

Utilization of Textbooks and Its' Influence on Students' Academic Performance in Public Secondary Schools in Makueni County, Kenya

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Abstract

School resource utilization is important in the functioning of learning institutions as it enhances better achievement of school goals. There is evidence of poor performance in public secondary schools in Makueni County hence the reason to have conceptualized this study. The purpose of this study was to examine utilization of textbooks and their influence on students' academic performance in secondary schools in Makueni County. The objective of this study was to establish the level of utilization of textbooks and its influence on students' academic performance in county secondary schools in Makueni County. The study adopted a mixed methods research design, specifically a convergent parallel research design, and was supported by Education Production Function Theory. Research instruments were questionnaires and interview schedules. Validity was achieved through expert judgment and reliability by test-retest technique. The target population was 60 county secondary schools, 60 principals, and 1004 teachers. Simple random and stratified sampling techniques were used to select the schools while systematic and purposive sampling was used to sample teachers, HoDs, and principals. The selected sample was 30 county schools, 30 principals, and 286 teachers inclusive of HoDs. Total number of respondents was 316. Descriptive and inferential statistics (means, percentages, and multiple regression) and thematic analysis worked out the level of utilization of textbooks on students' academic performance. The findings showed that the utilisation of textbooks had a mean of 4.06, high correlation coefficient of 0.664. Multiple regression showed that textbooks strongly influenced learners' academic performance. Qualitative data revealed that effective utilization of textbooks positively influenced students' academic performance in county secondary schools in Makueni County. Major conclusion was that there was need to ensure effective utilisation textbooks resources in order to improve academic performance.

Keywords: *Utilization, textbooks, students' academic performance*

1. Introduction

Resource utilisation examines the effectiveness of the available resources within an institution and is expressed in a percentage (Kitowska, 2018). Resource utilisation is important in the functioning of schools because it ensures smooth running of operations and helps to reduce waste, it is key to ensuring projects' success, enhances better achievement of institutional goals, and is crucial in attaining quality students' school performance (Kapur, 2019). Resources utilisation in educational institutions is justified by both economic and social returns reaped from investment in education (Woodhall, 2004).

Education is globally acknowledged as a vital investment in human capital as it contributes to a country's wealth and the wellbeing of its citizens. It makes educated people make good decisions and is the cornerstone of both social and economic growth. According to Action Education (2022) investing a lot of money in educating the population is important in nurturing the next generations and is absolutely necessary in poverty reduction and helps to stop preventable ailments to a great extent. Investing in education is essential in enhancing the survival rates of mothers and children for the minority groups and vulnerable populations living in slums and remote areas. Some researchers have shown that approximately 420 million human beings could be raised from poor living standards if all adult people finished their education in secondary schools. Further, this lessens the total number of people living in poverty by three-quarters in the whole world. Moreover, one more year of schooling improves the earnings of the male population by not less than 10% and that of the female population by at least 20% (Action Education, 2022).

There are myriads of challenges experienced in majority of the developing nations that inhibit effective achievement of the Sustainable Development Goals and especially goal 4 in education, some of which include low enrolments, lack of adequate institutional resources, poor standards of education as well as low learners' academic performance (Clark, 2013). To minimize the provision of low-quality education in Sub-Saharan African countries UNESCO (2014) advocates that these challenges should be addressed by increasing access to educational institutions, and provision of adequate teaching and learning resources. The UNESCO (2015) in Sustainable Development Goal 4, urges countries to make sure that their people attain education of good quality and the opportunity for lifelong learning. Access to good quality education in children improves their welfare by making it possible to grow well, have successful lives, and develop with positive attitudes and capabilities. They gain authority to handle daily challenges and make informed decisions. According to the UNESCO (2015), Sustainable Development Goal 4, in one of the targets, reveals that education is a basic human right for everyone and by 2030, all countries should ensure that every child completes free equitable education with a high standard of basic education that contributes to improved academic outcomes. As they finish their basic education they attain good standards of ability and skills in linguistics and arithmetic. Therefore, there is increased demand for secondary education witnessed in many developing countries. For this reason, the issue of resource utilization in relation to academic performance becomes vital (UNESCO, 2011).

