

Effects of Physical Facilities on Performance in Kenya Certificate of Secondary Examination in Public Schools in Bungoma South, Kenya

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Abstract: *Secondary education in Kenya is becoming increasingly unaffordable since the standard of performance has continued to deteriorate due to congestion. The government of Kenya in 2008 introduced Free Secondary Education; this increased the enrollment rate and caused strain on the available physical resources in schools. As such, there is need for proper physical resource utilization for the improvement of internal efficiency leading to better academic achievement. This study was guided by a conceptual framework which stems from the school performance plan in academic achievements, which explains that in any learning institution physical facilities should be acquired to enhance proper academic performance. The purpose of this study is to determine the effects of physical facilities on KCSE performance in Secondary schools in Bungoma South District, Kenya. The study employed a descriptive Survey research design. This was carried out in Public Secondary schools in Bungoma South District. The study population consisted of 140 respondents from 20 schools in which were purposely sampled and 15 were systematically sampled. Questionnaires, Interview schedules and Observation scales were the instruments of data collection. The key findings revealed that Physical facilities were available and how they were utilized encouraged students to perform well in KCSE exams in and this influenced academic performance. The research recommended that physical facilities are important for good performance to be realized and that there are further internal factors influencing the performance of students in KCSE Examinations in Bungoma South District. It is hoped that this study will help many schools to improve on internal efficiency and help other researchers in this field to further their study.*

Keywords: Physical Facilities, Performance, Secondary school, Utilization

1. Introduction

The extent to which more intensive use of physical facilities can increase efficiency obviously depends not only on methods of school organization, but also on the availability of factors and the space capacity which is considerable in developing countries (Coombs and Hallack 1975). There is a problem under-utilization of physical resources like laboratories, classrooms, workshops for effective performance in K.C.S.E examinations. The availability of physical facilities together with the human resources and other institutional resources such as textbooks, teacher quality, teaching methods and classroom organization, school management and structure, school library activities, teacher's correction of pupils work and frequency of homework really affect the overall performance during the summative evaluation (Filler, 1985), this author asserts that facility construction is a major vehicle for quality enhancement to performance but of critical importance to the utilization of such facilities and not merely their availability.

2. Literature Review

Adequacy of Physical Facilities in Relation to Performance in Schools

According to Trijuman (1994), enrollment in public primary schools have increased from 5.8 million in 2002 to about 7.2 million in 2003 following the introduction of free primary education and by 2004 it stood at 7.5 Million. The number of physical resources remained unchanged in these schools at about 180,000 and could even be less because wear and tear. This greatly affects the transition rate to secondary schools as the scenario between the students –facilities ratio is above

the norm. (MOEST 2005). According to a recent survey by UNESCO (Daily Nation, May 15th 2005 p19) shows the average ratio in 162 schools sampled is 58:1, against the required 40:1. Such class sizes in public secondary schools make it difficult for the teachers to teach lessons effectively as compared to their counterparts in private schools who handle a smaller number of pupils. In the investigation on factors that contribute to poor performance of O' level examination in Kenya, Majani (1989), found that physical facilities is the major factor but failed to recognize that management of human and material resources is actually the main factor because with good management even physical facilities will not be an issue. Mwiria (2004) is in agreement with this when he says that materials on their own cannot bring about improved performance. Trijuman,(1994) asserts, that attendant effects on classroom activities include classroom control and discipline, teaching-learning atmosphere of schools and especially with the newly introduced (UBE) in Kenya creates a need to adequate provision of facilities in enhancing quality of classroom control and discipline on the teaching-learning atmosphere as a whole. Further he adds that UBE scheme is expected to try out solutions in the area of capacity building; teaching-learning; curriculum; school management; community support and policy (Mwiria, 2004). Further he adds that to achieve this strong educational foundation, the Kenya secondary education system, needs adequate facilities such as blocks of classrooms, furniture, teachers, instructional materials, libraries and other school equipment. These are expected to be provided for effective teaching-learning to take place, as well as for adequate classroom population, effective climate, and standard pupil-teacher classroom ratio and pupil academic achievement to be attained among others.

3. Research Methodology

3.1 Sampling Procedures and Sample Size

3.1.1 Sampling procedures

Systematic random sampling was used to select district schools. This involves selecting subjects from a population list in a systematic manner Mugenda and Mugenda (1999). The study population comprised 45 schools from which a 1/3 was sampled to give the 15 schools and the 5 provincial schools were automatically picked to a target of 20 schools which the researcher decided to use in this study. Stratified random sampling was used to sample the schools that involved dividing the population into categories (Tromp & Kombo, 2006), see Table: 3.1 below:

Table 3.1: Sample of the District Schools by Category

Category of school	No of schools by category	No of schools sampled
Boys boarding	5	2
Girls Boarding	2	1
Mixed Boarding	9	4
Mixed Day	29	9
Total	45	16

Source: District Education Office, Bungoma South District

The strata consisted of the following subgroups: Boys boarding, Girls boarding, Mixed boarding and mixed day. A third of the total categories of the 45 schools were selected (Mugenda and Mugenda, 1999).

