

Effect of Income and Provision of Physical Facilities on Students Performance in Kenya: A Case of Nakuru County

Kamau John Gathii¹, Dankit Nassiuma², Omboi Messah B.³

Abstract

Like any other business, schools require input of resources in order to deliver their mandate. Unlike other business the provision of education has other factors that are likely to interfere with the delivery and implementation of the teaching curriculum. Whether income and provision of physical facilities affect the delivery of the curriculum materials still remain largely unconfirmed. The aim of this study was to determine this relationship and the factors that are likely to affect it. All the schools in Nakuru County were identified. The county was stratified into seven districts and the schools were stratified into public and private schools. A sample of 33 schools was randomly selected. Questionnaires and a school observation guide were administered to the Head teachers and the bursars while the researcher filled the observation guide with the help of members of staff. The data collected was analyzed using correlation, regression and chi square to determine if there was any relationship. The study found that income is significantly related to academic performance while physical facilities have no significant correlation with academic performance at 95% level of confidence. The recommendation was that schools supervising authority should endeavor to ensure that school income is not spent only in provision of physical facilities but other teaching and learning resources as well. The government also needs to come up with prioritization rules to act as a guide as to what the schools should procure and when.

Key words: Income, Physical facilities, performance

1. Introduction

Research has identified factors that affect performance in learning as: teacher training, teacher experience, teacher's abilities, the pupil's abilities, teacher's salaries, teacher pupil ratio, instructional spending and expenditure per pupil (Hanushek, 1996). According to Hanushek, primary resources are not consistently related to student's performance. A good teacher was found to surpass a bad teacher by more than a full grade level of a student's performance, over a single academic year even after holding constant the family characteristics of the students and the level of achievement when they started the class. This author reckons that these differences could not have been caused by training, salaries, number of students or overall level of spending and recognized that incentives affect student's performance.

Hanushek opined that pupils from schools endowed with resources will have come from families that are also endowed with resources and parents are ready to spend more time with their children leading to better performance. He also found that school's effectiveness is independent of resources. By observation he found that schools exist which perform at very different levels despite having similar inputs. Value added analysis also indicate that institutions with moderate levels of achievements may enhance learning at least as much as high scoring and well resourced schools. However in all these, the question of accountability,

¹Ph.D Candidate and Head of Commerce Department of Kabarak University, Kenya. P.O. Box 3237-20100 Nakuru, Kenya

²Professor of Statistics and Vice Chancellor, African International University Karen, Kenya.

³Assistant professor of Accounting, United states University of Kenya

leakage of resources and a consideration of what went directly to the provision of learning resources, were not incorporated in the analysis.

According to Crouch and Winkler (2009), poor governance gives rise to many of the problems observed in the education system of poor countries today. These problems include; failure of resources like books, instruction materials, construction materials to reach the schools; high rates of absenteeism, ghost teachers, poor teacher deployment, low attention by teachers to students whom they are not paid to tutor and wastage of resources within schools.

Education is one of the unique avenues through which social, economic and political enablement can be achieved in an equitable way (Avenstrup, Riag & Nulleman, 2004). The main purpose of the education system is to equip the learners with skills and knowledge that would help them face the challenges of life and provide skilled manpower that would provide the engine and the fuel required to meet economic, social and political needs of Kenya (Republic of Kenya (ROK), 2005). Educational institutions are established to meet these challenges. Factors like family, school, classroom conditions, teaching methodology and the learners' circumstances have, through research, been shown to be major determinants of academic scores (Fernandez, & Rogerson, 1996; Diaz, 2003; Avenstrup, Riag & Nulleman, 2004; Hijazi & Naqvi, 2006; Oduol, 2006).

However, while resources are required to start, run, maintain and provide learning and teaching materials, their contribution towards academic scores has not yet been fully captured by research. In an attempt to establish a link between resources and academic scores through use of multiple linear regression analysis researchers found no significant relationship (Pincus & Rolph, 1986; Das, Dercon, Habyarimana & Krishnan, 2004; Dowd & Grant, 2006). The purpose of this research was to find out whether factors like leakage, allocation criteria, governance structures, accounting and audit control systems, if included in such studies, would make a difference?