Globally, Education stakeholders and policymakers have overly continued to stress on how to improve both the quantity and quality of education provision. This new administration is comprehensively given considered Goal 6, of the Framework for Action embraced at the 'World Education Forum on Education for All (EFA)' which happened in Dakar, Senegal, in April 2000. Upgrading all matters of education quality and guaranteeing excellent performance of all learners, enables attainment of relevant and effective learning achievement by all, particularly in English, math, and basic life skills (UNESCO, 2000:43).

The Global Monitoring Report (2014) showed that the cost of 250 million learners in the whole world failed to achieve the minimum proficiency in learning, interpreting this as a loss of an approximate calculation of \$129 billion. Overall, 37 states were at a loss of approximately half the amount used on elementary education as pupils were failing to learn. On the contrary, information revealed that making sure there was inclusive, standard education for all learners, gave rise to very economically stable citizens and improved the state's gross domestic product per capita by 23 % in 40 years. The same information disclosed that to attain education of high value for every student, nations should supply adequately qualified instructors, besides paying special attention to teacher strategies that lead to achieving the needs and aspirations of the minority groups. This translated into selecting the most qualified applicants for the teaching profession; training them appropriately; and moving them to the countries where they are highly required. Moreover, rewarding teachers for creating create positive attitudes helped to prolong their commitment to the profession. The same information also called for the necessity to deal with violence against gender in learning institutions, a key obstruction to provision of inclusive and quality education. This also paid special attention to the plans that enhanced effective assessment and inclusion of all learners in learning (UNESCO, 2014).

1.1 Problem Statement

The Government of Kenya (GoK) (2007) asserts that under-utilization and over-utilization of resources exist side by side with several learning institutions with few registered learners and others with many registered learners. Researchers like PRLog (2012) have maintained that much research needs to be conducted on utilization of education resources and the quality of learners' academic outcomes in public secondary schools. As a result, this research was determined to ascertain if utilization of textbooks influenced learners' academic performance in Makueni public county secondary schools.

According to the Organisation for Economic and Cooperation and Development (OECD) (2021), provision of quality education in particular is a matter of supplying suitable professional expertise, gender equality, providing the right school physical facilities and instructional resources and awarding of schooling grants.

This tendency of students achieving dismal performance as shown by many secondary students in Kenya needed to be addressed, taking into consideration the high amounts of funding that have been allocated and utilised in the education sector. Therefore, it is from this proposition that this present research was put down to determine how utilization of textbook resources provided in schools could influence students' academic performance in public secondary schools in Makueni County.

1.2 Objective and Research Hypothesis

To establish the level of utilisation of textbooks and their influence on students' academic performance in county secondary schools in Makueni County.

H₀1. Utilisation of textbooks has no significant influence on students' academic performance in county Secondary schools in Makueni County.

2. Literature Review

2.1 Theoretical Framework

This study adopted Education Production Function Theory whose proponent is Samuel Bowles of 1970. Education production Function Theory states that there is a connection between the inputs provided in institutions of learning, which through some process, are related to the measure of the school outputs produced i.e., students' academic achievement. School inputs

that are considered in this study include textbooks. When these resources are exposed to certain processes and activities, the outputs produced are the function of the school environment, the suitability of the textbooks, the quality of the teacher resources, the quality of the teaching services provided including their qualifications and teaching experience, variables which represent the ability of students, entry behavior, influence of out of school factors and the period learners have used the inputs. This theory is linked to using different textbooks that give rise to a given set of school achievements (for example students finally acquiring educational success in examination results) (Harris, 2010). Thus, KCSE students' academic results improve after some length of time of effective utilisation of textbook resources.

2.2 Empirical Review

2.2.2 Utilisation of Textbooks and its Influence on Students' Academic Performance

Textbooks are books that carry in depth collection of topics of a particular field of study with the aim of giving its clarity. Textbooks are made to satisfy teachers' demands, normally at institutions of learning (Oxford Dictionary). These are the utmost remarkable features of an educational program and are frequently regarded as the leading autograph that moulds the processes of instruction (UNESCO, 2017).

