IMPLICATIONS OF FUNDING PRACTICES ON ADEQUACY OF TEACHING LEARNING MATERIALS AND LEARNERS ACADEMIC ACHIEVEMENT IN PUBLIC SECONDARY SCHOOLS IN KENYA

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Abstract

Funding has implications on the quality of education of which teaching learning resources are an integral part. The study purposed to establish any association if there be between adequacy of teaching learning resources as well as utilisation with learners' academic achievement. The study was undertaken in 36 out of a target population of 252 public secondary schools in Bungoma County, Kenya. The study found out that funding practices had a moderate and high association with the provision of adequate teaching learning resources. It also established that utilisation of the teaching learning resources had a moderate and high association with learners' academic achievement. The perceived funding level had direct association with learners' academic achievement. The implication being that funding practices have to ensure adequate provision of teaching learning resources which have to be utilised in the instructional process to realise positive learners' academic achievement.

Keywords: Adequate teaching learning resources, Funding Practices, Learners' academic achievement, Utilisation of teaching learning resource

1.0 Introduction

The education system in Kenya has been examination oriented whereby passing of examinations is used as a criterion for performance (Reche et al, 2012 and Odhiambo, 2008). This calls for adequate funding towards the provision of teaching learning resourses which have been found to have a positive impact on academic performance (Ufonabasi & Nsimeneabasi, 2020; Sisungo, Kaberia & Buhere, 2012; Sherlock, 2011). Provision of good quality education requires adequate physical facilities such as classrooms, laboratories and libraries which are acquired through the available funding resources in schools (Ufonabasi & Nsimeneabasi, 2020; Mucai, 2013). This makes funding a key aspect in the provision of education (Mbatia, 2004). Studies conducted in several countries have shown that resource allocation affects students' academic achievement in public schools, (Lumuli, 2009). World Bank (2012) concurs that depending on the context and under the right conditions, increasing inputs that are in scarce supply can lead to a high marginal return on the learning process. Poor performance in science in public schools in Africa has been attributed to inadequate good instructional materials, equipment, facilities and lack of qualified teachers (Anyadiegwu, 2018; Adebisi, Tewogbade & Olajide, 2017; Owolabi, 2012). According to Kurgat (2014), National schools which admit top performing primary school graduates across the nation

have better facilities as compared with provincial and district schools and as such post better learner academic achievement.

Schools in Kenya are under pressure to improve academic performance (MOEST, 2005). According to Lipsd et al (2008), many people are of the view that spending more on education correspondents to academic achievement. World Bank report on education recommends for the investment in outputs that most effectively affect student learning achievement (World Bank, 2008). Julia Gillards who is the chair the Global Partnership for education affirms that if spending on education was efficient, then the world would not have such low learning outcomes (World Bank, 2018). Verspoor (2015), alludes that secondary education does not contribute effectively to human capital development as it should which is manifested in low learning achievement due to funding practices that are unable to promote student learning achievements.

A research on the relationship between funding and academic achievement has shown that schools with a higher revenue base performed better than those whose income was low (Kurgat, 2014). This means that a school with a strong economic base and enough resources is capable of providing facilities for curriculum implementation. World Bank (2018), asserts that, as much as educational resources are necessary, they may not be sufficient to produce higher levels of student learning especially in excessive large classes of more than 60 students.

1.1 Funding and availability of Learning Resources

Adequate and proper allocation of funds greatly influences the success of curriculum implimentation process, (Usman, 2016; Shiundu and Omulando, 1992). Okumbe (1998) notes that, in order to meet educational costs there is need for relevant stakeholders to allocate the available funds objectively. Abayomi and Olukayode (2006), assert that learning resources in schools are a key component in education because learning takes place best through exploration, discovery and interaction with the internal and external environments. Munda and Odebero (2014), argues that the attainment of education related millennium goals in Kenya are mainly dependent on the availability and the correct use of funding resources to acquire supportive inputs for the learning process. Some of the indicators of quality education according to Global Education Monitoring Report (2012) include availability of textbooks and teacher pupil ratios.

