



Effect of Free Secondary Education Fund on Teaching and learning Resources: A Case Study of Kericho County, Kenya

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ABSTRACT

Education has been declared worldwide as both a human right and an indispensable means of realizing other human rights. To support provision of Education for All, Free Secondary Education (FSE) policy was adopted in 2008 to enhance the provision of secondary school education in Kenya. The first cycle of students who benefitted from FSE fund graduated in 2011. The Students' mean scores in Kenya Certificate of Secondary Education (KCSE) on an average was 5.39 in Kericho County that was lower than the national mean. It was necessary to determine the effect of FSE fund on teaching and learning resources in the county since it contributes to performance. Therefore, the purpose of this study was to establish effect of FSE fund on Teaching and Learning Resources in Kericho County. The study was based on the concept of investment choices and consequently a conceptual framework was formulated. The independent variable was FSE Fund and dependent variable was Teaching and Learning Resources Descriptive, ex-post facto and correlational research designs were adopted. The study population was 4,457 Principals, Sub County Quality Assurance and Standard Officers, Directors of Studies and form IV students of 2011. The sample size was 485. Snowball and saturated sampling techniques were used to select respondents. Questionnaire, interview schedules, focus group discussion guide and document analysis guide were used to collect data. Reliability coefficient of the principals' questionnaire was 0.80 at set p-value of 0.05. Quantitative data was analyzed using descriptive and inferential statistics. Qualitative data was transcribed and analyzed in emergent themes and sub themes. The study established that Student book Ratio for individual subjects was approaching 1:1 in most schools. The study further established that there was a moderate positive relationship between FSE funding on Student Book Ratio Pearson's r was squared. The coefficient of determination $R^2 = 0.480$ which meant that FSE policy accounted for 23.04% of the variation in Student Book Ratio. The study concluded that FSE Fund should increase the student book ratio by 23.04%. The study recommended that FSE fund should be reviewed upward to Teaching and Learning resources further. The findings of this study are significant to stakeholders in education as it informs them on the need to review the policy with a view to improving secondary school education so as to achieve the objectives of FSE policy.

INTRODUCTION

Education has been declared worldwide as both a human right and an indispensable means of realizing other human rights. This is supported by world summit declaration on Education for All which is a global movement led by the United Nations Education Scientific and Cultural Organization (UNESCO), which aimed at meeting the learning needs of all children, youth and adults by 2015 (World Bank, 2000a). United Nations Human Regional Commission (2012) points out that education is both a human right in itself and an indispensable means of realizing other human rights.

World Bank (2011) states that some countries are now declaring free universal secondary education. The Kenya government introduced Free Primary Education (FPE) and Free Secondary Education (FSE) policies in 2003 and 2008 respectively. FSE policy (MOE, 2007) was put in place to enhance transition from primary to secondary school by making secondary school education affordable. The objectives of FSE policy were to enhance access to secondary education, improve quality, equity, relevance and gender parity in the provision of secondary school education (MOE, 2007). To achieve these objectives the government provided a guideline (Table 1).

Table 1: Costs incurred by the Government for each Student per Year after the Introduction of FSE Policy in 2008

Vote head	Day Schools	Boarding Schools	
	(Kshs.)	(Kshs.)	(Kshs.)
	GOK Subsidy (FSE)	GOK Subsidy (FSE)	Parent Fees
Tuition	3,600	3,600	0
Boarding, Equipment and Stores	0	0	13,034
Repair, Maintenance and Improvement	400	400	400
Local Travel and Transport	400	400	500
Administration Costs	500	500	350
Electricity, water and Conservancy	500	500	1500
Activity Fees	600	600	0
Personal Emolument	3,965	3,935	2,743
Medical	300	300	100
Total School Fees	10,265	10,265	18,635

Source: Ministry of Education (2009)

According to the Ministry of Education (2009) FSE is meant to cater for the following items in secondary education: Tuition Kshs. 3,600/=, to cater for the students learning materials for instance textbooks, reams of paper, exercise books and other learning materials, Kshs. 400/= for repair, maintenance and improvement (RMI), Kshs. 500/= for electricity, water supply and conservancy (EW&C). Kshs. 400/= for local transport and travel (LTT), Kshs.500/= administrative costs (AC), Kshs.3, 965/=, personal emolument (PE). Kshs. 600/= and Kshs. 300/= co-curricular activities and medical care respectively. The day schools' parents were to cater for lunch, uniforms, personal effects and other projects for example expansion of infrastructure upon approval by the District Education Board (DEB) in consultation with the Boards of Governors (BOGs) and Parents Teachers Association (PTAs). Clear the fee balance for continuing students for the academic year 2008 (MOE, 2009). The boarding schools on the other hand parents should cater for boarding, Equipment and store Kshs. 13,034/=, RMI Kshs. 400/=, EW&C Kshs. 1,500/= LTT Kshs. 500/= personal Emolument Kshs. 2,743/= and medical care Kshs. 100/= respectively thereby making a total of Kshs. 18,635/=. Parents were not required to pay for tuition and co-curricular activities but they were to cater for the costs pertaining to school

uniforms, boarding and projects (MOE, 2009). The implementation of FSE first phase ended in 2011 with graduation of the first cohort that fully benefited from this policy. In this respect the MOE (2008) in the implementation of FSE policy in Kenya aimed at improving the Book Student Ratio (BSR) to 1:1, provision of adequate exercise books, equipment and teaching/learning materials. What was unknown was the influence of FSE fund on teaching and learning resources in Kericho County.