According to UNESCO (2016) in the Global Education Monitoring Report, Policy Paper 23, reported that the measure of funds a nation uses on instructional inputs is a good symbol that it is committed to provision of a valuable education to all its citizens. Among the numerous instructional materials, this particular document's central attention is on textbooks, which are widely utilised in schools. Textbooks are particularly linked to enhancing students' academic performance in developing countries, which have congested classrooms, a large number of their educators not qualified, and limited teaching and learning hours. With committed and well-equipped instructors, alongside adequate textbooks which are designed with style are the most successful methods of increasing the quality of learning in our schools.

As shown by this document, every learner in various positions of learning, in a majority of states either do not completely possess any book or they need to use it widely with other students. Limitation of textbooks contributes to school pupils wasting a lot of their time writing notes from the display boards, or strongly minimizing their busy schedules of classroom studying. The high price of textbooks is a major hurdle that bars learners from possessing instructional materials needed in schools.

The standard of teaching and learning resources are important in the attainment of Sustainable Development Goal 4. This makes sure that all schools have the right instructional resources and the application of ICT technology is a major plan for achieving specifically target 4a. In accordance with the Education 2030 Framework for Action, 'schools and the set goals to be achieved must be satisfactorily and fairly expedient, including; textbooks, open materials for learning, instructional resources, and ICT technology resources that include all learners. Also, important include a suitable environment for learning, student- friendly within a particular framework, and affordable prices for every student – young children, middle-aged old-aged (Education 2030, 2016).

Bieke, Kim and Jan, (2019) in their study investigated whether textbooks influenced learner outcomes and the length of time in reading a passage in primary institutions in Belgium. The information of the Progress in International Reading Literacy Study 2016 and a reassessment of this research in the year 2018 revealed that learners' educational advancement in reading comprehension led to gradual improvement in commitment in both grade four and grade six. The sample size was 3051 learners among 98 learning institutions. The learners' average in

learning progress and commitment were correlated in five books using the multilevel auto-regression model and multilevel change score models. Several differences were noted in textbooks regarding average development in learning and assessment. For this variation to be minimal between student numbers and educated populations with varying textbooks, there was a control experiment for learners with different background levels, entry behaviour and language in grade four and level of the institution. The hypotheses were that textbooks had a positive relationship between engagement in reading and learning development. This depended on the writings and earlier (for the most part) investigation which narrated that school books play a vital role in the educational programs instructed to learners every day. The findings of the two models revealed that school books failed to influence the learners' mean advancement in learning by reading comprehension and progress in engagement in grade four and grade six, in Flanders. Therefore there was rejection of the hypotheses (Bieke, Kim and Jan, 2019).

This study by Bieke, Kim and Jan, (2019) was on utilization of textbooks in the length of time in reading comprehension and gradual improvement in commitment in both grade four and grade six encouraged the current study which was on utilization of several education resources and students' academic performance in Makueni County. A good number of researches have substantiated the important part played by textbooks in enhancing learners' academic performance to have been guided by policies in education. All learners in primary schools in Swaziland have been supplied with free textbooks since 2003 (SACMEQ, 2011). Further, nations like Nicaragua and Guatemala also established programmes for provision of schoolbooks without charges focusing mostly on the underprivileged (Porta and Laguna, 2007).

A programme on impact evaluation in aiding basic education in Ghana revealed that improvement in English and mathematics grades between 1988 and 2003 was slightly connected to the escalation of textbook accessibility (White, 2004). When learners, particularly the girls in South Africa did not share textbooks, they highly improved on reading tests (Zuze and Reddy, 2014).

A cross-country examination grounded on information from assessments in regions in 22 sub-Saharan African countries affirmed that teaching and learning resources, textbooks in particular for the key subjects of arithmetic and English, greatly enhanced instruction; supplying adequate textbooks in the ratio 1:1 to all learners in a class improved reading grades to between 5–20 percent (Fehrler *et al.*, 2009). In Cameroon, Burkina Faso, Madagascar, Senegal, and Côte d'Ivoire, when a few learners could read textbooks in the class, skills in reading of their classmates who lacked textbooks greatly grew because of increased sharing of content knowledge and motivation (Frolich & Michaelowa, 2011). World Bank research confirmed that the negative effect on learning was insignificant when shifting from two learners using one book to three students sharing one textbook (Fredriksen *et al.*, 2015). The study conducted in South Africa by Veriava, (2015) agrees with this study which revealed that a negative effect on learning achievement was experienced when textbooks sharing among learners was high. Textbook utilisation became more effective when a learner used his or her textbook as this learner got adequate time to digest all the necessary information with ease. However, research by Fredriksen *et al.*, (2015) was not in agreement with the current study as it showed that there were other factors like content knowledge and motivation that influenced academic achievement despite having students sharing textbooks in a ratio of 1:1.