According to Department for International Development (DFID) in (DFID, 2007) the most important ingredients in improving student performance include availability of Teaching and Learning Materials and well trained, prepared, supervised and motivated teachers. According to Oluoch (2011), for a curriculum to be implemented efficiently, relevant and good quality materials such as text books should be provided. There is also need to provide a varied of instructional materials to allow for flexibility in the teaching and learning process in order to improve learners' academic achievement. Research by Reche et al (2012) notes that text books enable the learners to follow the teacher's sequence of presentation of syllabus context and as a result aids them in understanding of lessons, hence better learner's academic achievement. Similar sentiments are held by Masimo and Zaru'a (2016) who assert that educational input in the form of materials and human resources greatly improves the quality of learning which can be translated into students' grades.

Research conducted in the former Rift Valley province revealed that schools equipped with adequate and relevant learning resources performed better in National examinations than schools with inadequate learning resources (Kurgat, 2014). This implies that resource shortage hinders

instruction and therefore lower student performance. Facilities such as effective school Libraries provide additional reading opportunities for students which in turn improve their reading skills, comprehension, writing and clarity of expression hence enhancing their performance in all other curriculum subjects. Books provide the basis for what is taught in the classroom and how teaching is done (GPE 2014). Waswa, Wangia and Waudo (2020) reiterate the importance of learning resources when they allude that the intended curriculum cannot be easily implemented without the necessary materials which should be adequate and of good quality. Educational outcomes in schools are linked to utilization and adequacy of teaching and learning resources (Anyadiegwu, 2018; Adebisi, Tewogbade & Olajide, 2017; Obinna, 2012; Adeogon, 2001).

2. Methodology

The study employed the descriptive survey design. The target population consisted of 252 public secondary schools in Bungoma County, Kenya of which 36 constituted the study population. Stratified sampling was employed to ensure representation of all sub-counties in the county and all categories of public secondary schools. Of the selected schools, the principals, bursars and heads of academic departments (HoDs) were respondents in this study. The County Director of Education was also a respondent in this study. The study employed questionnaires, structured interview schedules and document analysis as instruments of data collection. A Pearson correlation was used to determine the possibility of existence of any relationship between variables of the study.

3.0 Results and discussion

The results are discussed in terms of determinants of allocation of funds and perceived funding level in relation to adequacy of teaching learning resources, utilisation of resources and perceived funding in relation to learners' academic achievement.

3.1 Determinants of allocation of funds and adequacy of teaching learning resources

The study applied Pearson Product Moment Correlation to establish any association between the funding practices and the provision of teaching learning resources and findings are present in table 1.

	aimig resources						
	Factors of funds al	llocation	er of stude nt's textbo	er of teach er's guide	Teach ing resour ces	Stude nt exerci se books	e facilit ies capac
1	School's strategic	Pearson Correlation	.696(**)	.687(**)	.715(**)	.751(**)	.693(**)
	plan	Sig. (2-tailed)	.000 182	.000 182	.000 182	.000 182	.000 182
2	Departmental budget	Pearson Correlation	.793(**)	.715(**)	.607(**)	.731(**)	.795(**)
	C	Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182
3	The school's priorities	Pearson Correlation	.604(**)	.689(**)	.548(**)	.667(**)	.637(**)
		Sig. (2-tailed) N	.000 168	.000 168	.000 168	.000 168	.000 168
4	The school's characteristics	Pearson Correlation	.721(**)	.735(**)	.714(**)	.787(**)	.823(**)
		Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182
5	The type of school	Pearson Correlation	.778(**)	.761(**)	.689(**)	.763(**)	.820(**)
		Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182
6	The school's unique needs	Pearson Correlation	.746(**)	.722(**)	.720(**)	.770(**)	.776(**)
		Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182
7	The school's staffing needs	Pearson Correlation	.684(**)	.634(**)	.572(**)	.673(**)	.620(**)
		Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182
8	The laws and Regulations on	Pearson Correlation	.779(**)	.791(**)	.730(**)	.827(**)	.851(**)
	funds allocation	Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182
9	Ministry of Education goals	Pearson Correlation	.649(**)	.649(**)	.666(**)	.743(**)	.671(**)
10	and priorities	Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182
10	Fairness and equity	Pearson Correlation	.739(**)	.745(**)	.620(**)	.792(**)	.697(**)
		Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182
11	Adherence to the National	Pearson Correlation	.598(**)	.632(**)	.498(**)	.699(**)	.715(**)
	Financing policy	Sig. (2-tailed) N	.000 182	.000 182	.000 182	.000 182	.000 182

