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# The Influence of Educational Facilities on Ordinary Level Secondary Schools' Academic Performance: The Case of Morogoro and Dar Es Salaam Regions.

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### Abstract

The study aimed to assess the influence of educational facilities on secondary students' academic performance at ordinary level. Specifically, the study assessed the role of instruction facilities (chairs/desks, library/books) and the role of teachers' qualification on students' academic performance. The study was conducted in two regions, Morogoro and Dar-es-salaam regions of Tanzania. The questionnaire method for data collection was employed to all respondents and the data were quantitatively analyzed with a multiple linear regression analysis using a Statistical Package for social science (SPSS). The study revealed that there is a significant and positive relationship between a school performance and instruction facilities (chairs/desks, library/books,) and as well as between a school performance and the number of qualified (graduate) teachers in a school. Therefore, the study suggests that the government of Tanzania and other stakeholders need to insure plenty supply of educational facilities as well as supplying graduate teachers in secondary schools.

Keywords: school facilities, graduate teachers, students' performance

### **1. Introduction**

A student academic performance is theoretically explained from motivation theories as well as from the presence of good school environment. In general students' performance could be influenced by home environment, students'-based factors, and school-based factors which include among others, quality and quantity of school facilities.

Educational facilities consist of buildings and other facilities such as chairs, desks, books, libraries, computers and laboratories. According to Earthman (2002), school facility conditions do affect students' academic achievement. Earthman (2002) focused on the school building facility. According to the study, among the influential building features and components are those impacting temperature, lighting, acoustics and age. In addition, overcrowded school buildings and classrooms have been found to have a negative influence upon students' performance, especially for minority/poverty student

Zainuddin and Subri (2017), studied the influence of school facilities in secondary school students' performance in klang district in Malaysia. Using descriptive analysis, the study's findings indicate that students from schools with enough physical facilities which are in good condition may influence students to perform well in learning process and examination. Thus, the study concludes that school facilities may improve students' academic achievement

Education facilities play a great role in enhancing students' performance at all levels of schooling (Osuji 2016). This view is supported by Doane (2008) who found that opinions of faculty members was positive regarding the influence of school building on students' academic achievements. The same view is given by Sabitu et al (2012) who account that the high rate of poor academic performance of Nigerian students in their examinations is not limited to public schools alone but also to private schools and the reasons range from poor teaching personnel and non-availability of school facilities.

Similar findings were established by Akomolafe and Adesua (2016) who found that there was a significant relationship between physical facilities and students' level of motivation and academic performance in Senior Secondary Schools in South West Nigeria.

Ibrahim et al (2017) did a research in Bauchi state of Nigeria on the impact of school facilities on senior secondary school students. On contrary, the study found no statistically significant relationship in the areas of school facilities and students' academic achievement. Similar finding was found by Sabitu et al (2012) who did a study in Ondo state in Nigeria by comparing private and public schools in terms of school facilities and students' performance. Although there was a statistically significant difference in terms of facilities, the students' performance in the two schools did not differ. Nevertheless, this finding cannot justify the unimportance of school facilities because the insignificance in students' performance between the two types of schools could be attributed by other factors such as school administration which could have not been captured in a t-test.

In Tanzania as well there have been numerous studies to address the role of school facilities on students' academic achievements. Mkalagale (2013) did a study in Temeke district to assess the causes of poor students' performnace in community schools. Using descriptive analysis, the study established the inadequacy of teaching and learning resources as one among the causes of students 'poor performance. Similarly, Dioniz (2016) using descriptive statistics did a study in kagera region of Tanzania and one among the study's findings is that adequacy of teaching and learning facilities in community secondary schools in which teachers teach influences their level of job satisfaction positively. The implication is teachers' could satisfaction eventually improve students' performance through their working morale.

Brightone (2017) in Mtwara region district of Newala examined factors leading to students' poor performance and found that shortage of teaching and learning materials and physical facilities, lack of readiness of students in learning and poor entry marks in form one and three, low parental involvement in learning of their children and unclear education policy were the main factors contributing to students' poor performance. Again, this study was done descriptively based on documentary review and opinions from the respondents.

