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## Effect of Expansion of Public Day Secondary Schools on Utilisation of Selected Physical Facilities: Library and Laboratory in Mumias Sub-County, in Kakamega County, Kenya

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### **Abstract:**

*Investment in Education occurs against a backdrop of scarce resources hence the need for stakeholders to have an insight into internal efficiency of the school system so as to employ resources to the best benefit of students and nation. Expansion of public day secondary schools was expected to enhance access and provide quality education to students who miss the opportunity to access boarding facilities due to high boarding school fees. The specific objective of the study was to establish the effect of expansion of public day secondary schools on utilization of selected physical facilities (library and laboratory). The study employed descriptive survey research design. A sample size of 1,323 students, 164 teachers and 36 principals from a population of 4,410 form 3 and 4 students, 546 teachers and 43 principals respectively were involved. Simple random and saturated sampling were used to select students/teachers and principals respectively. Research instruments used were questionnaires, interview schedules and observations. Quantitative data collected from closed questionnaire items was tallied and presented using frequency counts, percentages and means. Qualitative data was transcribed and organized into categories and themes based on study objective. Analysis of data was done using descriptive statistics and data presented in form of frequency tables. The findings revealed that most of the public day secondary schools did not have functional libraries other than book stores or rooms, the students underutilized library. Findings also revealed that most public day secondary schools did not have adequate laboratories, some newly established schools completely lacked laboratories, some lacked facilities while others had more learners than the facilities available in the laboratories. The study concluded that expansion of public day secondary schools has affected utilization of library facilities at different levels of classes and periods, however it has not affected utilization of laboratory. Newly established public day secondary schools lacked library and laboratory facilities. The study recommended that establishment of public day secondary schools should be suspended because of minimal yearly increase. It should be mandatory for a school to have a library and laboratory before being registered. The government should increase capitation for free day secondary education funding, CDF funding to enable adequate provision of library and laboratory facilities in public day secondary school. The limited resources should be spread over larger number of public day secondary schools to meet increase demand of secondary education.*

**Keywords:** Expansion of Public Day Secondary School, utilization of selected resources

### **1. Introduction**

This paper presents a background of study, statement of the problem, purpose of study, the objective, hypothesis, effects of expansion of public day secondary school on utilization of resources, research design, sampling procedure, results, conclusions and recommendations.

### **2. Background to the Study and Statement of the Problem**

Secondary education is a gateway to the opportunities, benefits and social development. Demand for access to higher levels of education is growing dramatically as countries approach Universal Primary Education (UPE). The global Education for All (EFA) effort, provided added momentum for the growth in secondary education. Globalization and increasing demand for a more sophisticated labour force, combined with the growth of knowledge-based economies gives

a sense of urgency to the heightened demand for secondary education, hence increased enrolment in secondary schools leading to their expansion. Secondary education is now being recognized as the cornerstone of the educational systems in the 21<sup>st</sup> century. The quality secondary education is indispensable in creating a bright future for individuals and nations alike (World Bank,2005). Among the secondary schools with increased enrolment that result to their expansion are the public day secondary schools. Expansion of public day secondary schools was expected to enhance access and to provide quality education to the citizens. Yearly many Primary School leavers miss opportunities to join form one. This led to the government recommending the establishment of more streams in the existing secondary schools and establishing of more public day secondary schools. In many cases, this was done without considering available basic facilities of education hence compromising internal efficiency of institutions. A call by the Kenya National Parents Association (KNPA) chairman, to have Kenya Certificate of Primary Education scrapped because it has denied right to basic education and have a secondary section established at every primary school so as to increase the transition rate from primary to secondary was still a debate to be discussed and implemented (Education Newspaper Jan 17, 2013), – In Kakamega county, a total of 30 new secondary schools were registered between January to June 2014 of which 15 were from the larger Mumias Sub-County. In Mumias sub-county the steadily growing enrolment ratio at primary level was attributed to Free Primary Education that fed gradually increasing enrolment in secondary schools. Subsidized Day Secondary Education that commenced in 2008 has also contributed to increased enrolment especially in public day secondary schools. School enrolment and retention are pegged on household capacities that reel around basic necessities of life. The high poverty index in Mumias contributed to low transition rates from primary to secondary and secondary to tertiary. Inadequate social amenities and infrastructural development in learning institutions were a setback in realizing internal efficiency in the sub-county (Olwenyi,2011). The provision of bursary funds by Mumias constituency Development Fund (CDF) and SAIPEH – a non-governmental organization based in Mumias among others, have enhanced increase in school enrolment in public day secondary schools (Olwenyi, 2011). The number of public day secondary schools increased from 24 schools in the year 2009 to 54 schools in the year 2015, as shown in the table below.

