

Influence of Instructional Resources on Secondary School Students' Academic Performance in Makueni County, Kenya

1. Ms. Ruth Mwili Kimeu; B.Ed M.Ed, PhD (Candidate)

P.O. Box 66 - 90132, Sultan Hamud, Kenya

2. Prof. Edward Tanui

Maasai Mara University; Narok

3. Dr. Alex Ronoh

Maasai Mara University; Narok

Abstract

Instructional resources are important factors during the implementation of curriculum. They help the implementers to realize their goals and give guidance to the teaching-learning process which leads to realization of good students' academic performance and more so Makueni County. The declining performance of students in the county from mean grade C+ to a mean grade of C- in 2007–2010 was disturbing since many of them were to lose opportunities for further education, training and job placement. Factors such as environment, parental involvement and nature of schools have been highlighted as factors that influence students' academic performance but instructional resources have not been studied in Makueni County as factor which influences students' academic performance. Therefore the study sought to investigate on the influence of instructional resources on students' academic performance in Makueni County. The study adopted a descriptive survey research design with a sample of population 93 head teachers and 418 teachers, making a total of 511 respondents. Data was analyzed using quantitative and qualitative techniques. Based on the research findings, it was concluded that students' academic performance depended on teachers' reference books and guides, students' and teachers textbooks, charts, chalk boards and chalk, classrooms, and laboratory apparatus and chemicals as teaching and learning materials. The study recommended that for secondary schools to perform better academically in their KCSE there was need to equip the schools with the necessary teaching-learning materials. Also teacher-student's ratio should be considered.

Keywords

Instructional Resources, Academic Performance, Curriculum Implementation, Teaching-Learning Process, Teaching Materials

1. Background of the Study

For realization of good performance in a school, instructional resources must be put in place and used effectively in classroom practice. Todaro (1992), noted that the formal education system of a nation is the principal institutional mechanism used for developing human skills and knowledge. Education is, therefore, viewed as an indispensable catalyst that strongly influences the development and economic fortunes of a nation and the quality of life of its people. In this context, nations, organizations and individuals spend huge sums on the provision and consumption of education for the citizen. In many developing countries formal education is the largest industry and greatest consumer of public revenues (Todaro, 1992).

The priority of all countries, especially the developing ones, is to improve the quality of schools and the achievement of student's (De Grauwe, 2001) since learning outcomes depend largely on the quality of education being offered (Barro, 2006). Barro further noted that higher quality education fosters economic growth and development. Appropriate use of instructional resources is important factor or component during the implementation of curriculum which helps the implementers to realize their goals and guide them in the teaching-learning process in the classroom practice (Shiundu and Omulando, 1992). This factor is one of the most important ingredients that help the school systems to achieve their objectives and realization of good student academic performance in examinations. Education has been described as an important determinant of upward social mobility and eligibility for employment within the modern sector. Internationally, student's' scores in examination have been accepted and used as a proxy of achievements. Deolalikar (1999) argued that, the most important manifestation of schooling quality are literacy, measurable cognitive abilities and observable student's' academic performance.

Evidence from the World Bank and other international organizations on the quality of learning in the developing countries pointed out the importance of certain school inputs. Some of the inputs include teachers, classroom size and its environment, instructional materials such as textbooks and other reading materials as well as school buildings and facilities (Eshwani, 1996). The Kenya government policy also entails allowing a broad based participation in the provision of education with all the stakeholders taking responsibility for planning and implementation. In line with this policy direction is the decentralization of decision making and resource management to lower level structures with Ministry of Education (MOEST, 2008). In addition inadequate resources among others have lead to poor services hence undesirable performance in Kenya Certification of Secondary Education (KCSE) in public secondary schools. The teacher resource is one of the most important inputs to education system. Being focus of classroom instructional activities and curriculum delivery, teachers are critical determinants of the quality education offered. Teacher's effectiveness at all levels of education has an implication on student's' academic performance (Okumbe, 2001).

Despite realization of low performance in some parts of Kenya, many student's continue to perform poorly. This has been a persistent outcry from all educational stakeholders about this poor performance. As schools are about teaching and learning to realize good performance of student's and other activities are secondary to these basic goals. These basic goals can only be realized through proper utilization of learning resources. No matter how well staffed the school is, without appropriate learning materials, the basic goals of the school that is teaching and learning to realize good performance in a school can be seriously handicapped (Okumbe, 1999). It is on this background that the researcher in this study investigated on the influence of instructional resources on student's' performance in Makueni County in Kenya. It is observed that each institution has its pertinent problem which includes unavailability, under utilization, overcrowding and rapid rise of student's population, turnover of staff and inadequate

learning facilities including infrastructure. If these factors are poorly utilized they may affect student's academic performance but if properly used may enhance student's academic performance.

