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Influence of Teacher Adequacy on Students' Performance in Kcse in Public Secondary Schools in Kenya. A Case of Kathiani Sub-County, Machakos County

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ABSTRACT: *Learners' academic performance is an area of great concern to all stakeholders in education worldwide. Schools in Kathiani Sub-County have recorded dismal performance in Kenya Certificate of Secondary Education (KCSE) in the last five years. The study sought to establish the influence of teacher adequacy on students' performance in KCSE in public secondary schools.The objective of the study was; to examine the extent to which teacher adequacy affect students' performance in KCSE in public secondary schools in Kathiani sub-County Machakos County. The study was guided by education production function theory. The study used descriptive research design. The target population of the study was 30 head teachers and 270 Heads of departments in 30 public secondary schools in Kathiani Sub County, Machakos County. The study used Simple random, stratified and purposive random sampling techniques in selecting a sample size of 9 head teachers and 81 HODs from the target population. Questionnaires were used to collect data from the head teachers and heads of department. Validity of the questionnaires was ascertained using experts in the school of education while reliability of the instruments was determined using the Cronbach alpha. Quantitative data was analyzed using frequencies, percentages, means and standard deviation while hypothesis was tested at 0.05 level of significance using correlationanalyses. The findings revealed that KCSE performance in Kathiani Sub County has been declining over the years from mean grade points of 4.2 in 2012 to 3.2 out of 12 points in 2016. Further it found that that teacher inadequacy was occasioned by the fact that there were no immediate replacements made once teachers had transferred from schools. Overall the study found that teacher adequacy had positive and significantrelationships with performance at the Kenya Certificate of Secondary Education. The study recommended that TSC should recruit and post enough teachers as per the curriculum based establishment of schools and they should replace teachers immediately when they are transferred as majority of head teachers decried that many of the teachers who get transferred are not replaced immediately.*
Key terms; *Curriculum based establishment, KCSE, Public secondary schools,teacher adequacy*

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I. Introduction

Education is an essential ingredient for the development of any society and is seen as a pathway to raising political, social awareness as well as upholding the level of manpower (Onyara, 2013). According to Yara and Otieno (2010), education is a fundamental human right. The pivot to sustainable development, peace, and stability within and among countries is the provision of quality education to their citizens (Oguntuase, Awe, & Ajayi, 2013).

According to Mwangi and Nyagah (2013), the performance of an individual in the National Examination is a predictor of that person's future. Due to the concern of the countries around the globe about their citizen's future, education has become a major Centre of investment. Expenditures on education have been seen to increase and majorly focused on the students, for instance, Canada and America had an increment of students' spending nationally from $7,077 to $9,040 and $8,118 to $10,770 in 1998 and 2005 respectively (Statistics Canada, 2008; National Center for Education Statistics, 2007). This increase is as result of the belief that school facilities have effects on students' academic performance (Dearden, Ferri, & Meghir, 2002; Earthman, 2002).

Many countries in Africa are paying attention to invest in education from primary, secondary and tertiary levels. However, the main challenge is poor academic performance of students (Miller & Yodar, 2002). In Botswana, for example, the government is offering free basic education to all the children attending school.

In addition, the government supports education from primary to secondary level. To achieve this, the Ministry of Education receives a heavy share of the country's budget (Matambo, 2013). Despite all the efforts by the government on education, the students' academic performance has been declining lately from 2010 (Luke & Mavis, 2014).

In Tanzania, the government has initiated several policy structural reforms to ensure quality education (United Republic of Tanzania, 2001). Notable among these are the Education Sector Development Programmes, institutional vision to be focused on vision 2025 aspiration and the National Science and Technology Policy (URT, 2001). Despite these efforts, low academic performance in secondary schools has been recorded. United Republic of Tanzania (2012), reports that academic performance of students has been deteriorating. For instance, pass rate for Divisions I to III was has follows; 36.6% in 2007, 31% in 2008, 17.91% in 2009, 11.5% in 2010 and 10.05% in 2011(URT, 2012).

The government of Kenya has implemented free primary education (FPE) and subsidized secondary education to increase access. The government input through Constituency Development Fund (CDF) in secondary schools has been towards improving teaching/learning resources and infrastructure for better academic performance in national examinations. The establishment of additional national secondary schools has also been aimed at improving the students' academic performance. Despite all the efforts by the government to improve the academic performance of the students, the academic performance in KCSE is still at stake (Ministry of Education Science and Technology (MOEST), 2010).