Year	No. of Public Day Secondary Schools
2015	54
2014	45
2013	37
2012	30
2011	25
2010	25
2009	24

Table 1: Number of Public Day Secondary Schools in Mumias Sub-County  
Source: Sub-County Education Office – Mumias (2014)

Investment in Education in Kenya occurs against the backdrop of scarce resources hence the need for all education stakeholders to have an insight into internal efficiencies of the school system so as to employ resources to the best benefit of students and nation. Expanding provision for all in the secondary education sub-sector was a major challenge because of limited resources (MOE, 2012) Oduori (2014) noted that each new school required about nine to ten teachers yet the existing ones may not be enough. Resources required to establish new learning institution are more than what was needed to expand the existing ones.

### 3. Methodology

The study employed descriptive survey design which enabled the researcher to collect and analyze data on utilization of selected physical facilities (Library and Laboratories). This design was suitable for this study because it provided numeric descriptions of some part of the population for extensive research. It enabled rapid data collection and ability to understand the whole population from a part of it. Sample random sampling method was used to select a sample of 1,323 form three and four students from a total of 4,410, 164 teachers from a total of 546 teachers representing 30% of the study population. This was in order to get opinion from selected respondents who represented the population of interest. A third of the study population provided an equal opportunity of selection for each element of the population and helped to yield data that was generalized to the larger student population (Orodho and Kombo 2002).

It involved selecting a sample without bias from the target population (Obo and Onen,2008). The study employed saturated sampling for principals, because the population involved was too small to be sampled. The sample sizes for students, teachers, principals were conducted as shown in table 2 below.

Description	Population (N)	Sample Sizes
Students	4410	1323
Teachers	546	164
Principals	43	36

Table 2: Sampling Matrix

Research instruments used were questionnaires, interview schedules and observations. Quantitative data collected from closed questionnaire items was tallied and presented using frequency counts, percentages and means. Analysis of data was done using descriptive statistics and data presented in form of frequency tables. Quantitative data analysis required the use of a computer spreadsheets and hence SPSS version 21 was used.

### 3.1. Research Objective

To establish the effect of expansion of public day secondary schools on utilization of selected physical facilities (library and laboratory).

### 3.2. Research Findings

The objective of the study was to determine the effect of expansion of public day secondary schools on utilization of library and laboratory facilities. The purpose of this objective was to enable the researcher to establish the effect of increase in number of students and public day secondary schools on utilization of library and laboratory. The researcher also established whether the newly registered secondary schools had adequately equipped laboratories and libraries. These two physical facilities play a central role in the provision of quality education in institutions. To achieve this, principals were expected to give information on teachers and students utilization of library and laboratories. Students and teachers were used to confirm the principal's information through answering questionnaires on the same. This information together with that on student's enrolment in forms Three and four were subjected to one-way Anova analysis to establish whether there was no significant relationship between expansion of public day secondary schools and utilization of the two physical facilities. The data is presented in tables 4.6 to 4.20 depicts the availability and utilization of library and laboratory.