Table 1: Correlation between determinant of funds allocation and adequate provision of teaching learning resources

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

From table 1 it can be observed that the use of the School's strategic plan in allocation of funds for school operations in Bungoma county had a significant statistical moderate positive association (0.696 at 0.000 two tailed significant level) with provision of Student's text books, moderate positive association (0.687 at 0.000 two tailed significant level) with provision of teacher's guides,

high positive association (0.715 at 0.000 two tailed significant level) with provision of teaching resource, high positive association (0.751 at 0.000 two tailed significant level) with provision of Student's exercise books and moderate positive association (0.693 at 0.000 two tailed significant level) with provision of storage facilities.

It was also found that the use of departmental budgets in allocation of funds to school operations in Bungoma county had a significant statistical high positive association (0.793 at 0.000 two tailed significant level) with provision of Student's text books, high positive association (0.715 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.607 at 0.000 two tailed significant level) with provision of teaching resource, high positive association (0.731 at 0.000 two tailed significant level) with provision of Student's exercise books and high positive association (0.795 at 0.000 two tailed significant level) with provision of storage facilities.

Based on table 1, the use of the School's priorities in allocation of funds for school operations in Bungoma county had a significant statistical moderate positive association (0.604 at 0.000 two tailed significant level) with provision of Student's text books, moderate positive association (0.689 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.548 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.667 at 0.000 two tailed significant level) with provision of Student's exercise books and moderate positive association (0.637 at 0.000 two tailed significant level) with provision of storage facilities.

From table 1, it was established that using the school's characteristic in allocation of funds for school operations in Bungoma county had a significant statistical high positive association (0.721 at 0.000 two tailed significant level) with provision of Student's text books, high positive association (0.735 at 0.000 two tailed significant level) with provision of teacher's guides, high positive association (0.714 at 0.000 two tailed significant level) with provision of teacher's guides, high positive association (0.787 at 0.000 two tailed significant level) with provision of Student's exercise books and high positive association (0.823 at 0.000 two tailed significant level) with provision of student's exercise books and high positive association (0.823 at 0.000 two tailed significant level) with provision of student's exercise books and high positive association (0.823 at 0.000 two tailed significant level) with provision of storage facilities.

From the findings of table 1, the use of the type of School as a determinant in allocation of funds for school operations in Bungoma county had a significant statistical high positive association (0.778 at 0.000 two tailed significant level) with provision of Student's text books, high positive association (0.761 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.689 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.763 at 0.000 two tailed significant level) with provision of teaching resources, high positive association (0.763 at 0.000 two tailed significant level) with provision of Student's exercise books and high positive association (0.820 at 0.000 two tailed significant level) with provision of storage facilities.

From results presented in table 1, the School's unique needs as criteria in allocation of funds for school operations in Bungoma county had a significant statistical high positive association (0.746 at 0.000 two tailed significant level) with provision of Student's text books, high positive association (0.722 at 0.000 two tailed significant level) with provision of teacher's guides, high positive association (0.720 at 0.000 two tailed significant level) with provision of teacher's guides, high positive association (0.770 at 0.000 two tailed significant level) with provision of teaching resources, high positive association (0.770 at 0.000 two tailed significant level) with provision of Student's exercise books and high positive association (0.776 at 0.000 two tailed significant level) with provision of student's exercise books and high positive association (0.776 at 0.000 two tailed significant level) with provision of storage facilities.

From table 1, basing on the School's staffing needs in allocation of funds for school operations in Bungoma county had a significant statistical moderate positive association (0.684 at 0.000 two tailed significant level) with provision of Student's text books, moderate positive association (0.634 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.572 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.673 at 0.000 two tailed significant level) with provision of Student's exercise books and moderate positive association (0.620 at 0.000 two tailed significant level) with provision of storage facilities.