Research Objective

Establish the effect of Free Secondary Education fund on teaching and learning resources in Kericho County.

SYNTHESIS OF THE LITERATURE ON STUDENTS' ACADEMIC ACHIEVEMENT

Studies done in some African countries by UNESCO, (2012) indicated that 13 pupils have to share one mathematics textbook in Cameroon, pupils in Benin, Niger, Cape Verde, Rwanda and Mauritius have access to one book each. In Niger, 85% of schools have no potable water and 75% had no toilets. In Mauritius and

Rwanda, all schools have such facilities. In Kenya a lot of significance is attached to quality of education. That is why in FSE subsidy the allocation of funds for tuition is 35.07% being higher than other vote heads except personal emolument which is 38.63%. OECD (2000) showed that it is clear that in developing countries where resources are limited, the class sizes are below the optimum size and may be linked to inefficiency use of existing resources.

According to the Daily Nation (2014, March 6th) poor performance in Lamu East in KCSE was due to admission of students in form one with less than 250 marks in local secondary schools. This is what is termed as poor entry behavior. Gogo, (2012) indicated in his findings that the increase of expenditure on education by the Kenya government has least effect on performance. Kariuki et al, (2012) did a study on the performance and influence of poor performance in Mathematics Baringo County and revealed that factors contributing to poor performance include under staffing, inadequate teaching/ learning materials, lack of motivation and poor attitudes by both teachers and students, retrogressive practices.

Kenya Education Partnerships (2010) revealed that limited textbook and science resources; often poorly managed: Students often have little access to textbooks, limiting classroom activities and preventing students from conducting independent learning. Science practical examinations are a mandatory component of the national examinations, yet many students only have the opportunity to watch experiments prior to their examinations, and may never have conducted any

themselves due to lack of usable equipment or a furnished lab.

Quality Education is necessary for every nation. FSE fund is channeled to improve on inputs so as to improve in its outcome in terms of quality (MOE, 2008). While trying to establish the influence of FSE fund on teaching and learning resources it was necessary to establish the utilization of FSE fund on educational inputs which was part of the package of FSE policy to enhance on quality. The inputs include resources, time and human effort as it signifies the quality of education the learners get because of the input

CONCEPTUAL FRAMEWORK

The conceptual framework (Figure 1) postulates that, Free Secondary Education fund influences teaching and learning materials in Kenya. The conceptual framework is based on the concept of investment choices advanced by Psacharopolous and Woodhall in (1985). Thus, the study adapted the concept to make it suitable for this study. This was in accordance with the grounded theory (Creswell, 2002) which states that where there is no appropriate theory and a conceptual framework can be developed based on the available data that presupposes the relationships. Woodhall (2004) indicates that education is a form of investment in human capital that yields economic benefits and contributes to the country's future wealth by increasing the productive capacity of its people. FSE subsidy is an investment choice by the Government of Kenya aimed at improving quality secondary education

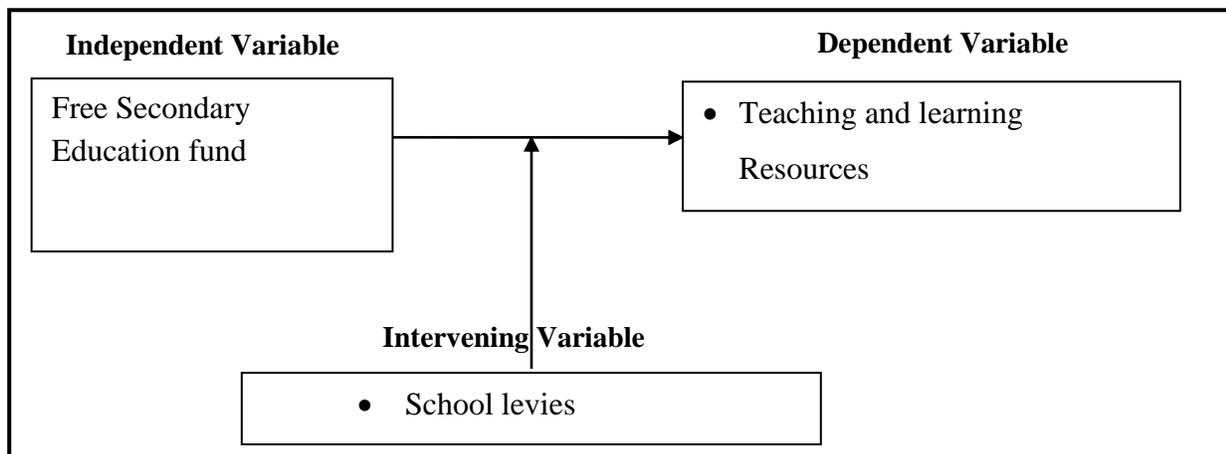


Figure 1: Conceptual Framework Showing the Influence of the FSE Policy on Students' Academic Achievement in Kericho County

This conceptual framework was adapted to focus on independent and dependent variables. Independent variable was FSE fund while dependent variables was teaching and learning resources. The school levies were an intervening variable. Teaching and learning resources

were established by analyzing the provision of inputs, Book Student Ratio (BSR), before and after the introduction of FSE fund were also analyzed as they have a direct bearing on quality education.