According to GoK (2019) in Kenya Basic Educational Statistical Booklet, the provision of high standards of education in Kenya is highly influenced by low learner-textbook ratios. The textbook supply in Kenya was managed in two ways which were; procurement from the central government, dispersal by the MoE and through uniform per capita payment by the government

at the institutional level. In acquisition from the central government, the centre of interest was on mathematics and reading textbooks as they provided the basic skills in learning. The Learner textbook sharing in primary learning institutions at 1st, 2nd and 3rd Grades was almost 1:1 for the core subjects, literacy and mathematics subjects (Kiswahili, English and Mathematics). In Classes 7 and 8, each learner made use of his or her book in primary schools, Utilisation of textbooks to pupils above the ratio of 1:1 was because predictions were made with the number of learners in the preceding classrooms.

Bearing in mind that distinct areas across the globe have diverse features and dissimilar systems of education and various elements influence education differently in different zones. However, different education results are achieved at different learning levels. Several publications have been surveyed mostly on utilisation of textbooks and their influence on the academic performance of students which have been conducted by use of various research plans and procedures. The findings showed that high contrasts existed from one area to another around the Globe. Although great differences have been reported, there was a correlation between textbook utilisation and students' academic performance in majority of the surveyed literature. Therefore, the above literature was reviewed to determine the degree to which utilization of textbooks influenced students' academic performance in public county secondary schools in Makueni County.

Based on Reche et al. (2012) many examinations are conducted in the Kenyan education sector and passing the examinations is a standard measure of good performance. Further, values achieved in learning such as high level of intellectual values, good grades, literary, cognitive abilities and transiting from one level to higher level of learning is a clear indication that educational resources are provided and quality education is achieved, the question remained; were these resources well utilised? However, it was hard to achieve quality education without effective use of quality education resources, which played a very vital part in the achievement of the goals of the schools.

3. Methodology

3.1 Research Design

The study adopted a mixed methods research design, specifically a Convergent parallel research design (Creswell, Plano Clark, Gutmann & Harrison, 2003, Tegan, 2021). Convergent parallel research design entails collecting and analyzing data using qualitative and quantitative techniques at the same time in one study and analysis done separately. The research results are then compared, integrated and interpreted so as to confirm and cross-validate findings within the study (Creswell, 2003). The purpose of using convergent parallel research design in the context of this study is, it yields distinct but complementary findings on that topic and gives a better understanding of solving the research problem. The main reason for using mixed methods research design was to corroborate and triangulate the study findings (Creswell & Clark, 2011, Tegan 2021). This method is suitable for this study because it enabled the research results to be compared, integrated, interpreted, and then triangulated.

The independent variable is utilisation of textbooks. The specific aspects of the independent variable included utilisation of textbooks. The dependent variable is students' academic performance, specifically the Kenya Certificate of Secondary Education (KCSE) results.

3.2 Target Population

The target population was all the public county secondary schools in Makueni County. The total number is 60. Teachers were 1004 and 60 principals. Mugenda and Mugenda (2003)

reported that the whole group from where a sample is selected in research is supposed to have known properties that can be generalized to all the other related populations.

Table 1: Sampled Respondents

No.	Category	Target Population	Sampled Population	Percentage
1	Principals	60	30	50
2	Teachers/ HoDs	1004	286	28.5
	Total	1064	316	29.7

The table 1 above shows the sampled respondents in county secondary schools in Makeni County. The total sample size was 316 respondents.