This study was necessitated by the fact that Makueni County was performing fairly with mean grade of C+ in 2003-2006 KCSE out of decline of 5.25 in 2005-2010 respectively. Based on university entry point of grade C+ this means, student's going to university from the county have reduced substantially from grade C+ year 2003-2006 to grade C- 2007-2010 and therefore this needs to be determined.

In Makueni County, secondary school student's' KCSE performance had been declining from 2007 to 2010 (County Director of Education, Makueni County 2011). The declining performance of student's in the county is disturbing since many of them were to lose opportunities for further education, training and job placement. This scenario has jolted the researcher's curiosity. As a result, the researcher saw the need to investigate how instructional resources have had an influence on secondary school student's' academic performance in Makueni County, Kenya in order to enhance understanding and suggest solutions to this problem.

The purpose of this study was to investigate the influence of instructional resources on secondary school student's' academic performance in Makueni County, Kenya. The general objective of this study was investigating the influence of instructional resources on secondary student's' academic performance in KCSE in Makueni County.

2. Research Methodology

In research design this study adopted descriptive survey research design. According to Kothari (2011) descriptive survey research design studies were designed to obtain pertinent and precise information concerning the current status, phenomenon and where possible to draw conclusions from the facts obtained. This study design therefore enabled the researcher to collect data more appropriately. This is the influence of selected factors that affects student's academy performance. Similarly, according to (Kothari, 2011) survey as a descriptive design is referred because:

- i) It enables the researcher to examine various data and the relationship between various other unknown situations in the circumstances.
- ii) It enabled the researcher to collect data from a wide area in a short time.

The research design was concerned with the present relationship of factors, the present processes taking place in the study area, the effects that were going on there at that particular time and attitudes held by the respondents that were being cross examined (Mugenda and Mugenda, 1999). However the research design required enough provision of information, protection against bias and maximized reliability therefore the procedures used were carefully planned (Kothari, 2001).

Target population included 930 public secondary schools in Makueni County. These includes seven national schools, 162 county schools and 762 sub-county schools. The target population were headteachers, teachers and Quality Assurance and Standard Officers. The headteachers in the national schools were seven and 178 teachers. Headteachers in county schools were 162 and 2037 teachers. Sub-county schools had 762 headteachers and 1965 teachers. Nine Sub- county Quality Assurance and Standard Officers from the nine districts that make up the Makueni County were targeted. Therefore, the total target population was 5119.

The Headteachers were vital in the study because they are instructional leaders and carryout supervision during the teaching-learning activities. They were directly involved in the provision of human resource and learning resources in the schools (Education Office Makueni County, 2012). The teachers were

chosen in the study because they are implementers of the curriculum and that they are involved in instructional supervision and leadership when organizing the learning experiences in the classroom which influence the students' academic performance.

The sample size according to Kothari (2011) 10 per cent of a target population for a study gives respondents who ensures representativeness, efficiency, reliability and flexibility in a study. Using simple random sampling procedure the researcher selected the sample size as follows. Two national schools were sampled, two headteachers, 18 teachers making a total of 20. In the county schools category, 16 schools were sampled, 16 headteachers, 200 teachers making a total of 216. Of Sub-county schools, 75 schools, 75 headteachers and 200 teachers were sampled, making a total of 275. Hence the total number of respondents chosen were 511.

Sampling procedure was used to ensure that various categories of public secondary schools were represented, the researcher employed stratified random sampling techniques to sample out the schools as follows: National schools, County schools and Sub-county schools. Two national schools, 16 County schools and 75 sub-county schools were systematically sampled. Simple random sampling enabled each subject to have an equal chance of inclusion in the target population. This technique was employed to determine the sample size where 10 per cent (Kothari, 2011) of the target population in each category of the public secondary schools was appropriate. Therefore the researcher determined the desired precision as an acceptable confidence level for the estimate (Kothari, 2011).