RESEARCH METHODOLOGY

Ex post facto, descriptive survey and correlational research designs were used in this study.

The study population consisted of 45 secondary school principals, 45 Director of Studies (DOS), 5 District Quality Assurance Standards Officer (DQASOs) and 4,362 form four 2011 students drawn from 45 secondary schools in Kericho County. The sample size for the students was determined using the formula by Israel (1992) .

$$\text{Thus: } n = \frac{N}{1 + N(e^2)}$$

Where: n is the sample size, N is the population size, and e is the level of precision.

This formula was applied in this study to determine the students sample size. The students study population was 4,362 form IV students.

$$n = \frac{N}{1 + N(e^2)}$$

$$n = \frac{4362}{1 + 4362(0.05)^2} = 366$$

Saturated sampling technique was used to select the 5 DQASOs, 40 Director of Studies and the 40 School Principals. Saturated sampling is whereby the whole population is used because it is too small to be sampled

(Mugenda & Mugenda, 2003). This was adopted in this study to select the DQASOs, Director of Studies and school principals as their populations were too small to be sampled. Questionnaire, interview schedule, Observation Guide, Focus Group Discussion Guide and document analysis guide was used in this study. Reliability was determined by administering the instrument same respondent twice at an interval of two weeks in 5(10%) of the principals and Pearson product moment correlation coefficients was used to compute the correlation coefficient. The correlation coefficient was 0.8 at a set p-value of 0.05. This means the instrument was reliable as the calculated coefficient was greater than 0.7.

Quantitative data was analyzed using descriptive and inferential statistics Descriptive statistics in the form of frequency counts, percentages and inferential statistics in form of Pearson Product Moment Correlation Coefficients. Correlation was done for Book Ratio and Tuition Fees. It was also correlated between the emolument fund and non-teaching fund. For the BOM teachers it was not done since there was no clear allocation of funds by the government.

Correlation coefficients (r) were therefore interpreted to determine the influence of FSE policy on the dependent variables in terms of direction and strength of relationship Elifson, Runyon and Haber, 1990; Leedy and Ormrod, 2005) interpretation guidelines was used as shown in Table 2. This was adopted in the interpretation of Pearson’s (r) and coefficient of determination R² in this study.

Table 2: Interpretation of Pearson Correlation Coefficients (r)

Strength of the relationship	Positive (+)	Negative (-)
Weak/low/small	0.01 – 0.30	0.01 – 0.30
Moderate/ medium	0.31 – 0.70	0.31 – 0.70
Strong/high	0.71 – 0.99	0.71 – 0.99
Perfect relationship	1.00	1.00
No relationship	0.00	0.00

Source: Adapted from Elifson, Runyon and Haber (1990); Leedy and Ormrod (2005)

RESULTS AND DISCUSSION

Demographic Characteristics of the Respondents

The respondents in this study included school Principals, Director of Studies, DQASO and students. Their demographic characteristics were as shown in Tables 3.

Table 3: Principals’ Gender and Headship Experience (n=40)

Demographic characteristics	Frequency (f)	Percentage (%)
Gender		
Male	30	75.00
Female	10	25.00
Total	40	100.00
Headship Experience in years		
5	1	02.50
6-10	12	30.00
11-15	17	42.50
16-20	10	25.00
Total	40	100.00

Table 3 indicates that out of all the 40 (100%) school Principals involved in the study 30 (75%) were male while 10 (25%) were female. This shows that very few female teachers are appointed as school principals in Kericho County. This is in agreement with the study carried out on a sampled number of schools in Kenya by Bosire *et al* (2009) where it was indicated that out of the 30 sampled school, 22 (79%) principals were male while 6 (21%) were female. The school principals' leadership experience was also indicated and one (2.50%) had headship experience between 5 years, 12 (30.00%) had an experience of 6-10years, 17 (42.50%)

has an experience of 11-15 years while 10 (25.00%) had an experience of 16-20 years.

From the findings in Table 4, it is evident that most of the school principals had headship experience of 6 years and above. This shows that they had enough experience in school management and they were able to give the relevant information on the effect FSE fund on teaching and learning resources in Kericho County. Principals with experience can be relied on for the authenticity of data collected. They were also better placed given that the data required dated back to the year 2004 that required experience in school administration.

Table 4: FSE Fund and School Levies incurred in four years on average for 2008 Cohort after introduction of FSE policy (n=40)

Type of School	FSE in 4 year (Kshs.)	Percentage (%)	Costs incurred by parents in 4 years (Kshs.)	Percentage (%)	Total in Kshs.
Days scholars in mixed schools	41,060	40.43	60,509.65	59.57	81,569.65
Boarders in mixed schools	41,060	27.40	108,803.85	72.60	112,863.85
Girls boarding	41,060	25.62	119,178.57	74.38	160,238.57
Boys boarding	41,060	24.88	123,964.43	75.12	165,024.43

Table 4 indicates the costs incurred by the government and the parents after FSE fund in Kericho County. The government spent Kshs.41, 060 for four years while the parents spent Kshs.60, 509.65 on average for four years in mixed day schools, and for boarders in mixed schools they spent Kshs.108, 803.85. In girls boarding and boys boarding schools they spent Kshs.119, 178.57 and Kshs.123, 964.43 respectively.