According to the findings in table 1, the laws and regulations on allocation of funds for school operations in Bungoma county had a significant statistical high positive association (0.779 at 0.000 two tailed significant level) with provision of Student's text books, high positive association (0.791 at 0.000 two tailed significant level) with provision of teacher's guides, high positive association (0.730 at 0.000 two tailed significant level) with provision of teacher's guides, high positive association (0.827 at 0.000 two tailed significant level) with provision of Student's exercise books and high positive association (0.851 at 0.000 two tailed significant level) with provision of storage facilities.

Based on the findings of table 1, the ministry of education goals and priorities on allocation of funds for school operations in Bungoma county had a significant statistical moderate positive association (0.649 at 0.000 two tailed significant level) with provision of Student's text books, moderate positive association (0.649 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.666 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.666 at 0.000 two tailed significant level) with provision of teaching resources, high positive association (0.743 at 0.000 two tailed significant level) with provision of Student's exercise books and moderate positive association (0.671 at 0.000 two tailed significant level) with provision of storage facilities.

From table 1, fairness and equity in allocation of funds for school operations in Bungoma county had a significant statistical high positive association (0.739 at 0.000 two tailed significant level) with provision of Student's text books, high positive association (0.745 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.620 at 0.000 two tailed significant level) with provision of teaching resources, high positive association (0.792 at 0.000 two tailed significant level) with provision of Student's exercise books and moderate positive association (0.697 at 0.000 two tailed significant level) with provision of storage facilities.

Finally, the adherence to National Financing policy in allocation of funds for school operations in Bungoma county had a significant statistical moderate positive association (0.598 at 0.000 two tailed significant level) with provision of Student's text books, moderate positive association (0.632 at 0.000 two tailed significant level) with provision of teacher's guides, low positive association (0.498 at 0.000 two tailed significant level) with provision of teacher's guides, moderate positive association (0.699 at 0.000 two tailed significant level) with provision of teaching resources, moderate positive association (0.699 at 0.000 two tailed significant level) with provision of Student's exercise books and high positive association (0.715 at 0.000 two tailed significant level) with provision of storage facilities.

3.2 Perceived funding and adequacy of teaching learning resource

Imbovah et al (2018) asserts that inadequate teaching learning resources do negatively contribute to students' academic achievement. Adequate provision of the same requires adequate funding. In order to establish whether there was any association between the perceived funding level and the provision of teaching learning resources, the study used Pearson Product Moment Correlation on the responses by respondents on the two aspects whose findings are present in table 2.

		Number of student's textbooks	Number of teacher's guides	Teaching resources (Manila papers, Charts, Models, etc)	Student exercise books	Text books and equipment storage facilities capacity	Library facilities	Facilities in the science laboratories
Perceived Funding	Pearson Correlation	.389(**)	.280(**)	.239(**)	.349(**)	.406(**)	.494(**)	.493(**)
level	Sig. (2- tailed)	.000	.000	.001	.000	.000	.000	.000
	Ν	182	182	182	182	182	182	182

Table 2: Correlation between perceived funding with adequacy of teaching learning resources	Table 2: Correlation between	perceived	funding wi	ith adequacy	of teaching	learning resources
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** Correlation is significant at the 0.01 level (2-tailed).

From table 2 it can be observed that the perceived funding level in public secondary schools in Bungoma county had a significant statistical low positive association (0.389 at 0.000 two tailed significant level) with provision of Student's text books, little positive association (0.280 at 0.000 two tailed significant level) with provision of teacher's guides, little positive association (0.239 at 0.001 two tailed significant level) with provision of teacher's guides, little positive association (0.239 at 0.001 two tailed significant level) with provision of teaching resource, low positive association (0.349 at 0.000 two tailed significant level) with provision of Student's exercise books and low positive association (0.406 at 0.000 two tailed significant level) with provision of textbooks and equipment storage facilities capacity. There was a low (0.494 at 0.000 two tailed significance level) positive association between perceived funding level and adequate provision of library facilities and a low (0.493 at 0.000 significance level: two tailed) positive association between perceived funding level and adequate provision of science laboratory facilities.