Kenya's system of education provides for 8 years in primary and 4 years in secondary education. After 4 years of secondary education the students are subjected to a Kenya Certificate of Secondary Education examination which varies from School to School and from year to year. Factors that can cause this variation in performance can either be school based factor or external factors. According to Onyara (2013), school-based factors are those within school control that can affect students' academic performance in public secondary schools. They include; teaching resources, teacher adequacy, physical facilities and head teachers' supervisory role.

Teacher adequacy can compromise the quality of education (Boyd & Barbarin, 2008).To identify the adequacy of teachers in the learning environment, the student-teacher ratio (STR) need to be determined. STR will tell whether an institution is having adequate teachers or not. The advantage of having low STR is reducing the number of students to be handled by a teacher in the classroom. This ensures the teacher's attention to the students and thus good academic performance. On the other hand, high STR will mean that a teacher will have to handle a large number of the students in the classroom at the same time. Students' academic performance is affected by the transfer of teachers from schools without replacements leading to lack of enough teachers' thus affecting teacher-student ratio (Wanyama, 2013).

Several researchers have carried out research with the quest to address the factors influencing academic performance in Kenya Certificate of Secondary Education (KCSE). For instance, Simiyu (2013) carried out research to examine the factors influencing the students' academic performance in public secondary schools in Trans Nzoia West Sub County. The study found that school factors greatly contribute to students' academic performance. The study further found that presence of a well-stocked library, relevant text books, well trained teachers, spacious classrooms are factors that can contribute to good academic performance. According to Onyara (2013), students' poor performance is due to lack of learning facilities and resources as well as poor supervision of learning activities. The study also shows that almost half of the heads of schools rarely take a look at teacher's professional records.

Academic performance is also influenced by transfer of teachers from schools without replacements. This leads to lack of enough teachers' thus leading to poor academic performance (Wanyama, 2013).These studies have been done in other Sub Counties in Kenya and none has been done in Kathiani Sub County. The current study intends to investigate the school-based factors influencing students' performance in KCSE in public secondary schools in Kathiani Sub County, Machakos County with a view of making recommendations on how to improve performance in KCSE in the Sub-County.

II. Statement Of The Problem

The desire to provide quality education for all children is one of the major objectives of the ministry of education. As such, the government of Kenya has continuously implemented measures to improve the quality of education in secondary schools. Despite government measures like improving physical facilities, learning resources in schools through the CDF fund and free and subsidized secondary education to boost performance, performance in public secondary schools in Kathiani Sub-county has been persistently low.

Statistics at Kathiani Sub County Education Office (SCEO) show that most of the secondary schools have recorded a mean score below 4.5 in KCSE between 2012and 2016 except 5 schools with a mean score above 4.5. According to the report, the KCSE mean score for the Sub County from 2012 to 2016 is as follows; 4.144, 4.070, 4.750, 4.874 and 3.151. The factors for this inconsistency performance over the years are not well

understood which has made it difficult to design strategies that can improve the KCSE performance of poorly performing schools. This has compiled the researcher to carry out this study to establish the school based factors influencing students' performance in KCSE in Kathiani Sub County, Machakos County.

A number of studies conducted in other parts of the country found that the presence of a well-stocked library, relevant text books, well trained teachers and spacious classrooms contributed to good academic performance (Simiyu, 2013; Nyamongo, Sang, Nyaoka & Matoke, 2014). Nyamongo, Sang, Nyaoka and Matoke (2014) found that there was a significant relationship between the head teachers' supervisory role and students' academic performance. These studies have been done in other counties in Kenya and none has been done in Kathiani Sub County. Therefore, this study proposes to investigate school based factors influencing students' performance in KCSE in public secondary schools in Kathiani Sub County, Machakos.

2.1 Study objectives

The study was guided by the following objectives to;

i) Establish the influence of teacher adequacy on students' performance in KCSE in public secondary schools

2.2 Study hypothesis

Ho1: There is no significant relationship between teacher adequacy and students' Performance in KCSE in Public Secondary Schools in Kathiani Sub- County.

III. Review Of Related Literature

3.1. Teacher Adequacy and Students' Academic Performance

The success of the educational system is determined by the availability and adequacy of teachers. To identify the adequacy of teachers in the learning environment, the student-teacher ratio (STR) need to be determined which will account for the number of students a single teacher handles in a class. The STR method will make it simple for teachers to be allocated a specific number of students in the class at any educational level. The method as well shows the workload of any given teacher in any level of education. Additionally, the method is helpful in that it can determine the number of the students that need to be enrolled in any learning institution as well as the manpower that is required for a given number of students (Afolabi, 2005).