Day school students were not given any guideline on the amount of levies the parents were to pay while parents in boarding schools were to pay Kshs.18,627 per year which would add up to Kshs.74,508 in four years. This data was relevant in this study because it helped in establishing the effect FSE fund on teaching and learning resources in Kericho County.

Research Question

What is the effect of FSE fund on Teaching and learning resources in Kericho County?

The study sought to establish the effect of FSE fund on Book Student Ratio (BSR). This helped to explain the influence of FSE fund on the quality of education. The findings were as shown in from Table 5. Tuition fees which caters for books and other learning materials. The input was determined by checking on these factors to find out whether there is an influence in quality of education after the introduction of FSE fund. Pearson Product -Moment Correlation Coefficient was computed to establish whether FSE fund had an influence on Teaching and learning Resources.

Book Student Ratios according to Subjects before and after Introduction of FSE Policy

The study used accession registers, inventories and ledgers to establish the BSR according to subjects.

Table 5: Book Student Ratio in Mathematics and Science Subjects before and after Introduction of FSE Policy in Kericho County in 2007 and 2011(n=40)

Ratio	Mathematics		Biology		Chemistry		Physics	
	B (%)	A (%)						
1:1	00(00)	10(25)	00(00)	3(7.5)	00(00)	1(2.5)	00(00)	3(7.5)
1:2	13(32.5)	23(57.5)	12(30)	22(55)	7(17.5)	21(52.5)	10(25)	25(62.5)
1:3	16(40)	7(17.5)	12(30)	15(37.5)	14(35)	12(30)	13(32.5)	12(30)
1:4	10(25)	00(00)	15(37.5)	00(00)	18(45)	15(37.5)	17(42.5)	00(00)
1:5	1(2.5)	00(00)	1(2.5)	00(00)	1(2.5)	00(00)	00(00)	00(00)
Totals	40(100)							

Key: B: Before FSE policy A: After FSE policy

Table 5 indicates book student ratio (BSR) in mathematics, Biology, Chemistry and physics before and after introduction of FSE policy in Kericho County. In mathematics 13 (32.5%) of the schools had BSR of 1:2, while 16 (40%) had a BSR of 1:3, ten (25%) and one (2.5%) had their BSR of 1:4 and 1:5 respectively. After the introduction of FSE policy most schools improved in BSR in mathematics whereby 10 (25%) of the schools had a ratio of 1:1 while 23 (57.50%) of the schools had their book ratio of 1:2 and 7 (17.50%) of the schools had a BSR of 1:3. This was a big improvement in the BSR in mathematics as this shows that FSE had improved the text books in mathematics. Mathematics as a subject call for individualized instruction as it is intensive exercise oriented. This means that the BSR should be 1:1. This enables the students to carry out exercises on mathematical problem solving and with practice the student masters the skills in mathematical problem solving independently. It also enables the teacher to freely give assignments to students which can be done during class time and after. With this approach the performance in mathematics is likely to improve which translates to quality education in mathematics. This finding concurs with the interview findings in which Director of Studies acknowledged that performance in mathematics had improved with introduction of FSE policy. For instance, one Directors of Studies stated, "In our school it is only after FSE that students started to obtain mean grades of A and A minus even though we have not reached the target mean grade in most classes but it has improved. This was evident with the first cohort of students who benefitted from the FSE policy". These findings also concur with those of UNESCO (2012) whereby in Niger, Benin and Rwanda the mathematics BSR was 1:1 and corresponded with improvement in performance.

In Biology the trend was the same as in mathematics whereby before FSE policy, 12 (30%) of the schools had their BSR of 1:2, while another 12 (30%) had a BSR of 1:3, fifteen (37.50%) and one (2.5%) of the schools had their BSR of 1:4 and 1:5 respectively. After the introduction of FSE policy the BSR in these schools improved as 3 (7.5%) of the schools had BSR of 1:1 while 22 (55%) and 15 (37.5%) of the schools had BSR of 1:2 and 1:3 respectively. With improvement in BSR the students' academic achievement was bound to improve this is because students would have adequate reading materials in biology and the teachers could find

it easy to facilitate the learning. This finding is corroborated by interview findings and focused group discussion in which all the Directors of Studies, the DQASOs and all the groups of students were of the view that improvement in BSR had led to improvement in performance of Biology in national examinations for the first cohort who benefitted from FSE policy. In this respect, one of the students said, "Our biology mean score improved steadily and it was resulted in good scores in KCSE this was due to adequate recommended text books in Biology which the school bought for us".

For chemistry before the introduction of FSE policy 7 (17.70%) and 14 (35%) of the schools had a BSR of 1:2 and 1:3 respectively, while 18 (45.00 %) and one (2.50%) of the schools in the county had a BSR of 1:4 and 1:5 respectively. After the introduction of FSE policy most schools improved in BSR in Chemistry whereby one (2.5%) of the schools had BSR of 1:1 while 21 (52.5%) and 12 (30%) of the schools had BSR of 1:2 and 1:3 respectively. There were also 15 (37.5%) of the schools having their book ratio at 1:4. This was moderate improvement in BSR as a number of schools still had a BSR of 1:3 and even 1:4. This could be one of the reasons why performance in chemistry has not improved so much over the years. The low improvement in performance was however attributed to students' attitude by all the Directors of Studies during interviews. This was acknowledged by one of the Directors of Studies when he stated, "though chemistry is an elective subject, most schools had made it compulsory forcing students to take it who would have otherwise not, therefore the BSR is a non - issue because books are actually available for students use".