Likert Scale Rating	Frequency	Percent
Strongly Agree	3	11.5
Agree	8	30.8
Disagree	13	50.0
Strongly Disagree	2	7.7
Total	26	100.0

Table 3: The School Has a Functional Library  
Source: Field Data 2016

Table 3 from the principals' questionnaire depicted that, 11.5% of principals strongly agreed that their schools had functional libraries, 30.77% agree with the same. 50% and 7.69% of the principals disagreed and strongly disagreed respectively that their schools had functional libraries.

Likert Scale Rating	Frequency	Percent
Strongly Agree	15	8.3
Agree	92	51.1
Disagree	49	27.2
Strongly Disagree	24	13.3
Total	180	100.0

Table 4: Our School Has a Functional Library

Table 4 from the teachers' questionnaire confirmed the principal's information that most public day secondary schools don't have functional libraries. 9.04% of the teachers strongly agreed that their schools had functional libraries. 24.47% agreed to the same. 28.25% of the teachers disagreed and 41.24% of the teachers strongly disagreed that their schools have functional libraries. Through observation method of data collection, it was noted that most schools had rooms in form of book stores where students visited at games time to borrow text books. Some few schools lacked libraries.

These findings agree with the observation made by Oyaro (2010) as quoted by Makari (2014) that 87.5% of county and extra county schools had functional libraries while 12.5% lacked. These findings relate to those of Frankline Dolor (2002), who noted that availability of adequate school buildings such as library, laboratories and classrooms were necessary for attainment of educational objectives. Similarly, Hallak (1990) identified educational facilities e.g. Library and laboratory among others as a major factor that contribute to academic achievement is school system. Adeboyeje (1999) revealed that physical facilities i.e. library and laboratories among others are essential materials that must be put in place and into consideration for the objectives of the school system to be accomplished. Adeboyeje (1998) further stressed that availability of these facilities determines the quality of instructions and performance of students in the school. Oyedeji (2000) revealed that school buildings had positive impact on the comfort, safety and academic performance of students. This was in line with the current findings that noted: for a school to be registered by the Ministry, it should be mandatory to have the key physical facilities, classrooms, library, laboratory, staffroom and toilets etc.

Likert Scale Rating	Frequency	Percent
Strongly Agree	3	11.5
Agree	6	23.1
Disagree	15	57.7
Strongly Disagree	2	7.7
Total	26	100.0

*Table 5: Students Utilize the Library Adequately*

Table 5 from the principal's questionnaires revealed that 11.54% of the principals strongly agreed that students do utilize the library adequately while 23.08% agreed with the same. 57.69% and 7.69% of the principals disagreed and strongly disagreed respectively that students utilize library adequately in their schools.

Likert Scale Rating	Frequency	Percent
Strongly Agree	11	6.0
Agree	52	28.4
Disagree	94	51.4
Strongly Disagree	26	14.2
Total	183	100.0

*Table 6: Students Utilize the School Library Adequately*

Table 6 from teachers' questionnaires showed that 6.01% of the teachers strongly agreed that students utilize the school library adequately. 28.42% agreed with the same. 51.37% of the teachers disagreed that students adequately utilize the school library. 14.21% strongly disagreed with the same.

From the principals' and teachers' questionnaires, it was noted that most students do not utilize school libraries adequately. This was due to lack of well build functional libraries other than small rooms created to act as libraries. Libraries are the engines for academic excellence in secondary education institutions hence should be made mandatory for establishment of public day secondary school. It's also an indicator of poor reading culture in public day secondary schools.

These findings are similar to those of Keitany (2012) whose study on factors influencing wastage among secondary school students in Kenya revealed that the learning facilities in Kisumu East District i.e. library services were inadequate. The research revealed that some schools had library buildings or rooms packed with several old books and material not relevant to the present curriculum. The few useful books could not be shared among students equally. 66.30% of respondents expressed that learning resources were inadequate in the school libraries.