According to Rosehotz and Simpson (2002), contemporary education thought holds that one of the pivotal causes of unsteady development in many countries is inability to adequately staff schools with teachers. Tyke and O'Brien (2002) argue that schools are plagued by shortage of teachers due to increase in students' enrolment, teacher attrition and retirement leading to poor academic performance. Teacher inadequacy is believed to confront many secondary schools world over and Kenya is not exempted. The similar situation was observed in Australia by Klaus and Dolton (2008) who argue that the nation need to hire at least one million teacher over the next ten years because the inadequacy can affect students' academic performance.

According to MacDonald (2007), the attrition of both new and experience teachers is a great challenge for schools and schools administrators throughout the United States. This can affect students' academic performance. According to Tyke and O'Brien (2002) the shortage of teachers has forced many education systems to lower education standards through the employment of unqualified teachers to fill the gap, thus lowering the school's academic performance.

In Tanzania, students' performance is dismal, and the quality of performance is suspected to be affected by inadequate teachers as well as low syllabus coverage among other factors (Mdee & Donatha, 2015). Mdee and Donatha (2015) further recommended that, for the Tanzanian country to improve the quality and the performance of the students, teacher students' ratio needs to be addressed together with employing more qualified teachers. According to Mosha (2014) most of the secondary school in Tanzania has inadequate teachers which has led to poor academic performance.

A survey conducted in Kenya by United Nations Educational, Scientific and Cultural Organization (2005), shows that average ratio in 162 sampled schools was 58:1 against the requirement of 40:1. Such class sizes in public secondary school make it difficult for teachers to teach lessons effectively as compared to their counterparts in private schools who handle a smaller number of students. Therefore, teacher adequacy is a significant factor influencing students' academic performance. Students will be considered passive in the class due to their large number as a result of the teaching methods that will be employed by the teacher in taking care of the big population (Okongo, Ngao, Rop & Nyongesa, 2015).

Since the introduction of free primary and subsidized secondary education in Kenya, the ratio of teacher to student has escalated from the recommended range of 1:40 to 1:60 (MOEST, 2010). The teacher-student ratio factor is a major contributor to the compromised results of the students. According to UNESCO report (2012) on efforts made by the government to ensure education for all (EFA) as a Millennium Development Goal, Kenya faces a serious shortage of qualified teachers which is causing schools performance to be negatively affected. The report also reiterated the problems of shortage of teaching personnel which are

factors influencing students' academic performance in Kenya schools. The shortage of teachers is, therefore, a significant factor that is impinging on the students' performance in Kenya Certificate of Secondary Education (KCSE) examination and thus the need for this study.

3.2. Study Theory

The study was guided by the education production function theory whose main proponents are Dewey, Husted and Kenny (1998). The theory focuses on the analysis in the economics of education whose impacts are on school resources both physical facilities and learning resources. The theory assumes that there is substitutability of inputs to produce the same output. A standard formulation for the education production function takes the form: A = F(X) where A represents the output produced by the activity, and X is a set of inputs. This theory is supported by Callan and Santerre (1990) and Nelson and Hevert (1992) who have provided empirical evidence that there is at least limited substitutability between educational inputs, for example teachers, physical facilities, learning resources, financial resources and students' performance.

The study used this theory to highlight various aspects of the learning process of the students in relation to, teacher adequacy, which is an inputs to academic performance. On analysis of the role of school resources in determining student achievement the theory posits that the output of the educational process (the achievement of students) is directly related to inputs that both are directly controlled by policy makers (teacher's adequacy).Though academic achievement may be measured at discrete points in time, the educational production function theory is cumulative. This theory is therefore applicable to the study since it relates various inputs and students'performance.

3.3 Study Methodology

The study used descriptive research design. Bryman and Bell (2011) assert that a descriptive design seeks to get information that describes existing phenomena by asking questions relating to individual perceptions and attitudes. Descriptive research design was appropriate for the study because it was conducted in a setting that required direct responses from respondents while investigating existing phenomenon without manipulating the variables.

This study targeted all the 30 public secondary schools, their head teachers and heads of departments (HODs). Records at Kathiani Sub-County office (2017) showed that the Sub-County had 30 public secondary schools (11mixed day/boarding schools, 14mixed day schools and 5single gender schools) that have presented students for KCSE examinations between 2012 and 2016. The head teachers and the HODs were targeted because they are in charge of curriculum implementation and the academic matters in the school and were considered to have knowledge of the factors influencing students' performance in KCSE.