3.3 Research Instruments

The study used questionnaires, interview schedules and document analysis to collect data

4. Results and Discussion

4.1 Utilisation of Textbooks and its Influence on Students' Academic Performance

Data was obtained from the principals and teachers to investigate the utilisation of textbooks and students' academic performance. The objective was investigated by collecting information using both quantitative and qualitative data. Quantitative data were analysed using descriptive statistics such as means, percentages, standard deviation while in inferential statistics such as the multiple regression was used to predict the influence that exists between the independent variables (utilisation of textbooks) and the dependent variable (students' academic performance). Qualitative data were analysed by use of thematic analysis.

4.2 Teachers Responses on the Utilisation of Textbooks

Objective one was to determine the utilisation of textbooks and their influence on students' academic performance. This study sought to determine the utilisation of textbooks and students' academic performance. The level of utilization of textbooks among the selected secondary schools was assessed through the use of a Likert-itemed questionnaire which helped the respondents to rate the utilization of the textbooks in various subjects. Using the rating on a five-point Likert scale ranging from very highly utilized (5) to very low (1) for utilization, the level of utilization of the text books was gauged per subject. For easy interpretation and applicability in inferential analysis, the responses were converted into a continuous scale ranging from 1 to 5, where higher scores represented very high utilization, and vice versa. Table 2 presents the findings on utilization of

textbooks per subject's summarized in mean and standard deviation.

Table 2: Utilization of textbooks

Utilization of textbooks resources	of 5		4		3		2		1		Mean	SD Dev.
	N	%	N	%	N	%	N	%	N	%		
A English textbook 4	75	30	79	31.6	33	13.2	49	19.6	14	5.6	3.45	1.267
B Literature set book	106	42.4	66	26.4	24	9.6	53	21.2	1	0.4	3.85	1.154
C Kiswahili textbook 4	103	41.2	55	22.0	26	10.4	65	26	1	0.4	3.89	1.154
D Fasihi set Book	101	40.4	58	23.2	24	9.6	65	26	2	0.8	3.76	1.250
E Mathematics textbook 4	101	40.4	75	30	50	20	24	9.6	1	0.4	4.01	0.996
F Chemistry textbook 4	141	56.4	94	37.6	4	1.6	24	9.6	1	0.4	4.46	0.755
G Biology textbook 4	147	58.8	86	34.4	2	0.8	10	4.0	1	0.4	4.46	0.807
H Physics textbook 4	113	45.2	92	36.8	8	3.2	37	14.8	0	0.0	4.12	1.032
I C.R.E textbook 4	115	46	104	41.6	1	0.4	1	0.4	29	11.6	4.51	0.666
J History & government textbook 4	145	58.0	95	38	3	1.2	7	2.8	0	0	4.10	1.233
K Geography textbook 4	121	48.4	99	39.6	1	0.4	29	11.6	1	0.4	4.25	0.946
L Business studies textbook 4	125	50.0	64	25.6	21	8.4	40	16	0	0	4.10	1.104
M Agriculture textbook 4	106	42.4	66	26.4	24	9.6	53	21.2	1	0.4	3.76	1.235
Overall mean											4.06	1.046

Table 2 above reveals that although many counties secondary schools in Makueni County, have not attained textbook – a student ratio of 1:1, majority of them have fairly strong textbook - student ratios, as reflected by an overall mean of 4.06 with a standard deviation of 1.046. This implies that, on average, the textbook-students ratio among the sampled schools is slightly above 4:5, meaning that at least 80.0% of the students have a textbook in each of the subjects. This has been enhanced by the government’s review of the text book distribution policy that culminated in engagement of the publishers of duly approved textbooks to deliver the text books directly to the schools. This finding concur with Lepik’s (2015) study done in Estonia that revealed that majority of difficulties learners came across when doing exercises in class and home assignment were drawn from mathematics school books and that, mathematics

textbooks could be asserted to be very vital and widely utilised material for instruction and learners' learning resources. This was agreed by Hadar (2017) asserted that there existed a direct correlation between opportunities and learners' academic performance. In a similar opinion, Van den Ham and Heinze (2018), in their study conducted in German, alleged that the choice of mathematics educators' guides significantly affected the academic performance of students in mathematics subject. Therefore, effective utilisation of textbooks in all subjects influences performance in excellence performance among learners.