Financial resources available to schools are not necessarily used for teaching and learning purposes. Only resources used directly to provide learning resources are likely to influence cognitive displacement. This implies that leakage should be treated as diversion of financial resources from the main stream academic purpose. It should be possible to find out whether educational institutions with good governance, low leakage of resources, objective criteria of allocating resources, effective accounting control systems, have a causal relationship between availability of resources and academic performance. By establishing the links between resources availability, leakage, allocation criteria governance structures, accounting control systems, value for money delivery of services, and adjusting for these factors, it is expected that the link between resource availability and academic performance can be established.

Research Problem

The relationship between availability of resources and its effect on performance of students in National examinations has always been a thorny issue. Some researchers contend that there is no significant relationship between availability of resources and performance while some have contended that there is. The term resource is rather wide and this study contends that if resources were broken down to their components it would be possible to establish this relationship for some of the components while for others it would be the opposite. For those who contend that there is no correlation between availability of resources and academic performance, it is observed that none of them have followed to establish whether the resources are really available to the schools or they are captured before they get to schools.

Aims and Objectives of the Study

The aim of this study was to establish the relationship between income of the school, provision of physical facilities and performance of schools in National examinations. This has the overall aim of aiding the school in decision making as regards sourcing of funds and utilization of the funds especially prioritization of the items to procure and the order in which they should be procured.

Objectives

To determine the relationship between school income, provision of physical resources and performance in national examinations

2. Review of Literature

Research has identified the following as factors that affect performance in learning: teacher training, teacher experience, teacher's abilities, the pupil's abilities, teacher's salaries, teacher pupil ratio, instructional spending and expenditure per pupil (Hanushek, 1996). According to Hanushek, primary resources are not consistently related to student's performance. A good teacher was found to surpass a bad teacher by more than a full grade level of a student's performance, over a single academic year even after holding constant the family characteristics of the students and the level of achievement when they started the class. Hanushek reckons that these differences could not have been caused by training, salaries, number of students or overall level of spending and recognized that incentives affect student's performance (Hanushek, 1996). He opined that pupils from schools endowed with resources will have come from families that are also endowed with resources and parents are ready to spend more time with their children leading to better performance. He also found that school's effectiveness is independent of resources. By observation he found that schools exist which perform at very different levels despite having similar inputs. Value added analysis also indicate that institutions with moderate levels of achievements may enhance learning at least as much as high scoring and well resourced schools (Hanushek, 1996).

According to Crouch and Winkler (2009), poor governance gives rise to many of the problems observed in the education system of poor countries today. This problems include; failure of resources like books, instruction materials, construction materials to reach the schools; high rates of absenteeism, ghost teachers, poor teacher deployment, low attention by teachers to students whom they are not paid to tutor and wastage of resources within schools.

In a study carried out in Pakistan to determine the factors that determine the quality of the grades obtained by students in secondary schools, it was found that social economic status of the learner, gender and parents education plaid a major role in determining the quality of the grades obtained by secondary school students. (Farrok, Chaudhrey, Shafiq & Berhanu. 2011). In this study, it was found that social economic status, and parents' education have a significant effect on students' overall academic achievement as well as achievement in the subjects of English and Mathematics. The high social economic level affects the performance more than the lower level. The study also concluded that parents education mean more than their occupation in relation to their children's academic performance. Parents occupation was found not to contribute significantly to a child's academic performance compared to parents education.

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The relationship between school inputs and educational outcomes is critical for educational policy (Das, et al. 2004). Das et al found that house-hold educational expenditure and school inputs are technical substitutes in the production function of cognitive achievements. They also found that the impact of un-anticipated inputs was higher than the impact of anticipated inputs. By establishing the links between resources availability and leakage, allocation criteria, governance structures, accounting control systems, value for money delivery of services and by adjusting for these factors, it is expected that the link between resource availability and academic performance can be established.

Financial resources availed to schools are not necessarily used for teaching and learning purposes. Only resources used directly to provide learning resources are likely to influence cognitive displacement. This implies that leakage should be treated as diversion of financial resources from the main stream academic purpose. It should be possible to find out whether educational institutions with good governance, low leakage of resources, objective criteria of allocating resources, effective accounting control systems, have a causal relationship between availability of resources and academic performance.

In a research funded by the World Bank titled, “Do school facilities matter”? The researchers established that funds had a direct impact on school attendance in poor regions, (Schady & Paxson. 1999). The researchers did not establish linkage between facilities and cognitive achievement and they recommended research in this area. They recommended that public expenditure reviews (PERs) should include the imbalance between recurrent capital expenditure and non-personnel expenditure.