Very unfortunate most studies particularly in Tanzania attempting to explain the influence of school facilities on students' performance have been done descriptively without using statistical models. While the studies' findings are surely true, regarding the connection between students' performance and school facilities, these studies have not provided inferential statistical evidence on the connection between students' failure and lack of facilities. Specifically, which facility is the most leading cause of failure and which should the policy makers pay most attention to it especially given the government limited resources in addressing educational challenges. The need for such evidence becomes even more urgent especially now because the government has introduced free education policy which has resulted into high students' enrollment which may not match with the existing educational facilities.

Therefore, this study intends to fill the gap by analyzing the role of school facilities (desks/chairs) on students' performances paying attention on the contribution of each

facility towards school performance. Specifically, the study will examine the following main issues:

- 1. The influence of chairs/desks students' ratio in students' academic performance
- 2. The influence of teachers' qualification in students' academic performance.

This study will help the Tanzania Ministry of education and Vocational Training and other stakeholders to review education policies and strategies for making conducive school environment to raise academic performance in Olevel secondary schools especially in light of the free education policy which is currently pursued.

### 2.0 Methodology

# 2.1 Research Design, Study Area, Sample size and Data collection methods

The study employed cross-sectional study design constituting of respondents who were the head of schools from different secondary schools found in Morogoro and Dar-es-salaam regions. The study included 100 schools of which among those schools, 60 schools were from Dar-essalaam regional and the rest from Morogoro regional. This sample size was reached based on Green (1991) suggestion that for regression-based studies the sample size should be given by a minimum of n=50+8k where k is the number of predictors. The study had six predictor's variables that led to a minimum sample size of 98. All schools were randomly selected from a list of schools in Morogoro and Dar es salaam regions. In each of those schools the study head targeted of schools' social demographic characteristics (age, education level, time he/she has stayed in the school) as well as a school status with respect to school facilities (students chair ratio, libraries and graduate teachers- student ratio). The study used questionnaire to collect the needed information from the head of schools whereas secondary data on schools' performance in national form four secondary examinations were taken from National Examination Council of Tanzania (NECTA) website. For each school a percent of students who passed the examination out of total number of candidates who sat for examination in the year 2016 was recorded

# 2.2 Data analysis

The data collected were analyzed using the Statistical Package for Social Sciences (SPSS) to compute descriptive statistics and further to that a multiple linear regression was used to assess influence of instructional facilities and teachers' qualification on students' performance.

# 3.0 Results and Discussions

# .3.1 Descriptive statistics

Table 1 presents the summary statistics of the variables used in the regression analysis. The dependent variable (percent of passes) indicate that the minimum pass was 10% while the maximum was 80% and the average pass was 53% suggesting that all the schools were generally passing. The variation of this variable was quite reasonable as the standard deviation was more than half of the mean. The remaining variables as well reflect a reasonable variation except head of schools' ages and presence of library. The two variables had poor variation (i.e. CV< 50%) which probably was a cause of their insignificance.

variable	n	mean	SD	min	max	Coefficient of variation (CV)
Percent of passes	100	53	32	10	80	60 %
age	100	39	15	30	50	38 %
Education level	100	17	12	13	21	70 %
Time in a school	100	4.7	3.5	1	7	74 %
Presence of library	100	0.97	0.17	0	1	18 %
Chairs' students ratio	100	0.08	0.05	0.01	0.13	62 %
Graduate teacher- student ratio	100	0.12	0.09	0.3	0.10	75 %

**Table1:** Summary Statistics of the Variables Used in the Regression Analysis.

<b>Fable2:</b> Multiple Linear Re	gressions on Factors	Influencing School	Academic Performance
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Model	Unstandar	dized Coefficients	Standardized Coefficients	t	Sig.	VIF
	В	Std. Error	Beta			
(Constant)	2.371	.677		3.504	.002	
Age	.048	.024	.453	1.966	.061	4.331
Education level	199	.091	254	-2.189	.039	1.099
Time (yrs.) the head has been in school	076	.025	726	-3.033	.006	4.665
Presence of library	160	.105	205	-1.533	.138	1.457
Chairs -student ratio	.401	.127	.424	3.151	.004	1.475
Graduate teacher -student ratio	.013	.003	.498	3.892	.001	1.336