Research instrument used to facilitate data collection were questionnaires. There gathered information from Headteachers Questionnaire (HQ) and Teachers Questionnaire (TQ). The researcher chose the questionnaire because the participants were all literate, and therefore could read and respond to the items. Closed-ended questionnaires could be answered more easily and quickly by respondents (Ary *et al.*, 2006). Similarly, due to the large number of respondents, interviewing all of them would be unrealistic.

The questionnaire for the head teachers solicited information for personal data, educational and professional enhancement and his or her role and provision of instructional materials in relation to student's' academic performance. The information gathered was to be important in the investigation on the factors affecting student's' academic performance as the head teacher plays a major role in the instructional supervision in the school.

Piloting of instruments was conducted in two schools which were not among the sampled schools for the study selected randomly. In order to determine on validity and reliability of the instruments two headteachers and four teachers were involved in piloting. (Kothari, 2011). The results of the respondents from the piloted schools were to show if the instruments were valid, detected mistakes were modified and clear instructions given to respondents so as to avoid misinterpretation in the actual data collection.

To test instrument reliability, test-retest method the researcher made a comparison between answers obtained in the two piloted schools and the responses were consistent with the instrument, therefore deemed reliable. Pearson's Product Moment correlation formula for the test-retest was employed to compute the correlation co-efficiency in order to establish the extent to which the content of the questionnaires were consistent in eliciting the same responses every time the instrument was administered. The reliability yielded a coefficient of 0.728 for teachers' questionnaires and coefficient of 0.7831 for headteachers questionnaires. According to Orodho (2008) reliability of a coefficient above 0.7 can be accepted as reliable.

After collecting data the researcher organized the data to facilitate analysis. Data analysis was facilitated by use of SPSS (Statistical Version 17 Package for Social Scientist) computer package. The research questions elicited both qualitative and quantitative data which was analyzed using descriptive statistics and Pearson's chi-square test to determine the association between the factors under study.

3. Results and discussions

Influence of Instructional Resources on Student's' Academic Performance

This sought to answer the study question on the influence of instructional resources on student's' academic performance. Resource endowment by any school could possibly be accounted by the teachers and head teachers in a school. In ascertaining the influence of instructional resources on student's' academic performance, the study relied primarily on the information provided by the teachers and head teachers.

Based on the head teacher's response on teachers reference books and guides, as a learning resource, the study showed that out of the 93 sampled schools, 73 (78 per cent) unanimous agreed that they were inadequate, while 20 (22 per cent) indicated they were adequate. When relating to K.C.S.E performance in Makueni County, 19 (20 per cent) of the sampled schools had a mean grade of C-, 68 (73 per cent) had C, five (5 per cent) had C+ and one (1 per cent) had an average of B- . Hence, it could be deduced that, the inadequacy of teachers' reference books and guides negatively affected student's academic performance as outlined in table 1.

Table 1: Headteachers responses on Teachers Reference Books and Guides

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	1	1	1	1	0	0	0	0	2	2
Adequate	2	2	13	14	3	3	0	0	18	19
Inadequate	16	17	53	57	2	2	1	1	72	77
Quite Inadequate	0	0	1	1	0	0	0	0	1	1
Total	19	20	68	73	5	5	1	1	93	100

$\text{Chi}^2(9)=7.813 \text{ Pr}=0.553$

In order to determine the association between teachers reference books and guides and student's academic performance, the researcher applied Pearson's Chi square test. A probability value of 0.55 was obtained for the headteachers response. This showed that according to the headteacher, teachers reference books and guides was not associated with student's academic performance were examined. The findings of teacher's response on teachers reference books and guides on student's academic performance. Out of the 418 sampled teachers, 278 (67 per cent) indicated inadequacy while 140 (33 per cent) indicated that they were adequate. From the sampled teachers, 85 (20 per cent) indicated that the mean grade in their schools was grade C- (minus), 306 (73 per cent) reported their school mean grade was C (constant), 23 (6 per cent) said their schools obtained a mean grade of C+ (plus) and four teachers had their schools having a mean grade of B- (minus) in the years 2007-2010. Therefore, based on teachers reference books and guides it was most likely that they affected student's academic performance in KCSE as in Table 2.