Due to the population characteristics, the study stratified the population into three strata as follows; mixed day/boarding schools, mixed day schools and single gender schools. Mugenda and Mugenda (2003) recommend a representative sample of between 10% and 30% for a descriptive research. Therefore 30% of each stratum yielded 3 mixed/day boarding, 4 mixed day and 2 single gender schools. After stratification of schools, simple random sampling technique was used to select schools from each stratum. Purposive sampling technique was then be used to sample the head teachers and HODs. Data was collected by use of questionnaires and document analysis. Data analysis was done using Statistical Package for Social Science (SPSS) version 21. Descriptive statistics such as frequencies, percentages, mean and standard deviation were used for all the quantitative variables and information presented inform of tables. The qualitative data from the open ended questions was analyzed using content analysis. The null hypothesis was tested using correlation analysis at 0.05level of significance.

For ethical purposes, the rights and dignity of the respondents such as the right to decline to participate as a respondent to the questionnaire, and freedom to present their views on related areas without fear of repercussion was assured before data collection took place.

IV. Results

4.1. Questionnaire Response Rate

This study administered a total of 9 questionnaires for head teachers and 81 to the heads of departments. Of these, all the 9 questionnaires were returned by the head teachers while 68 questionnaires were returned by the Heads of Departments. This represented questionnaire response rates of 100% and 84% for head teachers and Heads of Departments respectively. These rates were considered acceptable since according to Best and Khan (2006) return rates of more than 60% are considered to be very good.

4.2. Demographic Characteristics of Respondents

Respondents' characteristics in terms of gender and professional experience are as presented in Tables 1 and 2.

Table 1 Gender of Respondents

	Head teachers		Heads of departments	
	Frequency	Percent	Frequency	Percent

Male	6	66.7	40	58.8
Female	3	33.3	28	41.2
Total	9	100.0	68	100

Table 1 shows that 6 (66.7%) of the head teachers were male while 3(33.3%) were female. On the other hand 40(58.8%) of the heads of department were male while 28(41.2%) were female.

4.3. Professional Qualification of Head teachers' and Heads of department

Head teachers' and Heads of Department professional qualification was analyzed and results shown in Table 2 and 3 respectively

Table 2: Head teachers' highest level of professional Qualification

	Frequency	Percent	Cumulative Percent
MED	1	11.1	11.1
BED	8	88.9	100.0
Total	9	100.0	

Table 3shows that 8(88.9%) of the head teachers had a Bachelors of Education(BED) degree level of qualification compared to nearly 1(11.1%) of the principal respondents who had post graduate Master of Education(MED) degree level of qualification.

On a similar platform, heads of department' level of professional qualification was analyzed and results are as shown in Table 3.

Table 3: Heads of departments' professional qualification

	Frequency	Percent	Cumulative percent
P1	2	2.9	2.9
Diploma	22	32.4	35.3
Degree	40	58.8	94.1
Others (Masters)	4	5.9	100.0
Total	68	100.0	

Table 3 shows that 40(58.8%) of the Heads of Department had a degree level of professional qualification followed 22(32.4%) of the Heads of Departments (HODs) with a diploma level of professional qualification. It is also worth noting that about 4(5.9%) of the Heads of Department had attained a master's level of qualification. However, there was 2.9% of heads of departments in secondary schools with a P1 certificate level of qualification.

4.4. Duration of service in current school

With regard to duration of stay in the current school, head teachers gave the following responses that are presented in Table 4.

Table 4: Head teachers' length of service in current school

	Frequency	Percent	Cumulative Percent
Less than 2 years	2	22.2	22.2
3-4 years	2	22.2	44.4
Over 4 years	5	55.6	100.0
Total	9	100.0	

Table 4 shows that 5 (55.6%) of the head teachers had stayed in the respective schools for a period of over 4 years while about 2(22.2%) of them had stayed for a period of 3-4 years. Only 2 (22%) had stayed for less than 2 years in their current station. This indicates that the head teachers had stayed in their current schools long enough to understand the trend in KCSE performance.

Similarly, analysis of heads of department's length of stay in the current school is as presented in table 5.

Table5: Length of stay in current school

	Frequency	Percent	Cumulative Percent
Less than 2 years	17	25.0	25.0
3-4 years	14	20.6	45.6
Over 4 years	37	54.4	100.0
Total	68	100.0	

Table 5 shows that 37 (54.4%) of the heads of department said that they had stayed in the current school for a period of over 4 years while about 17(25%) of them had less than two year stay. Another 14(20.6%)of the departmental heads had stayed in the school for a period of between 3 and 4 years.