In an Expenditure and Service Delivery Survey, carried out by (Das, 2002) in Zambia, he suggested that value added be used instead of test score which were contaminated by other variables like quality of the head teacher and the other factors cited above as influencing test score. In this instance a longitudinal survey was carried out to determine the change in test score as value added while the other factors remained unchanged. Still the complex interplay between the factors like leakage, governance and accounting controls were not addressed. However the survey acknowledged the difference in the funds allocated in National budgets and the amount that finally reaches the schools. To overcome this problem this study relied on both the scores at KCSE and the improvement index which was calculated by deducting the average KCSE (Kenya Certificate of Secondary Education) score from the average KCPE (Kenya Certificate of Primary Education score for the same students and dividing the difference by the average score at KCPE.

The question of leakage of resources though indirectly, has been recognized as a contributor to academic performance though negatively (Reinikka & Svensson, 2001). In a public expenditure tracking survey (PETS), to gauge the extent to which public resources actually filtered down to educational institutions showed that in the mid 1990s in Uganda, the average schools received only around 20% of the allocations from central government. Most schools received nothing and the bulk of the allocation was captured by local government officials (and politicians) in charge of disbursing the allocations to schools. In this case unlike the conditional approach where senior officers are mandated to monitor, that is, a top bottom approach, a bottom top approach was employed where information concerning the usage of the funds was published in the news papers and the findings were that, schools nearest to the news paper out lets registered a marked increase in resources that filtered to the school and also test scores in the same schools improved.

This leads to the main question of this study. Why is it that resource availability seems to have no effect on cognitive change to learners? Would cognitive achievement be possible without resources or is it that resources affect other variables inversely which in turn affects cognitive change. Would it be possible to explain the lack of effect on the inverse relationship such that the effect of resource increase on cognitive change is dampened by the inverse relationship with the intervening variables thus having a canceling effect? In other words, could it be possible that resource leakage, inappropriate governance, accounting controls, auditing and allocation of these resources all interact to distort the causal relationship that would otherwise exist?

In this study to avoid the capture of resources before they get to the schools, school income was considered, that is the total resources that get to the school including school fees, income generated from income generating projects, donations, parent funds, voluntary services etcetera.

Physical facilities were also considered as resources available to the school. It was found that physical facilities have very little influence if any on the academic performance while income is significantly related to academic performance in KCSE. This would mean that if resources would be directed to provision of learning resources the relationship between income and academic performance would be enhanced. These also provide a very strong case for not prioritizing physical facilities like buses, swimming pools and prestigious projects at the expense of learning resources. The number of books availed to the students was also found to be highly correlated to academic performance at KCSE.

By establishing the links between resources availability, leakage, allocation criteria governance structures, accounting control systems, value for money delivery of services, and adjusting for these factors, it is expected to find out whether the link between resource availability and academic performance can be established.

To capture availability of physical resources, an observation guide was developed to capture all physical facilities available to the school which include4d a score for the compound size, laboratory size and stocking, library and number of books available including size of the library, fields and games facilities available each earning points, type of buildings including size of classes and lockers available, hostel facilities, ablution facilities security arrangement, number of workers and the acreage of the school including water points and lighting points in the school. Each of these was awarded marks and the scores for each school was considered as the provision of physical facilities.

3. Research Methodology

In this study a survey design was adopted where all the 326 schools in Nakuru County were identified. The schools were stratified into private and public schools and also into Districts. A sample was chosen at random from each stratum as per table 2. A total of 33 schools were chosen from the identified 326 schools.

The sample size was fixed using the coefficient of variation (CV), which is defined as, coefficient of

$$\text{Variation} = \frac{\text{population standard deviation}}{\text{Population mean}}$$

Since the CV tends to remain stable over time and with increasing population, it is a reliable measure for use in sample size determination (Nassiuma, 2000). In most experiments or surveys, a coefficient of 30% is usually acceptable (Nassiuma, 2000).