In case of Physics ten (25%) of the schools had their BSR at 1:2, while another 13 (32.50%) had a BSR of 1:3 and 17 (42.50%) had a BSR of 1:4. After the introduction of FSE policy the schools improved their BSR in the following way 3 (7.5%) of the schools had improved to 1:1, while 25 (62.50%) improved to 1:2 and 12 (30%) to 1:3. This was a big improvement in this subject and all the respondents supported these findings. In fact, one of the DQASOs said, "Physics is one of the subjects that have been improving steadily over the years in the county after the introduction of FSE policy". This shows that FSE policy had contributed to the improvement of this subject in the county.

Table 6: Ratio of Language Text books Before and After Introduction of FSE policy in Kericho County (n=40)

Ratio	English		Kiswahili		French	
	B (%)	A (%)	B (%)	A (%)	B (%)	A (%)
1:1	00(00)	7(17.5)	00(00)	10(25)	0(00)	6(60)
1:2	11(27.5)	25(62.5)	13(32.5)	17(42.5)	2(100)	2(20)
1:3	22(55)	7(17.5)	20(50)	13(32.5)	0(00)	2(20)
1:4	7(17.5)	1(2.5)	7(17.5)	00	0(00)	00(00)
Totals	40(100)	40(100)	40(100)	40(100)	2(100)	10(100)

Key B: Before FSE policy
A: After FSE policy

Table 6 indicates BSR in languages this included English, Kiswahili and French before and after introduction of FSE policy in Kericho County. In English 11 (27.50%) of the schools had a BSR of 1:2, while 22 (55%) had a BSR of 1:3 and 7 (17.50%) of the schools had a BSR of 1:4. After the introduction of FSE policy most of the schools improved in BSR in mathematics whereby 7 (17.50%) of the schools had a BSR of 1:1 while 25 (62.50%) of the schools had their BSR of 1:2, another 7 (17.5%) and one (2.5%) of the schools had a BSR of 1:3 and 1:4 respectively. This was a big improvement in the BSR in English. Therefore, this shows that FSE had improved the reading materials in English. Since English is a core subject because the other subjects are coordinated in English; if the students understand it well, they will be in a position to understand the other subjects well leading to good overall performance. Since it involves a lot of Exercises which require the students to do it is very good now since 32 (80%) of the schools had a ratio of 1:1 and 1:2. This finding concurred with the interview findings in which all the Director of Studies acknowledged that performance in English had improved with introduction of FSE. For instance, one Director of Studies said, "In our school English did well after FSE policy this indicates that the more the reading materials the better the subject and unlike before FSE policy we get the books on time".

Kiswahili the trend was the same as that of English before FSE policy, 13 (32.50%) of the schools had a BSR of 1:2, while 20 (50%) and 7 (7.5%) of the schools had a BSR of 1:3 and 1:4 respectively. After the introduction of FSE policy the BSR in these schools improved as 10 (25%) of the schools had BSR of 1:1 while 17 (42.50%) and 13 (32.50%) of the schools had BSR of 1:2 and 1:3 respectively. This was good because

Kiswahili is one of the compulsory subjects in the Kenyan education system and since it is not an elective when it is improved it boost the overall grade for the student and the entire school. It is also exercise oriented which is good for this subject because 27 (67.50%) of the schools had a BSR of 1:1 and 1:2. This was also a good improvement in terms of quality of education as was revealed by interview findings and focused group discussion. All the Director of studies, DQASO and students focus groups during interview and focused group discussion indicated that improvement in BSR had led to improvement in performance of Kiswahili in their internal examination and national examinations. In fact, one of the DQASO said, "Our schools really improved in the mocks in these subjects and even in the national examination after the introduction of FSE policy in 2008. The results for the first cohort were really good".

For French before the introduction of FSE policy 2 schools were taking French and had a BSR of 1:2. After the introduction of FSE policy most schools improved in BSR 6 (60%) of which had attained a BSR ratio of 1:1, two (20%) of the schools had a BSR of 1:2 while 2 (20%) had a BSR of 1:3. French being a language it is also exercise oriented and it very important when the books is adequate and the number of students sharing should be at least 1:1 or 1:2. These will enhance the performance in this subject and also if the students do well it will open up more careers for them. This could be one of the reasons why performance in French has been very good as confirmed by all the student's groups, Director of Studies and DQASO during interview findings and focused group discussion. However, one of the Director of Studies commented that "Though French is one of the elective subjects the students who do it did very well after the introduction of FSE policy".

Table 7: Ratio of Humanities Text books before and after Introduction of FSE policy in Kericho County (n=40)

Ratio	CRE		Geography		History	
	B (%)	A (%)	B (%)	A (%)	B (%)	A (%)
1:1	00(00)	4(10)	00(00)	10(25)	00	3(7.5)
1:2	13(32.5)	25(62.5)	13(32.5)	23(57.5)	12(30)	27(67.5)
1:3	13(32.5)	11(27.5)	17(42.5)	7(17.5)	12(30)	10(25)
1:4	13(32.5)	00(00)	7(17.5)	00(00)	15(37.5)	00(00)
1:5	1(2.5)	00(00)	00(00)	00(00)	1(2.5)	00(00)
Total	40(100)	40(100)	40(100)	40(100)	40(100)	40(100)