V. Research Findings

5.1. Teacher Adequacy and Student Performance

The second objective sought to examine the extent to which teacher adequacy affect students' performance in KCSE in public secondary schools in Kathiani Sub- County. A set of likert scale items were formulated and presented to the head teachers and heads of department in which case they were required to rate the level of agreement in respect of the statements put forth on teacher adequacy. These responses were analyzed and presented in Table 6

Table 6: Adequacy of teachers as per head teachers' view

	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
Our school is sufficiently supplied with teachers as per the Curriculum based establishment of the school	0	11.1	55.6	33.3	1.78
We often use form four school leavers with good grades as teachers to mitigate the problem of teacher shortage in our school	11.1	0	22.2	66.7	1.56
The BOM employs trained and qualified graduate teachers to help mitigate the problem of teacher inadequacy	44.4	55.6	0	0	3.44
The teacher-pupil ratio in our school is sufficient	22.2	22.2	44.4	11.1	2.56
There are regular teacher transfers in our school by the TSC	0	22.2	66.7	11.1	2.11
When teachers transfer from our school we do not get immediate replacement	66.7	22.2	11.1	0	3.56

Table 6 shows that 55.6 percent of the head teachers disagreed that their schools were sufficiently supplied with teachers as per the curriculum based establishment while 33.3% of them strongly disagreed. 11.1% agreed that their schools were sufficiently supplied with teachers. Similarly, 66.7% of the head teachers strongly disagreed that they contract form four school leavers to mitigate on the problem of teacher shortage, 22.2% disagreed while about 11% of them agreed. 55.6% agreed that the respective Board of Management in their schools employ trained and qualified graduate teachers to mitigate the problem of teacher inadequacy while 44.4% strongly agreed. 44.4% of the head teachers disagreed to the statement that the teacher to pupil ratio in their respective schools was sufficient while 11.1 percent of them strongly disagreed that teacher pupil ratio was sufficient. 22.2% of the head teachers strongly agreed that the teacher student ratio in their schools is sufficient while 22.2% agreed with the statement.

When asked whether there were regular transfer of teachers from their schools, 66.7% of the head teachers disagreed with the statement while 22.2% of them agreed that there were regular transfers. 11.1% of them strongly disagreed with the statement. With regard as to whether there was immediate replacement when teachers transferred, 66.7% strongly agreed with the statement while 22.2% of the head teachers agreed. 11.1% of the head teachers disagreed that when teachers from their schools are transferred they get immediate replacement.

Table 7: HOD's Responses on Teacher Adequacy

	Strongly agree	Agree	disagree	Strongly disagree	Mean
Our school is sufficiently supplied with teachers as per the Curriculum based establishment of the school	0	29.4	52.9	17.6	2.12
We often use form four school leavers with good grades as teachers to mitigate the problem of teacher shortage in our school	0	17.6	27.9	54.4	1.63
The BOM employs trained and qualified graduate teachers to help mitigate the problem of teacher inadequacy	39.7	51.5	5.9	2.9	3.28
The teacher-pupil ratio in our school is sufficient	4.4	26.5	42.6	26.5	2.09
There are regular teacher transfers in our school by the TSC	0	22.1	52.9	25.0	1.97
When teachers transfer from our school we do not get immediate replacement	16.2	44.1	26.5	13.2	2.63

Table 7 shows that 52.9% of the departmental heads disagreed with the statement that their schools are sufficiently supplied with teachers as per the curriculum establishment of the schools while 29.4% of them strongly agreed to the statement. 17.6% of the heads of department strongly disagreed that their school is sufficiently supplied with teachers as per the curriculum based establishment. Similarly 54.4% of the departmental heads strongly disagreed that they allow form four school leavers with good grades as teachers to

mitigate the problem of teacher shortages While 27.9% of them disagreed. 17.6 percent of the heads of department agreed that they do contract form four leavers with good grades to teach in their schools to mitigate the problem teacher shortage. 39.7% of the departmental heads strongly agreed while 51.5% agreed with the statement that their respective BOMs employs trained and qualified graduates to help solve the problem of teacher shortage. 5.9% of them disagreed with the statement while 2.9% of them strongly disagreed.