4.3 Principals' Response to Utilisation of Textbooks

The principals agreed that text books are widely used by both teachers and students. Student book ratio for the core subjects, languages, sciences (chemistry, biology, physics) and mathematics is 1:1. Presence of books gives students a chance to read them, do all the exercises in them without sharing, and use them during group discussions. This helps the learners enhance their reading skills, internalize their knowledge, and improve their school reading culture. In doing this they improve academically.

Some qualitative data from principals' interviews on the utilisation of textbooks and students' academic performance direct words were recorded from one of the principals who said this;

If there is a learning resource which is in plenty in schools are the textbooks that the government is supplying, they supply in excess of the current enrolment. So, the sharing is 1:1. Few learners share books, although, with subjects which are not core, the ratio of sharing is slightly higher. Our students have poor reading culture despite our efforts to encourage them to work hard. Hence many books continue to pile dust on the shelves (Principal 8).

This sentiment shows that textbooks are used regularly and this can improve students' academic success. The GoK (2019) in the MoE Basic Educational Statistical Booklet, the policy on student book ratio for the core subjects, languages, sciences (chemistry, biology, physics), and mathematics, the ratio of 1:1 student book sharing has been achieved in the majority of the public county secondary schools in the county. This finding agrees with (Mogaka, Kariuki, and Ogeta 2019) that making effective use of reference books positively enhances learner performance. These results concurred with Tornroos (2005) that information from Finnish TIMSS 1999, showed that textbook utilisation positively influenced the performance of students in the mathematics subject.

4.4 Influence of utilization of textbooks on students' academic performance in public secondary schools in Makueni County.

H01. *Utilization of textbooks had a significant influence on students' academic performance in public secondary schools in Makueni County.*

Research Objective 1 sought to establish the utilization of textbooks and their influence on students' academic performance in public secondary schools in Makueni County. This objective was also addressed by testing hypothesis 1 which stated that: Utilization of textbooks had a significant influence on students' academic performance in public secondary schools in Makueni County.

The hypothesis was investigated by use of the Chi-square (χ^2) test, at 0.05 level of significance and 1 degree of freedom. The Chi-square (χ^2) test is a statistical tool made to examine whether two categorical or nominal variables (utilisation of textbooks and students' academic performance) are independent of one another (McHugh, 2013).

If the p-value is smaller than 0.05 significance level the null hypothesis is rejected, as opposed to, if the p-value is greater than 0.05 level of significance, then the null hypothesis is accepted. The results are shown on table the below.

Table 3: Results of hypothesis 1

Independent variable	Hypothesis	Chi-sq. value	df	Chi-sq. p value	Sig. Value	Result	Decision
Utilization of textbooks	H02	31.90	10	0.000	0.05	0.000<0.05	H02: rejected

Table 3 above shows a chi-square test of independence computed comparing the frequencies of utilization of textbooks and students' academic performance in public secondary schools in Makueni County. A significant interaction of ($X^2(10) = 31.90, p < 0.05$) was found, implying utilization of textbooks affected students' academic performance in public secondary schools in Makueni County. Therefore, the null hypothesis was rejected and the alternative one accepted that there was a significant influence between utilization of textbooks and students' academic performance in Makueni County public secondary schools.

However, to estimate the level of influence of utilization of text books on student's academic achievement, a coefficient of determination was computed using the regression analysis and the result was as shown in Table 4.

Table 4: Model Summary on Regression Analysis of Influence of Utilization of Text books on Student's Academic performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.815 ^a	.664	.650	.63512

Predictors: (Constant), textbook utilization

Table 4 above shows the model summary reveals that the level of utilization of text books accounted for 66.4%, as signified by coefficient $R^2 = .664$, of the variation in students' academic performance. This finding implies that variation in the level of utilization of text books explained about 66.4% of the variability in students' academic performance. This infers that other factor not studied in this objective contributed to 33.6% of students' academic performance in the county.

This therefore meant that there are other factors other than utilization of textbooks that contribute to students' academic performance in the county.

To check how well the sample data fitted in the regression model, *F* value was obtained. The model summary of ANOVA was shown in table 5.