Table 2: Teachers responses on Teachers Reference Books and Guides

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	4	1	32	8	0	0	0	0	36	9
Adequate	15	4	86	21	2	0	1	0	104	25
Inadequate	62	15	170	41	21	5	2	0	255	61
Quite Inadequate	4	1	18	4	0	0	1	0	23	6
Total	85	20	306	73	23	6	4	1	418	100

$\text{Chi}^2 (9) = 21.7513 \text{ Pr}=0.01$

In ascertaining the influence of teachers' reference books and guides on student's academic performance, a Pearson chi square test was conducted on the teachers' responses, which yielded a probability value of 0.01. This showed that based on the teachers response, teachers reference books and guides had an influence on student's academic performance.

Based on the head teacher's response on student's textbooks, as a learning resource, the study revealed that out of the 93 sampled schools, 77 (83 per cent) unanimous agreed that they were inadequate, while 16 (17 per cent) indicated they were adequate. In relation to K.C.S.E performance in Makueni County, 19 (20 per cent) of the sampled schools had a mean grade of C-, 68 (73 per cent) had C, five (5 per cent) had C+ and one (1 per cent) had an average of B-. Hence, it could be deduced that, the inadequacy of teachers' reference books and guides negatively affected student's academic performance as outlined in Table 3.

Table 3: Head teachers responses on Student's' Textbooks

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	1	1	1	1	0	0	0	0	2	2
Adequate	1	1	10	11	3	3	0	0	14	15
Inadequate	17	18	55	59	2	2	1	1	75	81
Quite Inadequate	0	0	2	2	0	0	0	0	2	2
Total	19	20	68	73	5	5	1	1	93	100

$\text{Chi}^2 (9)=11.197 \text{ Pr}=0.262$

In order to establish the association between student's textbooks and student's academic performance, a Pearson's Chi square test was applied, where a probability value of 0.26 was realized from the headteachers response. This implied that according to the headteacher, student's textbooks were not associated with student's academic performance. The findings of teacher's responses on the effect of student's textbooks on student's academic performance were examined. Out of the 418 sampled teachers, 286 (68 per cent) indicated inadequacy while 132 (32 per cent) indicated that they were adequate. From the sampled teachers, 85 (20 per cent) point out that the mean grade in their schools was grade C- (minus), 306 (73 per cent) reported their school mean grade was C (constant), 23 (6 per cent) said their schools obtained a mean grade of C+ (plus) and four teachers had their schools having a mean grade of B- (minus) in the years 2007-2010. Therefore, based on student's textbooks it showed that they affected student's academic performance in KCSE as in Table 4.

Table 4: Teachers responses on Students' Textbooks

	Student's' Textbooks									
	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	3	1	29	7	0	0	0	0	32	8
Adequate	15	4	82	20	2	0	1	0	100	24
Inadequate Quite	63	15	179	43	21	5	2	0	265	63
Inadequate	4	1	16	4	0	0	1	0	21	5
Total	85	20	306	73	23	6	4	1	418	100

Chi² (9) = 19.985 Pr=0.018

To determine the influence of student's textbooks on student's academic performance, a Pearson chi square test was conducted on the teachers responses, which produced a probability value of 0.018. This implied that based on the teachers response, student's textbooks determined student's academic performance. Similar finding was supported by Fuller (1986), Tanner and Tanner (2007), and Peters (2009).

Charts were also used as instructional resource. Based on the head teacher's response on availability of charts, as a learning resource, the study showed that out of the 93 sampled schools, 75 (80 per cent) unanimous agreed that they were inadequate, while 18 (19 per cent) indicated they were adequate. When relating to K.C.S.E performance in Makueni County, 19 (20 per cent) of the sampled schools had a mean grade of C-, 68 (73 per cent) had C, five (5 per cent) had C+ and one (1 per cent) had an average of B-. This implied that, the inadequacy of charts affected student's academic performance negatively as outlined in Table 5.

Table 5: Head Teachers responses on charts

	Head Teachers responses on charts									
	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	0	0	1	1	0	0	0	0	1	1
Adequate	2	2	12	13	3	3	0	0	17	18
Inadequate	7	8	25	27	1	1	0	0	33	35
Quite Inadequate	10	11	30	32	1	1	1	1	42	45
Total	19	20	68	73	5	5	1	1	93	100

Chi² (9) = 8.3032 Pr=0.504

In order to determine the association between charts and student's academic performance, the researcher applied Pearsons Chi square test. A probability value of 0.50 was obtained for the headteachers response. This showed that according to the headteacher, charts were not associated with student's academic performance.