With regard to the teacher-pupil ratio, 42.6% of the HODs disagreed that the ratio was sufficient while 26.6% strongly disagreed.26.5% of the heads of department agreed that the teacher student ratio in their schools was sufficient while a 4.4% of them strongly agreed with the statement. Similarly, 52.9% of the heads of department disagreed that there were regular transfers of teachers from their schools by TSC while 25% strongly disagreed with the statement. 22.1% agreed that there were regular transfers in their school by the TSC. 44.1% of the heads of department agreed that when teacher's transfers occur in their schools, there is no immediate replacement while 16.2%of them strongly agreed with the statement. 26.5% of the heads of department disagreed that when teachers transfer from their schools they do not get immediate replacement.

In line with achieving the second objective, this study sought to find the extent in which the teacher adequacy influenced academic performance of the schools considering the underlying facts about the adequacy of these resources as established herein in the preceding sections. In this case, a common question was asked to both the head teachers and head of department to rate their views on an ordinal scale with regard to the extent of influence. The measure of extent was ordinal ranked on a continuum and numerical figures were assigned to give an interpretation schema as follows: 5= very great extent; 4 = great extent; 3 = moderate extent; 2= little extent and 1 = no extent at all. Pursuant to the foregoing, data with regard to the extent to which teacher adequate influenced academic performance was analyzed collectively for both head teachers and heads of department and presented in table 8.

Table 8: Extent to which teacher adequacy influence students' performance in KCSE.

	Head teacher (N =9)		Heads of department(N= 68)	
	Frequency	Percent	Frequency	Percent
To a little extent			1	1.5
To a moderate extent			3	4.4
To a great extent	5	55.6	28	41.2
To a very great extent	4	44.4	36	52.9
MEAN	**4.56**		**4.46**	

Table 8 shows that 5(55.6%) of the head teachers were of the view that teacher adequacy influenced performance to a great extent while 4(44.4%) of them agreed that teacher adequacy influenced academic performance of the students to a very great extent. On the other hand, 28(41.2%) heads of department were of the view that teacher adequacy influences students' performance to a great extent while 36(52.9%) of the heads of department said that teaching adequacy influenced performance to a very great extent. However, 3(4.4%) percent of the heads of department opined that teaching resources influenced students' performance in KCSE to a moderate extent while 1(1.5 %) were of the view that it affected to a little extent.

Overall and in line with the interpretation schema presented at the beginning of this section where 5 represents very great extent and 1 representing no extent at all, it can be seen that the mean value depicting extent of influence by head teachers was found to be 4.56 while that of the heads of department was 4.46 implying that both categories of respondents were in agreement that teaching adequacy influenced students' academic performance at the Kenya Certificate of Secondary Education (KCSE) to a great extent.

Finally, in order to make inferences concerning the relationship between the dependent variable and independent variable in lieu of objective two, the second null hypothesis for this study was formulated and tested at the 0.05 level of significance. The formulated null hypothesis stated that "H01: There is no significant relationship between teaching adequacy and students' performance in KCSE in public secondary schools in Kathiani Sub-County, Kenya". In order to test the validity of this claim, a correlation analysis was performed and results are as presented in table 9.

Table 9: Correlation between teacher adequacy and KCSE performance

		KCSE Average Performance	Teacher Adequacy
KCSE Average Performance	Pearson Correlation	1	.544**
	Sig. (2-tailed)		.012
	N	77	
Teacher Adequacy	Pearson Correlation	.544**	1
	Sig. (2-tailed)	.012	
	N	77	77

Results from table 9 shows that there was a significant and positive relationship between teaching adequacy and academic performance; r (77) =.544; $p \leq .05$. This means that teaching adequacy and academic performance are dependent of each other in the sense that when teachers are increased by one unit, academic performance of the students will tend to increase by 0.6 of a unit also. Consequently, the null hypothesis which stated that there was no significant relationship between teaching adequacy and students' academic performance in KCSE was rejected.

5.2. Interpretation of results

The views collected from the head teachers and heads of departments' teachers as per Table 6 and 7shows that, teachers were inadequate in schools within the study location considering the mean ranges of all the aspects measured on teacher inadequacy were between 1.6 and 2 in both cases. This inadequacy led to some schools hiring form four leavers with good grades in spite of their lack of training in teaching. However, majority the head teachers and heads of department averred that their BOMs employ qualified and trained teachers to cover teacher deficit. According to Tyke and O'Brien (2002) the shortage of teachers has forced many education systems to lower education standards through the employment of unqualified teachers to fill the gap, thus lowering the school's academic performance.

