amount of money received from family and first choice of department have significant association with academic performance. Also the result of the logistic regression analysis revealed that preparing time table, father's education level, peer influence; combining ideas and good life later on (motivation) have a significant relation with academic performance.

The finding shows that the education level of father is a key determinant of academic performance. The result obtained in this study showed that the rate of academic performance among better educated father is lower than among less educated father. As a result better educated father lead their families in a better way than less educated father because of higher literacy and greater likelihood of rejecting a fatalistic attitude towards life. Education exposes father to information and makes them more aware of their own health and the health of their children. This, therefore, supports the research findings of Adem (2005) who found that the father's level of education has a significant effect on academic performance.

The result of our study shows that amount of money received from family has a significant effect on academic performance of students. The reason could be that economically advantaged parents or families are more able to afford the cost of education of their children at higher education levels. This finding is consistent with the finding of Agus (2004) indicated that students from families of higher income levels perform better in academic performance compared to those who come from families of lower income. Also this finding is consistent with the finding of Rouse & Barrow (2006) & Checchi (2008) who found that the achievement of students is positively correlated with income of parents or families. However, the finding is inconsistent with the finding of Hijaz and Naqvi (2006) showed that there is negative relationship between family income and student academic performance.

The result of this study has indicated that peer influence is an important variable which is found to be a determinant of academic performance of students. The reason could be student at high education level easily expose to new thing or tend to be less mature and make less forward looking decision and poor role model performance due to peer influence. This result supports the finding of Rothstein (2007) who found that learning is not only a product of formal schooling but also of peers influence.

Securing first choice of department appears to be an important determinant of academic performance of students. This result therefore, to some extent negates the findings of Adem (2005) who indicated that securing first choice of department has a significant effect on academic performance of students.

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CONCLUSION

The result of this study revealed that good life later on or motivation, combining ideas or academic self-concept, peer influence, preparing time table, securing first choice department and study outside class, respectively are important variable which significantly affect academic performance of students.

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APPENDIX

Table 1. Results of Descriptive statistics and cross-tabulation of chi-square test

Factors		Status			
		Not ok Ok	Total	χ^2	p-value
Sex	Male	47(15.6%)	175(57.9%)	1.27	0.53
	Female	128(42.4%)	126(41.7%)		
		34(11.5%)			
		92(30.5%)			
Place of High school	Urban	60(19.9%)	238(79.1%)	5.13	0.16
	Rural	178(59.1%)	61(20.3%)		
		21(7.0%)			
		40(13.3%)			
Age	18-23 years	83(27.8%)	270(90.3%)	12.3	0.00*
	≥ 24 years	187(62.5%)	29(9.7%)		
		0(0%)			
		29(9.7%)			
Father's edu. Level	Illiterate	20(6.7%)	63(21.0%)	6.21	0.053*
	Primary	43(14.3%)	117(39.0%)		
	Secondary	31(10.3%)	41(13.7%)		
	Certificate & above	86(28.7%)	76(25.3%)		
		14(2.7%)			
		27 (10.3%)			
		18(3.0%)			
		58(10.3%)			
Mother's edu. Level	Illiterate	25(8.3%)	104(34.6%)	6.4	0.17
	Primary	79(26.2%)	116(38.5%)		
	Secondary	41(13.6%)	39(13.0%)		
	Certificate& above	75(24.9%)	40(13.3%)		
		9(3%)			
		30(10.0%)			
		9(3.0%)			
		31(10.3%)			
Good life	Strongly Agree	46(15.2%)	167(55.1%)	5.5	0.023*
	Agree	121(39.9%)	100(33.1%)		
	Neutral	25(8.3%)	17(5.6%)		
	Disagree	75(24.8%)	10(3.3%)		
	Strongly disagree	4(1.3%)	7(2.3%)		
		13(4.3%)			
		5(1.7%)			
		5(1.7%)			
		3(1.0%)			
		4(1.3%)			