Likert Scale Rating	Frequency	Percent
Strongly Agree	5	18.5
Agree	10	37.0
Disagree	6	22.2
Strongly Disagree	6	22.2
Total	27	100.0

*Table 7: The School Has Functional Twin Laboratory*

Table 7: from the principals' questionnaire revealed that 18.52% of the principals strongly agreed that their schools had functional twin laboratories. 37.04% agreed with the same while 22.22% of the principals both disagreed and strongly disagreed that their schools had functional twin laboratories.

Likert Scale Rating	Frequency	Percent
Strongly Agree	11	6.0
Agree	54	29.5
Disagree	71	38.8
Strongly Disagree	47	25.7
Total	183	100.0

*Table 8: Our School Has Adequate Laboratories*

Table 8: from the teacher's questionnaires confirmed the data received from principals that most Public Day Secondary School do not have adequate laboratories. 6.01% of the teachers strongly agreed that their schools had adequate laboratories. 29.51% agreed with the same. 38.80% and 25.66% of the teachers disagreed and strongly disagreed respectively with the same. This implied that most PDSS did not have adequate functional laboratories. Through observation method of data collection, made by the researcher, it was noted that most newly registered public day secondary school did not have laboratories. Some were still under construction and those in operation had inadequate facilities i.e. equipment and furniture.

Likert Scale Rating	Frequency	Percent
Strongly Agree	5	20.8
Agree	9	37.5
Disagree	6	25.0
Strongly Disagree	4	16.7
Total	24	100.0

*Table 9: School Laboratories Are Adequately Utilized*

Table 9: from the Principal's questionnaire depicted that 20.83% of the principals strongly agreed that the school laboratories are adequately utilized. 37.50% agreed with the same. 25% and 16.67% of the principals disagreed and strongly disagreed that school laboratories were adequately utilized.

Likert Scale Rating	Frequency	Percent
Strongly Agree	5	2.9
Agree	78	44.6
Disagree	66	37.7
Strongly Disagree	26	14.9
Total	175	100.0

*Table 10: Students Utilize the Laboratories Adequately*

Table 10: from teacher's questionnaires revealed that 2.86% of the teachers strongly agreed that students utilize the laboratories adequately. 44.57% agreed with the same. 37.71% of the teachers disagreed that students utilized the laboratories adequately. 14.86% strongly disagreed with the same.

Likert Scale Rating	Frequency	Percent
Strongly Agree	268	20.8
Agree	546	42.4
Disagree	295	22.9
Strongly Disagree	178	13.8
Total	1287	100.0

*Table 11: Students Adequately Utilize School Laboratories*

Table 11 from the student's questionnaire reveals that:20.82% of the students strongly agreed that they adequately utilized the laboratories while 42.42% of the students agreed with the same. 22.92% of the students disagreed that they adequately utilized the laboratories while 13.38% strongly disagreed with the same.

Bell and Rhodes (1996) research revealed similar findings that in order for a school to advance learning opportunities offered to student, it has to adequately utilize facilities available like the libraries and laboratories. It is the role of the principal to ensure that the facilities are used efficiently and effectively.

Likert Scale Rating	Frequency	Percent
Strongly Agree	6	3.4
Agree	54	30.2
Disagree	84	46.9
Strongly Disagree	35	19.6
Total	179	100.0

*Table 12: The School Laboratories Are Adequately Equipped*

Table 12 from the teacher's questionnaire depicts that: 3.35% of the teachers strongly agreed that the school laboratories were adequately equipped. 30.17% agreed with the same. 46.93% of the teachers disagreed that the school laboratories were adequately equipped and 19.55% strongly disagreed with the same.

Likert Scale Rating	Frequency	Percent
Strongly Agree	54	31.0
Agree	75	43.1
Disagree	22	12.6
Strongly Disagree	23	13.2
Total	174	100.0

*Table 13: Increase Student Enrollment Has Strained Laboratory Utilization.*

Table 13 from the teacher's questionnaire revealed that 31.3% of the teachers strongly agreed that increase in student enrollment had strained laboratory utilization of facilities. 43.10% of the teachers agreed with the same. 12.64% of the teachers disagreed that increase in student enrollment had strained laboratory utilization of facilities. 13.22% of the teachers strongly disagreed with the same.