The findings of this study in Table 6 and 7 show that the head teachers and heads of department are in agreement that the teacher student ratio in their schools is not sufficient. This situation may have been occasioned by free primary education and also the government of Kenya policy of 100% transition to secondary school. When asked about the extent the teacher adequacy influenced academic performance, majority of the head teachers and heads of department reported that teacher adequacy influenced performance to a great extent (mean =4.45; mean= 4.48; Table 4.15). On a similar note the analysis from the test of hypothesis shows that teacher adequacy had a significant and positive relationship with academic performance. This is in line with survey conducted in Kenya by UNESCO(2005) which found that teacher adequacy is a significant factor influencing students' academic performance This implies that when teachers are sufficiently supplied in quantity and quality, academic performance will improve and vice versa. Studies conducted elsewhere also confirm that teacher adequacy is critical in academic performance. Tyke and O'Brien (2002) argue that when schools are plagued by shortage of teachers due to increase in students' enrolment academic performance is normally affected and often poor results are reported. Equally, Klaus and Dolton (2008) observes that teacher inadequacy can affect students' academic performance. The study findings are in line with that of Mosha (2014) found out that most secondary school in Tanzania has inadequate teachers thus leading to their poor academic performance.

VI. Conclusions And Recommendation

Based on the findings of this study, it can be concluded that schools in Kathiani Sub County are insufficiently supplied with teachers as per the curriculum based establishment of the schools forcing the school BOMs to employ trained and qualified teachers to help mitigate the problem. From the findings, the researcher concluded that when teachers transfer from majority of the schools in kathiani Sub County there is no immediate replacement. The study also concludes that the teacher student ratio in schools in kathiani Sub County is low. Therefore the study null hypothesis was rejected and the alternative accepted that there is a significant relationship between teacher adequacy and students' performance in KCSE in public schools in Kathiani sub-County.The study recommends that;

1. Teachers' service commissionshould recruit and post enough teachers in Kathiani Sub County to ensure adequate teacher to student ratio.
2. Teachers' service commission should replace teachers on time when they transfer to address the problem of teacher inadequacy

References

[1]. Afolabi, E. R. I., & Faleye, B. A. (2005). The predictive validity of Osun State junior secondary certificate examination. *Electronic Journal of Research in Educational Psychology*, *5*(3),

[2]. American Psychological Association (2010).*Publication manual of the American psychological association (*6th Ed.).Washington, DC: Author

[3]. Best. W. & Kahn, J. (2006). *Research in Education*: New Delhi: Prentice Hall of India Pvt, Ltd.

[4]. Boyd, N. L., & Barbarin, O. (2008). Socioeconomic Differences in Reading Trajectories: The Contribution of Family, Neighborhood, and School Contexts. *Journal of Educational Psychology*, 100(2), 235-251.

[5]. Bryman, A. and Bell, E. (2011), *Business Research Methods*, 3rd ed. Oxford University Press.

[6]. Callan, S. J., & Santerre, R. E. (1990). The production characteristics of local public education: A multiple product and input analysis. *Southern Economic Journal*, 468-480.

[7]. Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

[8]. Dearden, L., Ferri, J. & Meghir, C. (2002). *The Effects of School Quality and Educational Attainment and Wages. The review of economics and statistics.* Retrieved from http:// faculty.smu.edu/millmet/classes/eco732/paper/dearden% 20 et %20 al.pdf on 9/1/2017.

[9]. Dewey, J., Husted, T. A. & Kenny. W. (1998). "*The effectiveness of school inputs: a product of Misspecification. Economics of Education Review*, 19(2000), 27-45.Retrieved from http://www.elsevier.com/locale/econedulev.on 6/10/2017.

[10]. Earthman, G. I. (2002). *School facility conditions and student academic achievement*. *UCLA's Institute for Democracy, Education, & Access.* Sage publications.

[11]. Klaus, W. & Dolton, P. S. (2008)."Leaving Teaching Profession: A Duration Analysis." In Economic Journal. (105) 431-446. http://www.edlawcenter.org/ELcPublic/Abbott school facilities. Retrieved3/10/2017.

[12]. Luke, M. & Mavis, B. (2014). An Investigation on Students' Academic Performance for Junior Secondary Schools in Botswana. *European Journal of Educational Research*, 3(3), 323-345.

[13]. MacDonald, D. (2007)." Teacher Attrition: A Review of Literature." In Teaching and Teacher Education. (15)839-845.

[14]. Matambo, O. K. (2013). *2013 Budget speech Gaborone: Government Printers.*

[15]. Mdee, D. (2015). *Factors Affecting Students' Performance in the National Secondary Education Examination in Temeke District, Tanzania* (Doctoral dissertation, The Open University of Tanzania)

[16]. Miller. D. & Seller, M. (2007). *School Facilities and Pupils' Academic Achievements*. Transkei University Research Study, South Africa: Unpublished.