3.1.2 Sample Size

A sample is a representative group selected from the population which brought out salient characteristics of the accessible population (Mbeche, 2004). Purposive sampling was used to select 20 Heads of departments in both Provincial (5) and District Public Secondary Schools (15) this was because they have a greater responsibility towards the acquisition and management of Physical Facilities than any other stakeholders in the schools. Purposive sampling was used to sample the H.O.Ds from both the Provincial and the district schools District Public Secondary schools in this study (90) were picked from the district schools and 30 HODs from the Provincial Schools. This was because the researcher was dealing with the core departments in schools where we have six departments related to academic performance and greatly influences performance in the exams. One (DQASO) was sampled using saturated sampling technique; for this group had one respondent hence could not be sampled. This gave a total sample population of 141 respondents, who formed a basis of the population from which the study was carried out in the District. The table below summaries what is explained above.

Table 3.2: Target population

Category	Respondents
Head teachers	20
DQASO	1
Heads of Departments	120
Total	141

4. Results and Discussions

4.1 Physical Facilities that Enhance Academic Performance in schools as Reported by HODs.

Table 4.1: Frequency of Students Accessing Department Physical Facilities that Enhance Academic Performance in schools as Reported by HODs.

Accessing Curricular Enhancing Physical Facilities in the departments

LIBRARY SCIENCE LABS				
	f	%	f	%
Daily	8	26.7	0	0
Weekly	10	33.3	22	73.3
Once Per Term	6	21	6	20
None of the Above	6	20	2	6.7
Total	30	100	30	100

Data in Table 4.1 indicates the number of HODs 22(73.3%) were of the opinion that most students accessed the science labs frequently per week as compared to the library whose though highest frequency per week was 10(26.7%) and was the highest. Surprisingly 8(26.7) HODs reported that students accessed the libraries weekly and small number of the respondents reported that 6(20.0%) reported that the students accessed the libraries in a term and sometimes not at all.

However the report on the use of the science labs was quite different as the respondents reported that as much as this facility was used on weekly basis because of timetabling it was saddening to not that there are some provincial schools where students accessed it once in a term 6(20.0%) and a very small number of the HODs 2(6.7%) reporting that it was not accessed at all. This study differs with Cash (1993) who argued that some buildings are over fifty years and therefore require modern facilities for teaching and learning. Renovation and modernization of old and dilapidated buildings should be carried out to ensure that facilities for team planning areas, office space, clerical space, workrooms, professional development libraries, faculty dining area, storage space, students conference areas, guidance services area for large group instruction, spaces for instructional media, library resource centers, science facilities, arts and music studios, individual study area and physical education facilities. Equipment and supplies are essential for the attainment of educational goals and objectives. The researcher wanted to find out the situation the district schools the findings are displayed in table 4.2

Table 4.2: Frequency of Students Accessing Departmental (Libraries /Science Labs Facilities Enhancing Academic Performance in District Schools as Reported by HODs.

LIBRARY SCIENCE LABS				
	f	%	f	%
Daily	18	20	0	0
Weekly	27	30	32	35.6
Once Per	30	33.3	42	46.7
None of the	15	16.7	16	17.7

Data in Table 4.10 indicates the number of HODs from the district schools reported that 27(30%) few students accessed the library per week and daily 18(20%) as compared to the science labs as per week were 32(35.6%) and none per daily. Further HODs according to most respondents 30(33.3%) of the students accessed the library Once in a Term and there is a group that respondents that students had not accessed the library at all as they reported none of the above 15(16.7%) alternatives given. However the report on the use of the science labs was quite different as the respondents reported that as much as this facility was used on weekly basis because of timetabling it was saddening to not that the majority 42 (46.7%) of district schools students accessed it once in a term, and a good number of the respondents reported 16(17.7%) that it was not accessed at all as some reported None of the Above.

Yet a study by Majjon et al (1997) reports that Schools exist for the purpose of teaching and learning. Human and material resources are deployed for this purpose. School facilities are the material resources provided for staff and students to optimize their productivity in the teaching and learning process. Further they add that the realization that the transfer of knowledge does not only take place in the four walls of the classroom from the teacher to the students but rather through discovery, exploration, interaction with the internal and external environment which necessitates the creative and innovative development of teaching and learning facilities that reflect these changes.