Key B: Before FSE policy

A: After FSE policy

Table 7 indicates BSR in CRE, Geography and History before and after introduction of FSE policy in Kericho County. For CRE 13 (32.5%) of the schools had a BSR of 1:2, 13 (32.5%) of the schools had a BSR of 1:3. Thirteen (32.5%) and one (2.5%) of the schools had a BSR of 1:4 and 1:5 respectively. After the introduction of FSE policy most schools improved in BSR in CRE 4 (10%) of the schools had attained a BSR of 1:1, the schools who had improved their BSR to 1:2 were 25 (62.5%) while 11 (27.5%) of the schools had a BSR of 1:3. This was a big improvement in CRE this shows that

FSE had improved the reading books in CRE to a reasonable number for most students to read. With this improvement performance also in this subject is likely to improve. This finding concurred with the interview findings in which all Directors of Studies, DQASOs and groups of Students acknowledged that performance in CRE had equally improved with introduction of FSE policy during interview findings and focused group discussions. For instance, one Director of Studies said, "In our school since 2008 the results of CRE have been good we even have mean grades of A's and A minus.

The 2008 cohort did very well in this exam in KCSE". There also a student who strongly said, "CRE in our school performed well even though we were in a day school. This is because the text books were readily available since we shared 1:2 making the class comfortable to do the required work in the subject".

For Geography the trend was the same as CRE since before FSE policy there was no school with a ratio of 1:1, thirteen (32.50%) schools had a BSR of 1:2, while 17 (42.50%) and 7 (17.50%) had a BSR of 1:3 and 1:4 respectively. After the introduction of FSE policy, the BSR in these schools improved as follows; ten (25%) of the schools had BSR of 1:1 while 23 (57.50%) and 7 (17.50%) of the schools had a BSR of 1:2 and 1:3 respectively. This was a good improvement in this subject since it also requires a lot of exercises due to map reading and understanding Geographical features. With such kind of improvement in reading materials it is likely that the subject will perform better than before FSE policy. This was also a good improvement in terms of quality of education and general improvement in the County. This was supported by the all DQASOs, Directors of Studies and students during interviews and focus group discussions. It revealed that the performance in Geography has been slowly picking unlike the other subjects. It was further revealed that Geography was not well performed general and performance has not been steady though there is slight improvement despite FSE policy being in place. In this respect one of the students said,

Our Geography means scores was not good though there was a slight improvement compared to other subjects because of the students' attitude. This is because students found map work and Geographical features very difficult to understand. This led to many students selecting CRE and History instead of Geography.

History is also a humanities subject and before the introduction of FSE policy 12 (30%) had a BSR of 1:2, twelve (30%) of the schools had a BSR 1:3 While 15 (37.50%) and one (2.5%) of the schools had a BSR of 1:4 and 1:5 respectively. After the introduction of FSE policy most schools improved in BSR in History whereby 3 (7.5%) of the schools had BSR of 1:1 while 27 (67.5%) and 10 (25%) of the schools had BSR of 1:2 and 1:3 respectively. This was good improvement in BSR since 30 (75%) of the schools had a BSR of 1:1 and 1:2. The subject requires intensive reading since it is wide and involving. With improvement in reading materials in this subject it is likely to improvement because the students have enough reading materials to use. It also involves getting in touch with current issues like the constitution which is accessed easily now by all schools. This could be one of the reasons why performances in History had improved over the years as indicated by the all DQASOs, Directors of Studies and students during interview and focus group discussion. In fact, one of the Director of Studies acknowledged that, "History has been performing well in our school since the introduction of FSE policy since most of the students now can access all the relevant and current reading materials required".

Table 8: Ratio of Technical Text books before and after Introduction of FSE policy in Kericho County (n=40)

Ratio	B/Studies		Agriculture		Computer		H/Science	
	B (%)	A (%)	B (%)	A (%)	B (%)	A (%)	B (%)	A (%)
1:1	4(10)	7(17.50)	3(7.5)	11(27.5)	00(00)	3(21.43)	00(00)	6(50)
1:2	14(56)	23(57.5)	17(42.5)	25(62.5)	00(00)	10(71.43)	8(66.67)	6(50)
1:3	18(45)	10(25)	10(25)	4(10)	00(00)	1(7.14)	4(33.33)	00(00)
1:4	4(10)	00(00)	10(25)	00(00)	00(00)	00(00)	00(00)	00(00)
1:5	00(00)	00(00)	00(00)	00(00)	00(00)	00(00)	00(00)	00(00)
Total	40(100)	40(100)	40(100)	40(100)	00(00)	14(100)	12(100)	12(100)

Key B: Before FSE policy A: After FSE policy

Table 8 indicates BSR in Technical subjects like Business Studies, Agriculture, Computer and Home Science. Starting with Business Studies 4 (10.00%) of the schools had a BSR of 1:2, while 14(56%) of the schools had BSR of 1:3. Eighteen (45%) and 4 (10%) of the schools had a BSR of 1:3 and 1:4 respectively. After the introduction of FSE policy most of the schools improved in BSR . 7 (17.5%) of the schools had attained a BSR of 1:1, the schools who had a BSR of 1:2 were 23 (57.5%) while 10 (25%) of the schools had improved to 1:3. This was a big improvement in the BSR in B/studies this shows that FSE fund had improved the reading materials in this subject. B/studies being an elective subject has a lot of calculations in Economics and

Accounting, it is very good when BSR is low like the case after FSE policy. The students therefore will be able to do enough reading and exercises because they have books to use leading to good performance in the subject. This finding concurred with the interview findings in which all the Directors of Studies and groups of students acknowledged that performance in B/studies have equally improved with introduction of FSE policy. All the DQASOs were also in agreement with these. For instance, one DQASO said,

Business studies have been doing very well in our County especially after the introduction of FSE policy we rewarded

severally schools and teachers because of the A and A minus they had produced in this subject because of good results in national examination.