[17]. Miller- Y. & Yoder, K. (2002). *A literature of community schools in Africa. USAID, Bureau for Africa. Washington DC.*

[18]. MOEST, (2010). *Sectional Paper No 1 2010 Policy Framework for Education, Training and Research*. Meeting the Challenges of Education Training and Research in Kenya in the 21st Century, Nairobi.

[19]. Mosha, M. A. (2014).Factors affecting students' performance in English Language in Zanzibar Rural and Urban Secondary School. In J. Edu and Practice.5 (35), 200-220

[20]. Mugenda, O., and Mugenda, A., (2003).*Research Methods, Quantities and qualitative approaches*. Act press Nairobi.

[21]. Mwangi, N. I. & Nyagah, G. (2013). *Determinants of* Academic Performance in Kenya Certificate of Secondary Education in Public Secondary Schools in Kiambu County, Kenya. *Journal of Education & Practice*, Vol. 4, No.12.

[22]. National Centre for Education Statistics, (2007). *Total and current expenditure per pupil in public elementary and secondary schools*. Retrieved from http://nces.ed.gov/programs/digest/do7/tables/dto7 on15/1/2017

[23]. Nelson, R., & Hevert, K. T. (1992). Effect of class size on economies of scale and marginal costs in higher education. *Applied Economics*, 24(5), 473-482.

[24]. Nyamongo, D. N., Sang, A., Nyaoga, R. B., & Matoke, Y. K. (2014*). Relationship between School Based Factors and Students' Performance in Kenya Certificate of Secondary Examination, in Masaba North District, Kenya*. Unpublished Thesis, University of Nairobi.

[25]. Oguntuase, D. M., Awe, O. O., & Ajayi, I. A. (2013). *Empirical Nexus between Teaching/Learning Resources and Academic Performance in Mathematics among Pre-University Students in Ile-Ife, South-West Nigeria*. Sage publications.

[26]. Okongo, R. B., Ngao, G., Rop, N. K., & Nyongesa, W. J. (2015*). Effect of Availability of Teaching and Learning Resources on the Implementation of Inclusive Education in Pre-School*. Unpublished Thesis, University of Nairobi

[27]. Onyara, B.N. (2013).*School Based factors influencing students' academic performance at Kenya certificate of secondary education in Teso South District.* Unpublished Thesis, University of Nairobi

[28]. Rosenhotz, S. J. & Simpson, C. (2002)." *Workplace conditions and the rise and fall of teachers' commitment"* in sociology of education. Retrieved from http//www.edfacilitie,org/pub/outcome pdf. On 3/10/2017.

[29]. Simiyu, M. N. (2013). *Factors affecting academic performance in secondary Schools in Kenya*: A Case Study of Trans-Nzoia West District.

[30]. Statistics Canada, (2008). *Summary public school indictors for the provinces and territories*, 1998-1999 to2004-2005. Retrieved from http:/www.statcan.gc/pub/81-595-m2007050-eng.htm.on 15/1/2017.

[31]. Tyke, B. & O'Brian, L. (2002)."Why are experienced teachers leaving profession?" in Phi Delta Kappan. 84(1) 24-32.http://wwww.edfacilities.org/ Pubs/teachersurvey.pdf. Retrieved 3/10/2017.

[32]. United Nations Educational, Scientific and Cultural Organization. (2005)Education for All. Global Monitoring Report. http://portal, unesco.org/education/en/eu.Retrieved3/10/2017.

[33]. United Nations Educational, Scientific and Cultural Organization. (2012). Challenges of implementing free day secondary education in Kenya. Experiences from district, Nairobi: UNESCO.

[34]. United Republic of Tanzania. (2001). *Educational and Training Sector Development Programme Document 2001*-Final Draft.

[35]. United Republic of Tanzania. (2012).*Tanzania Beyond Primary Education, The Quest for Balanced and Efficient Policy Choices for Human Development and Economic Growth*, Dakar Office Regional Bureau for Education in Africa, Dar es Salaam.

[36]. Wanyama, M. (2013). *School Based Factors Influencing Students' Performance at Kenya Certificate of Secondary Education in Narok – North District, Kenya*. Unpublished MA Thesis, University of Nairobi.

[37]. Yara, P. O. & Otieno, K. O. (2010). Teaching and Learning Resources and Academic Performance in Mathematics in Secondary Schools in Bondo District of Kenya. *Asian social Science* 6(12).

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