The findings of teacher's response on charts on student's academic performance were shown. Out of the 418 sampled teachers, 312 (75 per cent) indicated inadequacy while 106 (26 per cent) indicated that they were adequate. From the sampled teachers, 85 (20 per cent) indicated that the mean grade in their schools was grade C- (minus), 306 (73 per cent) reported their school mean grade was C (constant), 23 (6 per cent) said their schools obtained a mean grade of C+ (plus) and four teachers had their schools

having a mean grade of B- (minus) in the years 2007-2010. Therefore, based on charts availability it portrayed that they affected student's academic performance in KCSE as in Table 6.

Table 6: Teachers responses on charts

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	5	1	18	4	0	0	0	0	23	6
Adequate	8	2	73	17	1	0	1	0	83	20
Inadequate	67	16	196	47	22	5	2	0	287	69
Quite Inadequate	5	1	19	5	0	0	1	0	25	6
Total	85	20	306	73	23	6	4	1	418	100

Chi² (9) = 20.2541 Pr = 0.016

A Pearson chi square test was conducted on the teachers responses to ascertain the influence of charts on student's academic performance. A probability value of 0.016 was produced, clearly showing that based on the teachers response, charts had an influence on student's academic performance.

Another factor for instructional resource was chalkboard and chalk. The study from the head teacher's response on chalk boards and chalk, as a learning resource, showed that out of the 93 sampled schools, 60 (65 per cent) agreed that they were inadequate, while 33 (35 per cent) indicated they were adequate. When relating to K.C.S.E performance in Makueni County, 19 (20 per cent) of the sampled schools had a mean grade of C-, 68 (73 per cent) had C, five (5 per cent) had C+ and one (1 per cent) had an average of B-. Hence, it could be deduced that, the inadequacy of chalk boards and chalk negatively affected student's academic performance as outlined in Table 7

Table 7: Head Teachers responses on Chalk Boards and Chalk

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	2	2	4	4	0	0	0	0	6	6
Adequate	4	4	19	20	4	4	0	0	27	29
Inadequate	11	12	38	41	1	1	0	0	50	54
Quite Inadequate	2	2	7	8	0	0	1	1	10	11
Total	19	20	68	73	5	5	1	1	93	100

Chi² (9) = 15.7932 Pr = 0.071

In order to determine the association between chalk boards and chalk and student's academic performance, the researcher applied Pearsons Chi square test. A probability value of 0.071 was obtained for the headteachers response. This indicated that according to the headteacher, chalk boards and chalk was associated with student's academic performance.

The findings of teacher's response on chalk boards and chalk on student's academic performance showed that, out of the 418 sampled teachers, 292 (69 per cent) indicated inadequacy while 126 (30 per cent) indicated that they were adequate as in Table 8. From the sampled teachers, 85 (20 per cent) indicated that the mean grade in their schools was grade C- (minus), 306 (73 per cent) reported their

school mean grade was C (constant), 23 (6 per cent) said their schools obtained a mean grade of C+ (plus) and four teachers had their schools having a mean grade of B- (minus) in the years 2007-2010. Therefore, based on chalk boards and chalk it was likely that they affected student's academic performance in KCSE.

Table 8: Teachers responses on Chalk Boards and Chalk

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	4	1	29	7	0	0	0	0	33	8
Adequate	13	3	77	18	2	0	1	0	93	22
Inadequate	64	15	174	42	21	5	2	0	261	62
Quite Inadequate	4	1	26	6	0	0	1	0	31	7
Total	85	20	306	73	23	6	4	1	418	100

$\text{Chi}^2 (9) = 20.7644 \text{ Pr} = 0.014$

To determine the influence of chalk boards and chalk on student's academic performance, a Pearson chi square test was carried out on the teachers responses, which gave a probability value of 0.014. This showed that based on the teachers response, chalk boards and chalk had an influence on student's academic performance.

Instructional resource factor on laboratory apparatus and chemicals were also tested. Based on the head teacher's response on laboratory apparatus and chemicals, as a learning resource, the study showed that out of the 93 sampled schools, 81 (87 per cent) unanimous agreed that they were inadequate, while 12 (13 per cent) indicated they were adequate. When relating to K.C.S.E performance in Makueni County, 19 (20 per cent) of the sampled schools had a mean grade of C-, 68 (73 per cent) had C, five (5 per cent) had C+ and one (1 per cent) had an average of B-. Hence, it could be deduced that, the inadequacy of laboratory apparatus and chemicals negatively affected student's academic performance as outlined in Table 9.