Table 4.3: Effects of Physical Facilities Investment to K.C.S.E Performance

Adequacy facilities	Mode Measurements		Performance over years			
			2006	2007	2008	2009
Inadequate	Mean	4.8245	4.8641	4.8409	4.9964	
	N	15	15	15	15	
	Std deviation	0.7913	0.7913	0.8583	0.8819	
Adequate	Mean	6.7625	6.7625	6.91	7.225	
	N	5	5	5	5	
	Std deviation	1.6512	1.6512	1.609	1.1286	
Total	Mean	5.3413	5.3413	5.3927	5.59	
	N	20	20	20	20	
	Std deviation	1.3485	1.3485	1.4064	1.3671	

From table 4.3 Shows that majority of the schools with adequate facilities 2006 (0.7913) 2007(0.7913) 2008(0.8583) 2010(0.8819) Posted a lower standard deviation in the four years period of study in deviation in the schools KCSE performance as compared to the schools that reported that the facilities were inadequate within the same period of study (2006-2009). However in the above table as comparatively those schools with inadequate physical facilities (2006-2009) the majority of schools recorded a negative higher standard deviation index as follows 2006(1.6512) 2007(1.6512) 2008(1.6090) 2009(1.1286). The findings from the field shows that the academic performance of schools with physical facilities has been improving over the years steadily while the schools that have inadequate physical facilities, performance in K.C.S.E fluctuated with time despite new reforms and innovations that have been designed and introduced to make education relevant to socio-economic and political aspirations and expectations of the society at large Similarly. The findings revealed that schools with

adequate physical facilities were academically superior to those with inadequate facilities and have an advantage over those who have inadequate facilities in terms of KCSE performance.

It was evident in the four years of study, this findings are in agreement with Filler (1985) who asserted that physical facilities is a major vehicle for quality enhancement to performance. The study schools, it was revealed that there was great need for adequate facilities such as classrooms, furniture, teachers, libraries and other school equipment. The researcher further wanted to find out whether the type and quality of the physical facilities affected students' performance in the KCSE exams the findings from the principals interview revealed the following:

Table 4.4: Principals Opinion on whether type of Physical Facilities both Provincial and District Schools affected students a performance in Bungoma South District

a) Provincial schools		
Principals	f	%
Yes	4	80
No	1	20
Total	5	100
HOD (s)		
Yes	26	86.7
No	4	13.3
Total	30	100
b) District schools		
Principals	f	%
Yes	8	53.5
No	7	46.5
Total	15	100
HOD (s)		
Yes	72	81.8
No	12	18.2
Total	90	100

In Table 4.4 above shows that a small number of the heads teachers of the provincial schools 1(20%) were of the opinion that performance was affected by the type of the physical facilities whether new or old while an overwhelming majority 4(80%) were of the opinion that it did not affect them. This agreed with the report on the same question when posed to the HODs in the same schools. The majority of the HODs 26 (86.7%) reported the type of physical facilities affected the KCSE performance and nearly a half of the number 4(13.3%) reported that the type of facilities whether new or old will impacted on the performance. Principals of the district schools however had contradictory information on whether the type of the facilities position had an effect on performance of the students in exams out of the 15 principals interviewed only HODs 8(53.5%) reported that it did not have an effect and nearly the other half 7(46.5%) reported that it did not affect the performance . The report from the heads of department was slightly different as the majority of the HODs 26(81.7) reported the type of physical facilities affected the KCSE performance only a small number, 12(18.3%) reported that facilities did not affect them.

The findings are in agreement with Chan (1979) who argued that form-one students scored consistently higher across a range of standardized tests if housed in new or modernized

buildings. Bowers and Burkett (1987) found that students in newer buildings outperformed students in older ones and posted better records for health, attendance, and discipline. The study attributed approximately three percent of the variance in achievement scores to facility age after considering socio-economic differences in the student populations.

In more recent work, Phillips (1997), found similar improvements in newer facilities, and Jago and Tanner (1999), also found links between building age and student achievement and behavior. Clearly, there is consensus that newer and better school buildings contribute to higher student scores on standardized tests (Plumley 1978; Edwards 1992; Cash 1993), but just how much varies depending on the study and the subject area. For example, Phillips (1997) found impressive gains in math scores, but Edwards (1992), found much lower gains in social sciences.

5. Conclusion

Adequate utilization of Physical facilities by the schools is clearly the best avenue for better performance in KCSE exams. This study revealed that schools with adequate physical facilities had a superior academic advantage over those with few or little physical facilities. Most principals of schools indicated that the physical facilities are a critical locus for students' inter-personal and educational development. The findings from the HODS have showed that the nature of the physical facilities whether new or old had a powerful influence on how well pupils achieve a wide range of educational outcomes. Thus, the layout of classroom, space, furniture arrangement, the position of the pupils in relation to lighting, windows and chalkboard would have influence on the schools performance in KCSE exams. Hence, this study strongly indicated that there was significant impact of physical facilities on teaching-learning atmosphere. This study concluded that the presence of physical facilities influenced the performance of students in the four years of study and this impacted on their performance in schools. However due to utilization of the available Physical Facilities the study concluded that most schools did not utilize their use well hence this led low in performance which was a problem of their management and not availability.

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