Adjusted R square=63.2, F=9.58, P=0.000, Durbin Watson=1.871, n=100

All the five assumptions of multiple linear regression were investigated (normality. Multicollinearity, Independence, homoscedasticity and Linearity. The dependent variable in the regression was the percent of students passing a national form IV examination in a school. All students who had division 4 or above were regarded as passed students. Unfortunately, the percent of passes were highly positively skewed and a logarithmic transformation was applied to reduce the skewness. After the regression the model residuals were checked and found to be normally distributed as both Kolmogorov-Smirnov and Shapiro Wilk tests did not reject the null hypothesis of normality (p=0.200 and p=0.700). The model was free from multicollinearity as all the covariates had their variance inflation factors (VIF) less than 10 (Table 2). The assumption of the independence of the observations in the dependent variable was also met as the value of Durbin Watson statistic (1.871) was close to 2 (Table 1).

Results from Table 2 indicates both unstandardized and standardized coefficients. Usually the interpretation is made using unstandardized coefficients whereas the standardized coefficient can only be used in a scenario where a researcher is interested in comparing the relative influence of the independent variables involved in a regression. In other words, the standardized coefficients could tell the most influential, second most influential up to the least influential variable by comparing the magnitude (absolute value) of their coefficients.

From Table 2 it is indicated that chair-student ratio is significant with positive coefficient of (B=0.40). Therefore, the study revealed that as the number of chair (instructional facilities) increases also performance of student increases and this can be due to the fact that if students get enough facilities, they are motivated and become active to participate during teaching and learning process which later enhance their understanding and performance. This study is consistent with findings by Ramli and Zain (2018) who established that school facility (E-learning System Management; Teaching Aids and Library of Learning Environment; Hostels, Sports Facilities and Parking and Transportation of Infrastructure) had positive and significant influence on students' academic performance. The s chair-student ratio is not only significant, but comparatively based on the standardized beta coefficient is the second most influential facility among all others in influencing students' performance.

Table 2 revealed that there is significance and positive relationship between graduate teachers- student ratio and school's passing percent. The ratio of graduate teachers to students was not only significant but the most influential factor for a school performance based on the standardized coefficients. Its significance implies that as the number of graduate teachers increases academic performance of students also increases. The findings of this study are consistent with the results by Ugbe and Agim (2009) who found that the professional growth of teachers (conferences, seminars, workshops, pre and in-service training programmes) should be given adequate attention by the Ministry of Education, State and Federal Government if school performance is to be improved.

Other factors seeming to affect a school performance were the head of school demographic characteristics, notably, age, education level and the time the head has stayed in a school. Age had a negative but slight significant influence on the school performance. Probably what ca be inferred here is that as the school head' ages goes up he/she lacks the strength to supervise the teaching staff and consequently school performance goes down. As for the time spent in school to have a negative influence it could be that as the head get used to a school, he/she develops laxity in supervision leading to school underperformance. The most surprising result here is the level of education having negative influence on school performance. However, it might equally well not be surprising because what matters at the end is the management skills of the head not his/her education. Perhaps what should have mattered here would have been type of education and not the level of education.

### 4. Conclusion and Recommendation

The study examined the influence of education facilities and teachers' qualification on students' academic performance in secondary schools selected from two regions which were Morogoro and Dar-es-salaam. Data were analyzed using linear regression analysis. The results have indicated instruction facilities (desks, chairs, e.t.c) and qualified teachers influence student's academic performance. The study also went further and verified that head of school socio demographic characteristics affect the school academic performance. It is recommended to the government and other education stakeholders to improve the quantity and quality of education facilities and the teaching staff in secondary schools so as to improve schools' performance.

The study also recommends a further study to be done involving more schools (at least 385) capturing more demographics (sex, marital status, family size) from the heads of schools.

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