3.3 Correlation between utilisation of teaching learning resources and learners academic achievement

According to Obinna (2012) and Etiubon and Udoh (2020) utilisation of teaching learning resources does significantly influences students' academic achievement. In order to get a clear understanding on the utilisation of resources and learners' academic achievement, the study employed Pearson's Correlation on its findings. The findings are presented in table 3.

	TT/11 1 1 1 1		learner's academic
	Utilised resources in the teaching le	achievement	
1	Resource persons	Pearson Correlation	.768(**)
		Sig. (2-tailed)	.000
		N D C L'	182
2	Field trips / excursions	Pearson Correlation	.589(**)
		Sig. (2-tailed) N	.010
		IN	182
3	Textbooks	Pearson Correlation	(200/**)
			.689(**)
		Sig. (2-tailed)	.000
		N	
		Ν	182
4	Computers	Pearson Correlation	.527(**)
	1	Sig. (2-tailed)	.000
		N	182
5	Teaching learning resources	Pearson Correlation	.829(**)
		Sig. (2-tailed)	.000
		Ν	182
6	Library facilities	Pearson Correlation	.548(**)
		Sig. (2-tailed)	.100
		N	182
7	Science laboratories facilities	Pearson Correlation	.754(**)
		Sig. (2-tailed) N	.000
8	Home science / agriculture room	N Pearson Correlation	182 .722(**)
0	Home science / agriculture room facilities	Sig. (2-tailed)	.722(44)
	lacinties	N	.010
		11	102

Table 3: Correlation between	n utilisation of selected	resources and learners	achievement
	i atmouton or beleeted	resources and rearners	ueine veinent

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

From table 3 it can be observed that the utilisation of resource persons in public secondary schools in Bungoma county had a strong significant statistical association (0.768 at 0.000 two tailed significant level) with learners academic achievement. Field trips / excursions utilisation had a strong significant statistical association (0.589 at 0.010 two tailed significant level) with learners academic achievement. It can also be observed that the utilisation of textbooks in public secondary schools in Bungoma county had a strong significant statistical association (0.689 at 0.000 two tailed significant level) with learners academic achievement. The utilisation of Computers in public secondary schools in Bungoma county had a strong significant statistical association (0.527 at 0.000 two tailed significant level) with learners academic achievement. Utilisation of Teaching learning resources in public secondary schools in Bungoma county schools in Bungoma county had a significant level) with learners academic achievement. Utilisation of Teaching learning resources in public secondary schools in Bungoma county had a significant level) with learners academic achievement. The utilisation of Teaching learning resources in public secondary schools in Bungoma county had a strong significant level) with learners academic achievement. From table 3, it can also be observed that the utilisation of library facilities in public secondary schools in Bungoma county had a strong significant statistical association (0.548 at 0.100 two tailed significant level) with learners academic achievement. The utilisation of facilities in the science laboratories in

public secondary schools in Bungoma county had a strong significant statistical association (0.754 at 0.000 two tailed significant level) with learners academic achievement. At the same time utilisation of home science / agriculture room facilities in public secondary schools in Bungoma county had a strong significant statistical association (0.722 at 0.010 two tailed significant level) with learners academic achievement.

It is noted that the utilisation of resource persons, field trips / excursions, textbooks, Computers, teaching learning resources, library facilities, facilities in the science laboratories and home science / agriculture room facilities had impact on academic achievement of learners. For them to be utilised they must have been procured. And to procure them, funds must have been allocated for the same.

3.4 Relationship between funding and learners academic achievement

Studies done in the past on the relationship between teaching learning resources and performance of learners by Likoko, Mutsotso & Nasongo (2013) and Mbaria (2006) indicated that teaching learning resources were higher in higher performing schools than in low performing schools and that there is a significant difference in resource availability between higher performing schools and low performing schools. These resources have to be provided from school finances. Availability of teaching learning resources therefore enhances the effectiveness of schools as they are the basic resources that bring about good academic performance among the students. Most of the principals interviewed from the schools that participated in this study indicated that the level of funding in line with the student population does influence the provision of teaching learning resources as well as providing for the teaching learning environment.