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Better preparation	Strongly Agree	49(16.2%)	168(55.4%)	4.9	0.46
	Agree	119(39.3%)	105(34.7%)		
	Neutral	24(7.9%)	14(4.6%)		
	Disagree	81(26.7%)	6(2.0%)		
	Strongly disagree	5(1.7%)	5(1.7%)		
		9(3.0%)			
		1(0.3%)			
		5(1.7%)			
		2(0.7%)			
		3(1.0%)			
Continue to learn	Strongly Agree	55(18.2%)	181(59.9%)	3.1	0.69
	Agree	126(41.7%)	95(31.5%)		
	Neutral	21(7.0%)	13(4.3%)		
	Disagree	74(24.5%)	7(2.3%)		
	Strongly disagree	3(1.0%)	5(1.7%)		
		10(3.3%)			
		2(0.7%)			
		5(1.7%)			
		2(0.7%)			
		3(1.0%)			
Happy in studying	Strongly Agree	48(15.9%)	178(58.9%)	1.90	0.61
	Agree	130(43.0%)	83(27.5%)		
	Neutral	21(7.0%)	16(5.3%)		
	Disagree	62(20.5%)	10(3.3%)		
	Strongly disagree	5(1.7%)	13(4.3%)		
		11(3.6%)			
		2(0.7%)			
		8(2.6%)			
		5(1.7%)			
		8(2.6%)			
Personal satis.	Strongly Agree	41(13.5%)	166(54.8%)	3.4	0.63
	Agree	125(41.3%)	105(34.5%)		
	Neutral	34(11.2%)	19(6.3%)		
	Disagree	71(23.4%)	6(2.0%)		
	Strongly disagree	5(1.7%)	5(1.7%)		
		14(4.6%)			
		1(0.3%)			
		5(1.7%)			
		2(0.7%)			
		3(1.0%)			
Hate studying	Strongly Agree	16(5.3%)	41(13.6%)	6.96	0.22
	Agree	25(8.3%)	81(26.9%)		
	Neutral	26(8.6%)	31(10.3%)		
	Disagree	55(18.3%)	82(27.2%)		
	Strongly disagree	6(2.0%)	64(21.3%)		
		25(8.3%)			
		18(6.0%)			
		64(21.3%)			

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		15(5.0%)			
		49(16.3%)			
Better in maths	Strongly Agree	14(4.6%)	37(12.3%)	4.4	0.49
	Agree	23(7.6%)	77(25.2%)		
	Neutral	16(3.3%)	64(21.2%)		
	Disagree	61(20.2%)	84(27.8%)		
	Strongly disagree	17(5.6%)	39(12.9%)		
		47(15.6%)			
		24(7.9%)			
		60(19.9%)			
		12(4.0%)			
		27(8.9%)			
Peer influence	Strongly Agree	19(6.4%)	64(21.5%)	4.2	0.51
	Agree	45(15.2%)	117(39.4%)		
	Neutral	29(6.4%)	57(19.2%)		
	Disagree	88(29.6%)	32(10.8%)		
	Strongly disagree	20(6.7%)	19(6.4%)		
		37(12.5%)			
		6(2.0%)			
		26(8.8%)			
		7(2.4%)			
		12(4.0%)			
Living env't	Strongly Agree	22(7.3%)	57(18.9%)	2.3	0.81
	Agree	35(11.6%)	100(33.2%)		
	Neutral	25(8.3%)	31(10.3%)		
	Disagree	75(24.9%)	73(24.3%)		
	Strongly disagree	7(2.3%)	36(12.0%)		
		24(8.0%)			
		14(4.7%)			
		59(19.6%)			
		14(4.7%)			
		22(7.3%)			
Sufficient ref	Strongly Agree	7(2.3%)	17(5.6%)	0.6	0.91
	Agree	10(3.3%)	80(26.6%		
	Neutral	23(7.6%)	36(12.0%)		
	Disagree	57(18.9%)	92(30.6%)		
	Strongly disagree	8(2.7%)	71(100.0%)		
		28(9.3%)			
		25(8.3%)			
		67(22.3%)			
		19(26.8%)			
		52(73.2%)			
Attending tutorial	Yes	33(11.0%)	139(46.2%)	2.2	0.33
	No	106(35.2%)	157(52.2%)		
		49(16.3%)			
		108(35.9%)			
Time table	Yes	54(17.9%)	178(59.1%)	7.75	0.05*
	No	124(41.2%)	121(40.2%)		