From the Principal's and teacher's questionnaire it was noted that laboratories are moderately utilized. Through observation some schools had laboratories buildings that lacked equipment and some were poorly equipped. This was an indicator of underutilization of laboratory facilities. Some schools had well equipped laboratories but the number of learners were higher than facilities available. This caused strain on laboratory facilities hence at times underutilized.

These findings are similar to those of Keitwiny (2012) whose study on factors influencing wastage among secondary schools in Kenya revealed that school laboratories are not equipped with apparatus. Those fully equipped, lacked chemicals and proper storage facilities that accompany laboratory equipment. It also revealed that students who are not exposed to frequent science experiment were not a position to score good marks in science subjects. Unsatisfactorily academic performance in KCSE attributed to limited laboratory apparatus was a reflection of internal inefficiency. These findings are also similar to those of UNESCO (2008), that showed laboratories could contribute more to student academic performance especially if other complementary inputs like apparatus are provided.

A One Way Anova test was carried out to establish whether there was no significance relationship between expansion of public day secondary schools and utilization of library and laboratory. table14 shows the results of the one-way Anova test on library utilization by Form 4 students from the year 2010- 2015.

		Sum of Squares	df	Mean Square	F	Sig.
Enrollment for form 4 in 2010	Between Groups	19044.778	2	9522.389	7.895	.006
	Within Groups	15678.972	13	1206.075		
	Total	34723.750	15			
Enrollment for form 4 in 2011	Between Groups	17486.465	2	8743.233	8743.233	.004
	Within Groups	13006.972	13	1000.536		
	Total	30493.438	15			
Enrollment for form 4 in 2012	Between Groups	15592.742	2	7796.371	4.642	.028
	Within Groups	23513.022	14	1679.502		
	Total	39105.765	16			
Enrollment for form 4 in 2013	Between Groups	14939.252	2	7469.626	3.527	.057
	Within Groups	29645.689	14	2117.549		
	Total	44584.941	16			
Enrollment for form 4 in 2014	Between Groups	8918.500	2	4459.250	2.196	.146
	Within Groups	30466.000	15	2031.067		
	Total	39384.500	17			
Enrollment for form 4 in 2015	Between Groups	6625.532	2	3312.766	1.409	.273
	Within Groups	37611.100	16	2350.694		
	Total	44236.632	18			

Table 14: One-Way Anova Library Utilization by form 4 Students

From table 14, it was noted that in the year 2010 there was a significant relationship between effects of expansion of public day secondary schools and utilization of library by Form 4 students in Mumias Sub-County. The P-Value was .006 which was less than the standard P-value of 0.05 hence rejection of the null hypothesis that there is no significant relationship between effects of expansion of public day secondary schools and utilization of library.

In the year 2011, there was a significant relationship between effects of expansion PDSS and library utilization by Form 4 students in Mumias Sub-county. The P-value was .004 which was less the standard P-Value of 0.05 hence rejection of the null hypothesis that there is no significant relationship between effects of expansion of PDSS and utilization of library. In the year 2012, there was a significant relationship between effects of expansion of PDSS and library utilization by Form 4 students in Mumias Sub-county. The P-Value was .028, which was less the standard P-value of 0.05 hence rejection of the null hypothesis-there is no significant relationship between effects of expansion of PDSS and utilization of library. In the years 2013, 2014 and 2015 the P-values were .057, .146 and .273 respectively. These were more than the standard P-value of 0.05, hence the null hypothesis that; there was no significant relationship between effects of expansion of PDSS and utilization of physical facilities library by the Form 4 class were accepted.