In order to get a better understanding of wether allocation of funds has influence on learners' academic achievement; the study made use of a scatter graph of mean percentage of KCSE score of learners and the perceived funding level from corresponding data from the 36 schools grouped according to the category of the schools. The findings are as presented in figure 4.3. The special school category were labeled starting with S_, national school with N_, extra county school with E_ and county and sub county school with C_.

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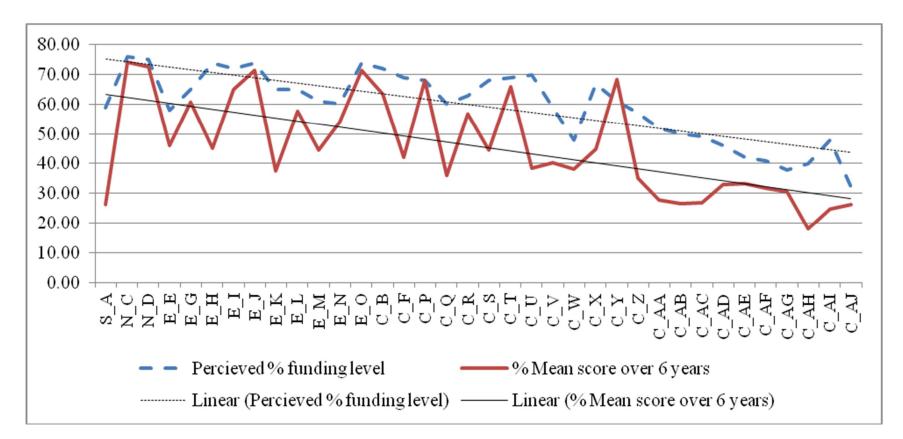


Figure 1: Association of funding level and percentage KCSE mean score

From figure 1, it can be observed that schools of the same category assumed to be funded to the same level had very different learners' academic achievement in terms of the Kenya Certificate Secondary Education (KCSE) mean score. From figure 1, it can be observed that the schools labeled starting with letter C_{_} (county and sub county schools) had very different scores over their range hence the curve not being the same. The extra county schools with labels starting with letter E_ also had very different scores over their range. These schools equally have different scores for learner's KCSE achievement. It is the same story with the two National schools that also have different scores for learner's achievement at KCSE yet they are presumed to be having same funding level. From figure 1, the lines for perceived percentage funding and mean score are not straight, the trend lines from them are straight and with a clear pattern in terms of their gradient. Both trend lines are straight and tend to be falling downwards as they move from the left to the right. From figure 1, it can be observed that special schools and National schools recorded higher perceived funding levels as compared to Extra County and County and Sub County schools with the last recording the lower most perceived funding levels. In general, the KCSE performance tended to have a direct linear relationship with the perceived funding level. This is in agreement with the findings of the study by Onderi, Kiplagat and Awino (2014) on factors that influences KCSE performance.

4 Summary

The study found out that determinant of funds allocation in schools has moderate and high association with adequate provision of the teaching learning resources. It is assumed that a learner who is exposed to more learning resources will achieve more than one who is hardly exposed to them. However the study generally established that the perceived funding level had either low or hardly any association with adequate provision with all the teaching learning resources.

Given in the order from highest to lowest, the utilisation of teaching learning resources, resource persons, facilities in the science laboratories, home science / agriculture room, textbooks, field trips / excursions, library facilities and Computers have an impact on academic achievement of learners. It is therefore important aside from ensuring utilisation to allocated funds accordingly to order of impact established above and procure the teaching instructional resources to enhance influence the learners' academic achievement.

The study established that perceived funding level had a positive association with the learners' KCSE achievement. It also established that provision of teaching learning resources had influence on the learners' performance in KCSE. Learning is fruitful when there are adequate teaching learning resources and where they lack it translates to poor academic performance by learners (Etiubon & Udoh, 2020; Adebisi, Tewogbade & Olajide, 2017; Okongo, Ngao, Rop & Nyongesa, 2015).

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