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		29(9.6%)			
		92(30.6%)			
Allocating study time	exam time	20(6.6%)	102(33.9%)	2.5	0.88
	Always	82(27.2%)	197(65.4%)		
		62(20.6%)			
		135(44.9%)			
Study outside class	< 48hrs	81(26.7%)	204(67.3%)	47.5	0.00*
	≥ 48hrs	123(40.6%)	99(32.7%)		
		2(0.7%)			
		97(32.0%)			
Money received	<1500birr	83(28.3%)	189(64.5%)	63.7	0.00*
	≥ 1500birr	106(36.2%)	104(35.5%)		
		0(0%)			
		104(35.5%)			
Frustration	Yes	18(6.0%)	71(23.5%)	3.3	0.19
	No	53(17.5%)	224(74.2%)		
		61(20.2%)			
		163(74.2%)			
Counseling & guidance	Yes	44(14.5%)	156(51.5%)	0.82	0.66
	No	112(37.0%)	145(47.9%)		
		39(12.9%)			
		106(35.0%)			
1st choice dept	Yes	56(18.5%)	208(68.9%)	9.1	0.051*
	No	152(50.3%)	89(29.5%)		
		26(8.6%)			
		63(20.9%)			

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Table 2 Variables in the Equation Results of binary logistic regression model

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	CST	3.968	1.215	10.671	1	.001*	5.853	4.890	571.318
	CAM	31.247	4.126E3	26.79	1	.009*	3.720	.678	3.880
	E20(4)	-2.356	1.157	4.146	1	.042*	.095	.010	.916
	E20(5)	.765	1.347	.323	1	.570	2.149	.153	30.089
	S19			10.280	5	.068			
	S19(1)	-24.693	3.429E3	.000	1	.994	.000	.000	.
	S19(2)	-4.741	1.880	6.356	1	.012*	.009	.000	.348
	S19(3)	-4.756	1.912	6.185	1	.013*	.009	.000	.365
	S19(4)	-2.911	1.795	2.631	1	.105	.054	.002	1.834
	S19(5)	-3.538	2.015	3.082	1	.079	.029	.001	1.509
	Father Education			5.734	4	.022*			
	Father Education(1)	22.561	4.019E4	.000	1	1.000	6.281	.000	.
	Father Education(2)	-.626	1.092	.328	1	.0467*	2.535	.063	4.547
	Father Education(3)	.790	.893	.783	1	.376	2.204	.383	12.695
	Father Education(4)	-.485	1.053	.212	1	.645	.616	.078	4.853
	M10			6.938	4	.139			
	M10(2)	3.226	1.785	3.266	1	.071	25.182	.761	833.018
	M10(3)	4.063	1.839	4.882	1	.027*	58.135	1.582	2.136E3
	M10(4)	5.358	2.332	5.278	1	.022*	212.330	2.196	2.053E4
	M10(5)	2.976	2.111	1.986	1	.159	19.599	.313	1.229E3
	M11			6.209	5	.286			
	M11(1)	-5.425	4.040E4	.000	1	1.000	.004	.000	.
	M11(2)	3.362	2.146	2.455	1	.117	28.844	.430	1.935E3
	M11(3)	4.302	2.191	3.853	1	.050*	73.822	1.007	5.414E3
	M11(4)	1.668	2.249	.550	1	.458	5.302	.065	435.192
	M11(5)	3.004	2.884	1.085	1	.298	20.158	.071	5.743E3
	M13			7.383	4	.117			
	M13(2)	-6.997	3.343	4.381	1	.036*	.001	.000	.641
	M13(3)	-5.246	3.179	2.724	1	.099	.005	.000	2.675
	M13(4)	-6.835	3.553	3.701	1	.044*	.001	.000	1.137
	M13(5)	-3.361	4.119	.666	1	.414	.035	.000	111.239
	Constant	15.708	5.699E4	.000	1	1.000	6.639E6		

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