The sample size is then obtained as; $n = \frac{NC^2}{C^2 + (N-1)e^2}$, where C is the coefficient of variation, e is the error margin in the measurements and N is the population size. An error of 5% would be acceptable since the results are for policy purposes and not for sensitive decisions where a small error would be detrimental that is where very high levels of assurances are required, the distribution of the schools in the county are as shown below

Table 1: Distribution of Secondary Schools in Nakuru County According to Districts

Districts		Nakuru town	Naivasha District	Nakuru North	Njoro District	Molo District	Rongai District	Kuresoi District	Total
Number of schools	Public	21	42	30	21	18	28	39	199
	private	25	34	39	3	8	14	4	127
Total		46	76	69	24	26	42	43	326

Due to the disparity in the availability of goods and services in different parts of the County, the Districts will be used as a unit of stratification. Thus applying the formula $n = \frac{NC^2}{C^2 + (N-1)e^2}$, and taking a relative error of 5% and a relative standard error of 30%, n will be equal to 33 secondary schools 20 public and 13 private secondary schools

Table 2: The Distribution of the Sampled Schools According to Districts

Districts	Nakuru Town	Naivasha District	Nakuru North	Njoro District	Molo District	Rongai District	Kuresoi District	Total
Public schools	2	4	3	2	2	3	4	20
private Schools	3	3	3	1	1	1	1	13

For each school sampled, an observation guide of the accounting department was used to capture transactions and who accomplishes them. The question items were answered with the help of the bursar or the accounts clerk or any other person working in the accounting department.

4. Data Presentation and Analysis

Table 3: Regression of governance, accountability, bursar’s score, total income head’s score, physical facilities and books with students against performance in KCSE examinations.

Coefficients

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	2.745	1.544		1.778	.103	-6.52	6.142
governance	.098	.091	.231	1.079	.304	-.102	.298
Accounting controls	-.339	.124	-.453	-2.731	.020	-.612	-.066
Auditing and control	.223	.068	.519	3.293	.007	.074	.373
bursars score	-.006	.141	-.013	-.042	.967	-.316	.304
total income of school	2.971E-08	.000	.398	1.634	.130	.000	.000
heads score	-.098	.112	-.201	-.879	.398	-.344	.148
physical facilities	.005	.003	.253	1.610	.136	-.002	.013
Books with students	.104	.052	.393	1.995	.071	-.011	.219

a. Dependent Variable: KCSE av. performance

Table 4: Correlation Coefficients

		Auditing and control	perceived resource availability	budget variances	KCSE av. performance	improvement index	bursars score	governance	books with students	heads score
Auditing and control	Pearson Correlation	1	.321	-.185	.545**	.145	.395*	.472**	.258	.242
	Sig. (2-tailed)		.089	.434	.005	.489	.042	.010	.184	.205
	N	29	29	20	25	25	27	29	28	29
perceived resource availability	Pearson Correlation	.321	1	.013	.487*	.095	.276	.302	.357*	.083
	Sig. (2-tailed)	.089		.953	.010	.637	.126	.105	.041	.642
	N	29	34	22	27	27	32	30	33	34
budget variances	Pearson Correlation	-.185	.013	1	.391	.011	.357	.298	.064	.132
	Sig. (2-tailed)	.434	.953		.098	.964	.112	.189	.777	.557
	N	20	22	22	19	19	21	21	22	22
KCSE av. performance	Pearson Correlation	.545**	.487*	.391	1	.022	.614**	.470*	.654**	.250
	Sig. (2-tailed)	.005	.010	.098		.913	.001	.015	.000	.209
	N	25	27	19	27	27	25	26	26	27
improvement index	Pearson Correlation	.145	.095	.011	.022	1	-.003	-.179	.102	-.303
	Sig. (2-tailed)	.489	.637	.964	.913		.989	.381	.620	.124
	N	25	27	19	27	27	25	26	26	27
bursars score	Pearson Correlation	.395*	.276	.357	.614**	-.003	1	.386*	.527**	.208
	Sig. (2-tailed)	.042	.126	.112	.001	.989		.042	.002	.253
	N	27	32	21	25	25	32	28	31	32
governance	Pearson Correlation	.472**	.302	.298	.470*	-.179	.386*	1	.253	.551**
	Sig. (2-tailed)	.010	.105	.189	.015	.381	.042		.185	.002
	N	29	30	21	26	26	28	30	29	30
books with students	Pearson Correlation	.258	.357*	.064	.654**	.102	.527**	.253	1	.091
	Sig. (2-tailed)	.184	.041	.777	.000	.620	.002	.185		.615
	N	28	33	22	26	26	31	29	33	33
heads score	Pearson Correlation	.242	.083	.132	.250	-.303	.208	.551**	.091	1

Sig. (2-tailed)	.205	.642	.557	.209	.124	.253	.002	.615	
z	29	34	22	27	27	32	30	33	34

*. Correlation is significant at the 0.05 level (2-tailed).