Table 9: Head Teachers responses Laboratory Apparatus and Chemicals

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	1	1	0	0	0	0	0	0	1	1
Adequate	2	2	7	8	2	2	0	0	11	12
Inadequate	4	4	28	30	2	2	1	1	35	38
Quite Inadequate	12	13	33	35	1	1	0	0	46	49
Total	19	20	68	73	5	5	1	1	93	100

$\text{Chi}^2 (9) = 12.2908 \text{ Pr} = 0.197$

In order to determine the association between laboratory apparatus and chemicals and student's academic performance, the researcher applied Pearsons Chi square test. A probability value of 0.197 was obtained for the headteachers response. This showed that according to the headteacher, laboratory apparatus and chemicals was not associated with student's academic performance.

The findings of teachers' response on laboratory apparatus and chemicals on student's academic performance were examined. Out of the 418 sampled teachers, 316 (76 per cent) indicated inadequacy while 102 (24 per cent) indicated that they were adequate. From the sampled teachers, 85 (20 per cent) indicated that the mean grade in their schools was grade C- (minus), 306 (73 per cent) reported their school mean grade was C (constant), 23 (6 per cent) said their schools obtained a mean grade of C+ (plus) and four teachers had their schools having a mean grade of B- (minus) in the years 2007-2010. Therefore, based on laboratory apparatus and chemicals it showed that they affected student's academic performance in KCSE as shown in Table 10.

Table 10: Teachers responses Laboratory Apparatus and Chemicals

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	0	0	13	3	0	0	0	0	13	3
Adequate	11	3	76	18	1	0	1	0	89	21
Inadequate Quite	18	4	53	13	2	0	1	0	74	18
Inadequate	56	13	164	39	20	5	2	0	242	58
Total	85	20	306	73	23	6	4	1	418	100

Chi² (9)=19.5664 Pr=0.021

In ascertaining the influence of laboratory apparatus and chemicals on student's academic performance, a Pearson chi square test was conducted on the teachers responses, which yielded a probability value of 0.021. This showed that based on the teachers response, laboratory apparatus and chemicals had an influence on student's academic performance.

Another factor for instructional resource was laboratories. Based on the head teacher's response on laboratories, as a learning resource, the study showed that out of the 93 sampled schools, 60 (64 per cent) unanimous agreed that they were inadequate, while five (5 per cent) indicated they were adequate. When relating to K.C.S.E performance in Makueni County, 19 (20 per cent) of the sampled schools had a mean grade of C-, 68 (73 per cent) had C, five (5 per cent) had C+ and one (1 per cent) had an average of B-. Hence, it could be deduced that, the inadequacy of laboratories negatively affected student's academic performance as outlined in Table 11.

Table 11: Head Teachers responses Laboratories

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Adequate	1	1	2	2	2	2	0	0	5	5
Inadequate	4	4	12	13	1	1	0	0	17	18
Quite Inadequate	10	11	32	34	0	0	1	1	43	46
Not Applicable	4	4	22	24	2	2	0	0	28	30
Total	19	20	68	73	5	5	1	1	93	100

Chi² (9)=16.4486 Pr=0.058

In order to determine the association between laboratories and student's academic performance, the researcher applied Pearsons Chi square test. A probability value of 0.058 was obtained for the

headteachers response. This showed that according to the headteacher, laboratories was associated with student's academic performance.

The findings of teacher's response on laboratories on student's academic performance were examined. Out of the 418 sampled teachers, 336 (81 per cent) indicated inadequacy while 82 (20 per cent) indicated that they were adequate. From the sampled teachers, 85 (20 per cent) indicated that the mean grade in their schools was grade C- (minus), 306 (73 per cent) reported their school mean grade was C (constant), 23 (6 per cent) said their schools obtained a mean grade of C+ (plus) and four teachers had their schools having a mean grade of B- (minus) in the years 2007-2010. Therefore, based on laboratories it was likely that they affected student's academic performance in KCSE as in table 12.