		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Enrollment for form 4 in 2010	Between Groups	26191.549	2	13095.774	6.921	.009
	Within Groups	24597.889	13	1892.145		
	Total	50789.438	15			
Enrollment for form 4 in 2011	Between Groups	27613.382	2	13806.691	6.298	0.12
	Within Groups	28499.556	13	2192.274		
	Total	56112.938	15			
Enrollment for form 4 in 2012	Between Groups	19941.644	2	9970.822	3.270	.068
	Within Groups	42690.356	14	3049.311		
	Total	62632.000	16			
Enrollment for form 4 in 2013	Between Groups	12958.546	2	6479.373	1.660	.226
	Within Groups	54653.689	14	3903.835		
	Total	67612.235	16			
Enrollment for form 4 in 2014	Between Groups	8371.556	2	4185.778	.967	.403
	Within Groups	64914.222	14	4327.615		
	Total	73285.778	17			
Enrollment for form 4 in 2015	Between Groups	14171.530	3	4723.843	.999	.417
	Within Groups	80421.136	17	4730.655		
	Total	94592.667	20			

Table 15: One-Way Anova Library Utilization by form 3 Students

From table 15, it was noted that in the years 2010, and 2011 the P-values were: .009 and .012 respectively. These were less than the standard P-value of 0.05 hence rejection of the null hypotheses that there is no significant relationship between effects of expansion of PDSS and utilization of selected physical facilities library.

In the years 2012, 2013, 2014 and 2015 the P-Value for form 3 class were .068, .226, .405, .417 respectively. These were more than the standard P-value of 0.05 hence the null hypothesis that, there was no significant relationship between effects of expansion PDSS and utilization of physical facilities – library by the Form 3 class was accepted.

The above information implied that in the years 2010 – 2012 the expansion of PDSS had an impact on library utilization by Forms 3 and 4 classes in Mumias Su-county. It revealed that the students enrolled in form 3 and 4 during the period was high hence affected library utilization. It also showed that the number of PDSS increased during that period. Some of the schools did not have library facilities and also there was no proper utilization of library by Form 3 and 4 students.

In the period of 2013 -2015 the expansion of PDSS did not affected library utilization. This was due to government funding through FDSE funds and bursary disbursement to needy students, CDF funding that assisted in construction and improvement of library facilities and purchase of school text books.

		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Enrollment for form 4 in 2010	Between Groups	9338.267	2	4669.133	1.397	.285
	Within Groups	40110.667	12	3342.556		
	Total	49448.933	14			
Enrollment for form 4 in 2011	Between Groups	8610.317	2	4305.158	1.074	.372
	Within Groups	48083.417	12	4006.951		
	Total	56693.733	14			
Enrollment for form 4 in 2012	Between Groups	13148.850	2	6574.425	1.531	.256
	Within Groups	51532.750	12	4294.396		
	Total	64681.600	14			
Enrollment for form 4 in 2013	Between Groups	16913.708	2	8456.854	2.214	.152
	Within Groups	45835.625	12	3819.635		
	Total	62749.333	14			
Enrollment for form 4 in 2014	Between Groups	19452.021	3	6484.007	1.620	.237
	Within Groups	48035.417	12	4002.951		
	Total	67487.438	15			
Enrollment for form 4 in 2015	Between Groups	47843.235	3	15947.745	5.746	.008
	Within Groups	41629.292	15	2775.286		
	Total	89472.526	18			

Table 16: One-Way Anova Laboratory Utilization Form 3

From table 16, it was noted that in the years 2010, 2011, 2012 and 2014 the P-Values were .285, .372, .256, .152, .237 respectively. These were more than the standard P-Value of 0.05 hence the null hypothesis that there was no significant relationship between effects of expansion of PDSS and utilization of physical facilities – laboratory by the Form

3 class was accepted. This implied that in the period of years 2010 – 2014 the expansion of PDSS did not affect laboratory utilization by the form 3 class. This was due to government support through funding by the CDF to construct and improve on laboratory facilities.

In the year 2015 the P-value was .008. This was less than the standard –value of 0.05 hence the null hypothesis that there is no significant relationship between effect of expansion of PDSS and utilization of selected physical facilities – laboratory was rejected. That implied that there was a significant relationship between expansion of PDSS and utilization of physical facilities the laboratory.