In case of Agriculture the trend indicated that before FSE policy, 3 (7.50%) of the schools had a BSR of 1:1, seventeen (42.50%) of the schools had a BSR of 1:2 while 10 (25.00%) and another 10 (25.00%) of the schools had a BSR of 1:3 and 1:4 respectively. After the introduction of FSE policy, the BSR in these schools improved as follows; eleven (27.50%) of the schools had attained a BSR of 1:1 while 25 (62.5%) and 4 (10%) had a BSR of 1:2 and 1:3. This was also a good improvement in terms of BSR in these schools. Agriculture also being an elective and more of a booster subject requires a student to perform very well. With the trend in improved text books the quality of education will improve in terms of performance. This revealed improved quality of education was confirmed during interviews and focus group discussion by all the Directors of Studies, DQASOs and the groups of students. In fact, one of the students said,

I was an Agriculture student and we had enough books for reading which made us did well in the subject in most examinations we have been doing in class. Most of our school mates who did their KCSE did very well in the subject.

Computer Studies was not offered before FSE policy in Kericho County. After the introduction of FSE policy the schools that introduced computer studies in Kericho County were ten. Three schools (21.43%) had BSR of 1:1 while 10 schools (71.43%) had BSR of 1:2 and one school (7.14%) had BSR of 1:3. This subject is one of the current subjects in the curriculum of secondary schools. This subject is very relevant when it comes improving in current trend worldwide in information communication technology (ICT). This will boost the students and will make them be at bar with the rest of the world in terms of ICT which is more of a requirement that one should be computer literate. This was good improvement in BSR since most schools have a BSR of 1:1 and 1:2. During interview and focus group discussion with the all Directors of Studies, DQASOs and groups students they indicated that the subject has enough books but the practical part is the problem

because of the machines required. In fact, one of the DQASO said,

Most schools who have computer studies do not maintain their machines and some even do not have alternative source of energy like generators so that in case of an emergency especially during examination they should continue, unfortunately students have been going through difficult times especially during national examination leading to the subject not doing very well.

For Home Science it was also different from the other subjects since there were only 12 schools that were doing the subject, before FSE policy 8 (66.67%) of the schools had a BSR of 1:2, while 4 (33.33%) had a BSR of 1:3. After the introduction of FSE policy 6 (50%) of schools attained a BSR of 1:1 while 6 (50%) had a BSR of 1:2. Home science as one of the technical subjects is meant to make the students self-reliant after completion of their secondary education since it involves textile, catering among others. This subject is also taken as one of the sciences for visually impaired students in the integrated schools in the County. If this subject is supported well in terms of reading and learning materials it is going to yield good results especially for the visually impaired. The Interview and focus group discussion supported these findings when it was revealed that the subject has been performing very well. In fact, one of the Director of Studies in an integrated school said,

The subject has been boosting the grades of the visually challenged students since they take it as a science subject and they have been doing well especially after introduction of FSE policy. This has made books readily available and other reading and learning materials in this subject for these students which in the past was not easily available.

Book Student Ratio for Library Books

Accession registers were used to establish the Book student ratio in the schools. The results were as shown in Table 9.

Table 9: Book Student Ratio (BSR) before and after Introduction of FSE Policy (n=40)

Ratio	Before FSE (2007)		After FSE (2011)	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1:2	6	15.00	21	52.50
1:3	13	32.50	14	35.00
1:4	14	35.00	5	12.50
1:5	6	15.00	0	00.00
1:6	1	02.50	0	00.00

Table 9 indicates the BSR before and after FSE policy in Kericho County. Before FSE policy 6(15.00%) had a BSR of 1:2, thirteen (32.50%) of the schools had a BSR of 1:3, fourteen (35%) of the schools had a BSR of 1:4, while 6 (15.00%) and one (2.50%) of the schools had a BSR of 1:5 and 1:6 respectively. After the introduction of FSE policy the ratio improved; twenty-one (52.50%) of the schools had a BSR of 1:2, while 14 (35.00%) and 5 (12.50%) of the schools had a BSR of 1:3 and 1:4 respectively. From the findings given in Table 4.50 most of the schools had improved the ratio of text books among the students in Kericho County. This is clear because before FSE policy 27 (67.50%) of the schools had a BSR of 1:3 and 1:4 respectively. After FSE policy 21 (52.50%) of the schools had improved their BSR to 1:2, the other schools 14 (35.00%) and 5 (12.50%) had improved to 1:3 and 1:4 respectively.

The increment in the BSR was due to the ministry of education policy on the use of FSE funds that funds

allocated for text books should never be put on any other use and must be accounted for to the letter. Indeed, principals purchase books according to the MOE guidelines with an aim of reaching the recommended ratio of 1:1. Nevertheless this target had not been met in most schools due to factors like student transfers, theft and destruction of text books. The unprofessional conduct of librarians by failing to adhere book borrowing procedures a number of books are lost, furthermore most schools were found to have book stores rather than libraries and as such the wear and tear of books was rather high and increased the BSR accordingly. This in effect affects the students' academic achievement because most students would not make the best use of text books acquired through FSE funds. This however is the case in schools which do not have well managed libraries and book stores.