To test the reliability of the data collection instruments, a cronbach’s coefficient of reliability was calculated. For a four item likert scale type of questions a reliability coefficient was 0.654 which for practical purposes is within acceptable range

Influence of Availability of Resources on Value Delivery

The main interest in this study was to establish whether availability of resources has any influence on performance in national examinations. To accomplish this, a number of variables were identified and their influence on KCSE grades determined by calculating correlation coefficient and regressing the factors against performance at KCSE. This section dealt with the influence of professional characteristics factor of the accounting officers of the schools on performance in KCSE examinations. The factors considered were; Head’s score, where the heads experience as a teacher, as a head, his age, education level and professional training were all captured and scored. The bursar was similarly assessed and the score captured. Other factors considered were total income of the school and books given to each student and physical facilities, all to represent availability of resources. Other factors included budgetary variances and price variance. On analysis of the factors revealed the following.

Table 5: Summary of the Regression of Performance of the Sampled Schools on the Accounting Officer’s Professional Scores and Total Income of the Schools.

Model	Un-standardized Coefficients B	t	Sig.
(Constant)	4.105	2.452	.020
heads score	-.036	-.319	.752
¹ bursars score	-.048	-.484	.632
total income of school	8.590E-008	3.740	.001

Earlier findings contended that availability of resources had no significant influence on the performance of students in National examinations (Pincus & Rolph, 1986; Das, Dercon, Habyarimana & Krishnan, 2004; Dowd & Grant, 2006). While others contended that availability of resources has significant influence on academic score. (Akinyemi & Akinyemi 2012). According to Bold et al, (2010), low resources availed to schools in Kenya on inception of the free primary education led to low academic performance. They acknowledged reduced demand in response to a price decrease for public schools provides prima facie evidence of a decline in public school quality, consistent with exam results. (Akinyemi & Akinyemi, 2012)

On the student t scores recorded, it is only total income that has a significant t score of 2.442 and a significant p score of 0.020. This means that the probability that the t score could have been a chance occurrence is 0.020 which is below the critical value of 0.025 for a two tailed test at 95% confidence level standardized B coefficient of 0.643 and a t-score of 3.740 with a b score that is positive at 95% confidence level. This means that the t score is significant at 95% confidence level. The other two factors are not significant in determining performance in KCSE. The Heads experience both as a teacher and a head, age

and professional training had a t-score of -0.319 and a significance score of 0.752 which is way above the critical p-value of 0.025 for a two tail test. The B score of -0.036 though insignificant, being negative suggests a negative relationship thus as one increases the other moves in the opposite direction. The other accounting officer, the bursar’s experience, professional training age and education all summed up had no significant influence on academic performance at KCSE. The bursar’s t-score was -0.484 a significance score of 0.632 and a coefficient b-score of -0.048. This implies that the factor under consideration has no causal influence on performance at KCSE at 95% level of confidence.

The null hypothesis that availability of resources affects performance in KCSE cannot be rejected for total income since the probability that the regression could have been coursed by chance factors is 0.000 well below the critical value 0.05. But there is no sufficient evidence to accept the hypothesis for heads score and bursars score that is the professional factors of the accounting officers.

This means that income has a significant predictive capacity as far as KCSE performance is concerned while the other two professional characteristics of the accounting officers do not.

To further investigate the relation between resources and performance in National examinations, a multi-regression analysis was carried out to test the regression of total income, books with students, physical facilities available, market value of the schools, and perceived provision of resources. The result of the analysis, are summarized in table 4.10 below.

Table 6: Multiple Regression of Performance of Secondary Schools in National Examinations against Measures of Resource Availability.