		Sum of Squares	df	Mean Square	F	Sig.
Enrollment for form 4 in 2010	Between Groups	11926.833	2	5963.417	3.249	.075
	Within Groups	22026.500	12	1835.542		
	Total	33953.333	14			
Enrollment for form 4 in 2011	Between Groups	8542.067	2	4271.033	2.603	.115
	Within Groups	19687.667	12	1640.639		
	Total	28229.733	14			
Enrollment for form 4 in 2012	Between Groups	7537.192	2	3768.596	1.661	.231
	Within Groups	27234.542	12	2269.545		
	Total	34771.733	14			
Enrollment for form 4 in 2013	Between Groups	9015.483	2	4507.742	1.635	.236
	Within Groups	33088.917	12	2757.410		
	Total	42104.400	14			
Enrollment for form 4 in 2014	Between Groups	12378.125	3	4126.042	1.884	.186
	Within Groups	26279.875	12	2189.990		
	Total	38658.000	15			
Enrollment for form 4 in 2015	Between Groups	15147.596	3	5049.199	2.470	.108
	Within Groups	26578.875	13	2044.529		
	Total	41726.471	16			

Table 17: One-Way Anova Laboratory Utilization by form 4 Students

From the table 17, it was noted that in the years 2010, 2011, 2012, 2013, 2014 and 2015 the P-value were: .075, .115, .231, .236, .186, .108 respectively. These were more than the standard P-value of 0.05 hence the null hypothesis that there was no significant relationship between effects of expansion of PDSS and utilization of selected physical facilities – laboratory was accepted. It implied that expansion of PDSS did not have any impact on utilization of laboratory facilities by form 4 class. This was due to government support through funding to construct laboratories in schools and purchase of laboratory facilities. It also implied that the laboratory facilities were mostly utilized by form four class.

These findings differ with those of Ibitoye (2003) whose study on relationship amongst school size resource utilization and school effectiveness revealed that there was a high relationship between enrolment and utilization of physical facilities like laboratories and libraries. The higher the number of students, the higher the utilization of physical facilities.

#### 4. Conclusion

The objective was achieved because it was established from the principals that 57.69% of public day secondary schools had no functional libraries. It was established from the teachers that 69.49% of the public day secondary schools had no functional libraries. Newly established schools lacked libraries and 65.38% of the students in public day secondary schools underutilize libraries.

Research test done using One-way Anova on library utilization by from Three and Four students revealed that in the year 2010-2012 expansion of public day secondary school affected utilization of library. In the year 2013 – 2015 the expansion did not affect utilization of library. This could be due to provision of Free Day secondary Funding, CDF funding and bursary disbursement by the government that could assist in the construction of the physical facilities and purchase of text books.

It was also established from the Principals and teachers that 44.44% and 64.46% respectively, that most public day secondary schools did not have adequate laboratories. 52.57% of public day secondary school students in Form 3 and 4 underutilize the laboratories. Some public day secondary schools lacked laboratories, other had only the building but without facilities while some had more learners than the facilities can accommodate.

Research test done using One-way Anova established that in the years 2016 – 2014, expansion of public day secondary school had no effect on utilization of laboratory. In the period 2010 – 2015 there was no significant relationship between expansion of public day secondary school on laboratory utilization by F.4 Class. This could be due to teachers preparing Candidates for KCSE practical exams most of the time Expansion of public day secondary school had negative effect on utilization of library but had no effect on laboratory utilization at different levels of classes and periods.



## 5. Recommendations

Library and Laboratory construction should be a mandatory requirement for registration of any public day secondary school by the Ministry of Education. The two facilities play a central role in provision of quality Education. Funding from Ministry of Education should be prioritized towards infrastructure facilities especially in libraries and laboratories in public day secondary schools in order to meet the ever-increasing enrolment trends.

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