Table 12: Teachers responses Laboratories

	5 (C-)		6 (C)		7 (C+)		8 (B-)		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Quite Adequate	1	0	14	3	0	0	0	0	15	4
Adequate	7	2	58	14	1	0	1	0	67	16
Inadequate Quite	35	8	106	25	12	3	1	0	154	37
Inadequate	42	10	128	31	10	2	2	0	182	44
Total	85	20	306	73	23	6	4	1	418	100

Chi² (9)=13.5633 Pr=0.139

4. Conclusion

This study adopted a descriptive survey research design. The sample for the study was 93 headteachers and 418 teachers making a total of 511. Data was analyzed by use of descriptive statistics and Pearson's chi-square test. The study revealed that student's academic performance in KCSE was influenced by instructional resources like chalk boards and chalk, student's textbooks, teachers textbooks, classrooms, laboratories apparatus and chemicals. Based on the findings of the study, it was concluded that

- Students' academic performance depended on teachers' reference books and guides, students' and teachers textbooks, charts, chalk boards and chalk, classrooms, and laboratory apparatus and chemicals as teaching and learning materials. The presence of staff room, classrooms, dormitories, chairs, and laboratories as physical facilities in school influenced student's academic performance.
- Ensuring student's had the necessary materials for learning and revision of any difficult areas as observed in evaluation significantly affected student's academic performance.

5. Recommendation

As well based on the findings of the study, the following recommendations were made:

For secondary school student's to perform better academically in their KCSE examinations, there is need to reduce the number of lessons a teacher had per week, which could be achieved by employing more secondary school teachers. In addition, the head teachers ought to encourage and support teachers to attend seminars, since while in attendance, they would gain additional insights on better teaching techniques from the interactions and sharing with other teachers.

References

- Ary, D., *et al* (2006). *Introduction to research in education* (7th ed.). Canada: Thomson Wadsworth Publishers.
- Barro R. (World Bank, 2006). Education and development: Quality counts. Retrieved September, 14th 2008 from: <http://www.worldbank.org/education/pdf/Education>
- Bogler, P. R. (2001). *The influence of leadership style on teacher job satisfaction*. Education Administration. Quarterly volume 3 (75).
- De Grauwe, A. (2001). *Supervision in four African countries: Challenges and reforms* Vol. I. Paris: IIEP/UNESCO
- Eshiwani G. S. (1984). *Factors influencing student's performance among secondary schools student's*. A Policy Study Nairobi. BER Kenyatta University College.
- Eshiwani G. S. (1996). *Improving access to education, utilization of instructional resources and examination*. Mimeo: Kenyatta University.
- Eshiwani, G.S (1983). "The System of Education in Kenya", A working paper, Bureau of Educational Research (BER): Kenyatta University College, Nairobi.
- Fullan M. (2001). *The new meaning of educational change*. 2nd Ed. New York: Teachers College Press.
- Fuller, B (1986). *Raising School Quality in Developing Countries; What Investments Boost Learning?* Washington DC: World Bank Discussion Papers.
- Kothari C. R. (2011). *Research Methodology, Methods and Technology*. 2nd Ed. New Age. New Delhi: International Publisher Ltd.
- Leithwood K. & D. Jantzi (2000). *The Effects of Transformational leadership on organizational conditions and student Engagement with school*. Journal of Educational Administration Quarterly 38 (2) 112-129.
- Ministry of Education (1997). *School Management Guide*: Nairobi: Jomo Kenyatta Foundation.
- Mugenda , O. M. and A.G. Mugenda (1999). *Research Methods Quantitative and Qualitative Approaches*. Nairobi: Acts Press.
- Okumbe J.A (1999). *Educational Management Theory and Practice*. Nairobi: University of Nairobi Press.
- Okumbe J.A. (2001). *Human Resources Management: An Educational Perspective*: Nairobi. E.D & R.B
- Oluoch G. P. (1972). *Education for Development. An Analysis of Investigation Choices*. Washington DC. Oxford University Press.
- Orodho J. A. (2008), *Elements of Education and Social Science Research Methods*. Nairobi:
- Shiundu J.S. and S.J. Omulando (1992). *Curriculum theory and practice in Kenya*. Nairobi: Oxford University Press.
- Sifuna D. N. (2003). "How can the National Education and Training Structure lead to the attainment of National goals in Kenya?" National Conference on education and Training p.g 67 www.education.go.ke March, 2006.
- Tanner D. & L. Tanner (2011). *Curriculum Development Theory and Practice*. 4th ed. Upper Saddle: New Jersey.
- Tanner L. (1998). *Critical Issues in Curriculum*. National Society for the Study of Education. Chicago: University of Chicago Press.
- Todaro, M. P. (1992). *Economics for a developing world: An introduction to principles, problems and policies for development* (2nd ed.). Burnt Mill, UK: Longman Group Ltd.