Model	Un-standardized		t	Sig.	Correlations		
	Coefficients						
1 (Constant)	2.153	1.116	1.929	.067			
Perceived resource availability	.014	.016	.861	.399	.376	.185	.111
Market value of school	1.058E-09	.000	.455	.654	.415	.099	.059
total income of school	4.501E-08	.000	2.707	.013	.641	.509	.348
physical facilities	-.001	.005	-.129	.898	.373	-.028	-.017
books with students	.154	.048	3.239	.004	.630	.577	.417

a. Dependent Variable: KCSE average performance

From table 4.13 above it is apparent that total income of the school and books availed to the students have regression coefficients of .457 and 0.456 respectively with P-scores of 0.000 and 0.048 respectively. The P-values for the two parameters are below the critical P-value of 0.05. This means that there is a causal relationship between performance at KCSE and books availed to students and total income of the school. This implies that there is no sufficient evidence to reject the hypothesis that availability of resources has significant influence on national examination performance as far as books availed to students and income of the school are concerned. This finding is in contrast to earlier studies that resources have no significant influence on academic performance (Pincus & Rolph, 1986; Das, Dercon, Habyarimana & Krishnan, 2004; Dowd & Grant, 2006). These findings are in agreement with the findings of Akinyemi & Akinyemi, (2008). The other factors perceived resource availability, market value of school and physical facilities are not significantly related to performance in National examinations. This would imply that put together the net availability of resources might not exhibit any significant causal relationship with performance in KCSE however the breaking down of the components of availability of resources actually brings out the relationship by discriminating those aspects of the resources that have no causal effect on academic performance.

Table 7: Pearson’s Correlation Coefficients of Value Delivery against the Availability of Resources

		KCSE av. performance	total income of school	physical facilities	books with students	budget variances
KCSE av. performance	Pearson Correlation	1	.592**	.317	.502**	.338
	Sig. (2-tailed)		.000	.067	.002	.051
	N	34	33	34	34	34
total income of school	Pearson Correlation	.592**	1	.500**	.262	.598**
	Sig. (2-tailed)	.000		.003	.141	.000
	N	33	33	33	33	33
physical facilities	Pearson Correlation	.317	.500**	1	.216	.091
	Sig. (2-tailed)	.067	.003		.219	.610
	N	34	33	34	34	34
Books with students	Pearson Correlation	.502**	.262	.216	1	.089
	Sig. (2-tailed)	.002	.141	.219		.615
	N	34	33	34	34	34
budget variances	Pearson Correlation	.338	.598**	.091	.089	1
	Sig. (2-tailed)	.051	.000	.610	.615	
	N	34	33	34	34	34

** . Correlation is significant at the 0.01 level (2-tailed).

From table 7 it can be seen that there is a positive pearson’s correlation coefficient between total income of the school (availability of resources) and performance in national examinations with a p-value of 0.000 showing that the probability that the coefficient could have been as a result of chance is below the critical value of 0.05 thus we have no reason to reject the hypothesis that availability of resources influences performance at KCSE

The same argument can be fronted for the relation between physical facilities and KCSE performance. The Pearson’s coefficient is 0.317 with a p-score of 0.067 is well outside the critical value of 0.01 and thus the null hypothesis that physical facilities are related to KCSE performance has no particular evidence to support it. However it must be pointed out that the p-value is very close to the critical value and thus does not provide strong evidence to reject the null hypothesis. The relationship may need further investigation.

The relationship between books with students and KCSE performance stands at 0.502 with a p-score of 0.002 which is outside the 0.05 critical value indicating that the correlation is significant and thus we cannot reject the null hypothesis that the books with students affects performance at KCSE

The pearson’s correlation coefficient for budgetary variance and KCSE performance was 0.338 with a p-score of 0.051 which is above the critical value of 0.05 thus there is no evidence to accept the null hypothesis that the budgetary variance is related to performance in KCSE. This may be due to the fact that budgetary variance is a random variable or that the big schools have large incomes and the higher variances. Not that the relationship would be significant at 94.9% level of confidence. This means that it has a contribution though not significant at 95% level of confidence.

5. Conclusion and Recommendations

From this observation it is apparent that although resources are important and they do impact on academic performance in KCSE, the raw resources may or may not impact on academic performance significantly. This aspect is determined by how much of the resources are used for the appropriate purpose. Provision of learning and teaching resources is important and impacts directly on academic performance. Provision of physical facilities as seen in this analysis has no causal relationship with academic performance. However physical facilities important as they are they seem to have a negative relationship with academic

performance and this seem to have some appeal rationally. Physical facilities important as they are may course distraction to learners if not properly manage. Provision of resources need to be handled with care. Physical facilities need also to be separated into further categories to determine which facilities affect academic performance positively.

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