Table 10: Pearson Product Moment Correlation (r) Matrix for FSE fund and Book Ratio in Kericho County

		Tuition	Book
Tuition amount	Pearson Correlation	1	.480**
	Sig. (2-tailed)		.002
	N	40	40
Book Ratio	Pearson Correlation	.480**	1
	Sig. (2-tailed)	.002	
	N	40	40

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

Table 10 indicates that the relationship between FSE fund and book ratio was moderate and positive and statistically significant with a coefficient of 0.48. According to Elfison, Runyon and Haber (1990); Leedy and Ormrod (2005) guideline Correlation coefficients (r) interpretation indicated that this is a positive moderate effect. Coefficient of determination R^2 is the square of the Pearson's r which tells how much of the variance is accounted for by the correlation which is expressed in percentages (Leedy & Ormrod, 2005). To account for the effect of FSE funding on Student Book Ratio Pearson's r was squared. The coefficient of determination $R^2 = 0.480$ which meant that FSE policy accounted for 23.04% of the variation in Student Book Ratio.

DISCUSSION

Provision of other Tuition Materials

FSE fund caters for other tuition materials in the schools. According to MOE, (2008) Kshs. 3,600/= caters for tuition materials per student in a year and it is meant for text books exercise books and other teaching and learning materials like chemicals in laboratories,

equipment and exercise books. The Director of Studies was interviewed on these issues of tuition and they confirmed when they gave the following information;

The supply of exercise books was said to be good and received in good time as compared to before this was confirmed by all the Directors of studies. The Director of Studies in one of the schools confirmed that, "the students were supplied with the exercise books when they require. This improved in learning in the schools and no student was sent home because of lack of exercise books".

Laboratory equipment, chemicals and material was clearly mentioned that the supply was good and the practical are done regularly by all the classes who do science subjects. This will improve the performance in science subjects. But most of the Directors of Studies indicated that the practical are at times skipped in some lesson because of the number of students. Observation revealed that laboratories were also found in all the schools used in the study and well equipped though 5 (12.50%) of the schools had very small laboratories. This finding is in agreement with the report by Kenya Education Partnerships (2010). When it indicated that Science practical examinations are a mandatory component of the national examinations, yet many

students only have the opportunity to watch experiments prior to their examinations, and may never have conducted any themselves due to lack of usable equipment or furnished laboratories.

The library and book stores are very important facility in a school. The Director of Studies during the interview were also asked about the Library books and they confirmed that there are enough relevant and reference reading books in the library. They further explained that the maintenance was well done. This has made the schools improve in their performance and also ensure the students get wide knowledge. In fact, one of the Director of Studies said, "FSE policy have done much in our school a part from the newspapers we use to get in the school before FSE policy we are now able to get more magazines and other revision books for our students to use". Observation revealed that 19 (47.50%) of the schools had well equipped libraries while 21 (52.50%) use book stores to keep text books and new exercise books. The schools with libraries have librarians while the ones with stores were using store keepers or clerks. The schools with libraries were organized and neat while those with stores were not well arranged and maintenance was not done well.

The issue of internal examination was also mentioned clearly by all the Directors of Studies that it is done well. This is one of the areas FSE policy caters for and the schools have improved in it. A Director of Studies from one of the day schools said,

Nowadays we do three quality papers in a term, we have entry, midterm and end term exams so as to evaluate our students well. This in return has boosted our students' confidence and performance in our school during the mocks and national examination.

Chalk was mentioned by all the Directors of Studies that it is well catered for by the school. Chalk being one of the requirements offered by the FSE policy shows that the schools' benefits from this policy. There was a Director of Studies, who said,

The quality of chalk we use these days is good and the supply is very steady especially after the introduction of FSE policy. For my case I am allergic towards dust and the current type of chalk has saved me for the problem I used to go through.

Photocopy materials was another thing which was important for learning in school to take place smooth. This is because they are used to reproduce examinations and other documents. The Directors of Studies were further asked about photocopy materials and most of them explained that it was not provided and if at all it was provided it was insufficient, one of the Director of Studies said,

The form one students are asked when being admitted to buy two reams of photocopy papers each as one of the requirements when they are admitted to the school. When they do not come with it, they are sent back home to buy them.

With this information from the Directors of Studies it shows that photocopy materials are still insufficient in the schools despite the introduction of FSE policy. This has made the school tax the parents on the provision of these materials. The information given is an indication that FSE Policy has led to the improvement of these facilities in Kericho County. This shows that the schools do not struggle to ask the parents to pay for tuition fees for the students since the government fully pays for it except photocopy materials which parents purchase. This is a clear indication that it will eventually have an impact on the quality of education.

CONCLUSION

The coefficient of determination $R^2 = 0.480$ which meant that FSE policy accounted for 23.04% of the variation in Student Book Ratio. The study concluded that FSE Fund should increase the student book ratio by 23.04%.

RECOMMENDATION

This study recommended that FSE funds should be increased to enhance further improvement in Teaching and learning Resources. This would enable students to get enough resources to use thereby raising level of quality secondary education.

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