Table 5: Goodness of Fit Summary for utilization of textbook Resources

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167.352	9	18.595	46.098	.000 ^b
	Residual	84.708	210	.403		
	Total	252.061	219			

- Dependent variable: School mean in 2022 KCSE

Predictors: (Constant), Agriculture textbook utilisation, Chemistry textbook utilisation, History textbook utilisation, Biology textbook utilisation, Fasihi textbook utilisation, Geography textbook utilisation, Business studies textbook utilisation, C.R.E textbook utilisation, Mathematics textbook utilisation.

Table 6: Multiple Regressions on utilization of textbook resources and students' academic performance

Coefficients ^a		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	.090	2.220		.041	.968
	Fasihi textbook utilization	.373	1.409	.287	.265	.791
	Mathematics textbook utilization	.680	1.332	.728	.510	.611
	Chemistry textbook utilization	-.396	.447	-.364	-.885	.377
	Biology textbook utilization	-1.343	.527	-1.191	-2.548	.012
	C.R.E textbook utilization	2.247	1.565	1.466	1.435	.153
	History textbook utilization	-.201	.208	-.171	-.968	.334
	Geography utilization	1.408	.420	.902	3.352	.001
	Business studies utilization	-1.484	1.829	-1.076	-.812	.418
	Agriculture utilization	-.392	1.731	-.351	-.227	.821

Dependent Variable: School mean in 2022 KCSE

The standard beta coefficients in Table 6 above indicated that utilization of mathematics textbooks explained 72.8% of the variation in student performance holding the other factors constant. Utilization of chemistry textbook explained 36.4% of the variation in student performance holding the other factors constant. Utilization of Biology textbook explained 119.1% of the variation in student performance holding the other factors constant. Utilization of the Geography textbook explained 90.2% of the variation in student performance holding the other factors constant. Utilization of CRE textbook explained 146.6% of the variation in student performance holding the other factors constant. Utilization of Agriculture textbook explained 35.1% of variation in student performance holding the other factors constant. Utilization of history textbook explained 17.1% of variation in student performance holding the other factors constant.

The table also deduced that when the utilisation of Fasihi textbook increased by 1 unit, the academic performance (Y) increased by 1.273 units (0.090+0.373). When the utilisation of Mathematics textbook increased by 1 unit, the academic performance (Y) increased by 1.58 units (0.090+0.680). When the utilisation of Chemistry textbook increased by 1 unit, the academic performance (Y) increased by 0.504 units (0.090-0.396). When the utilisation of Biology textbook increased by 1 unit, the academic performance (Y) increased by 2.243 units (0.090+1.343). When the utilization of CRE textbooks increased by 1 unit, the academic performance (Y) increased by 3.147 units (0.090+2.247). When the utilization of History textbook increased by 1 unit, the academic performance (Y) increased by 0.699 units (0.090-0.201). When the utilization of Agriculture textbook increased by 1 unit, the academic performance (Y) increased by 0.507 units (0.090-0.393).

This study adopted Education Production Function theory by (Bowles 1970) which relates school inputs to the measure of outputs produced in terms of test scores. The theory explains how the students' academic performance was influenced by utilisation of textbooks. The variables here include the amount and quality of teaching services, the physical facilities of the school, and the period the student was exposed to these inputs. In the model, a certain transformation took place in schools, that by use of the textbooks through certain processes and activities of teaching and learning, an achievement in academic results was produced. From the findings, it was revealed that utilisation of textbooks influenced students' academic performance. From the results of hypothesis one, a significant interaction was found ($X^2(10) = 31.90, p < 0.05$), the p-value (0.000) was less than 0.05, therefore there was a positive influence between utilisation of textbooks and students' academic performance in public secondary schools in Makueni County.

4.5 Summary

The study sought to determine utilisation of textbooks and their influence on the students' academic performance in Makueni County. The summary of the findings of the study are presented according to the objectives. The findings revealed that the majority of the study respondents agreed that there is a high utilization of textbooks in county secondary schools with a Mean of 4.06, SD=1.046). This is from the teachers' responses. According to the Likert scale rating, a mean of 1.0-2.9 is termed as low, 3-3.9 is rated as moderate, 4.0-5.0 is high, and a mean of 3.5-5.0 is termed as high. Therefore, a mean of 4.06 is high in the utilisation of textbooks among the candidates in county secondary school in Makueni County. Utilization of textbooks had a strong positive influence on students' performance ($X^2(10) = 31.90, p < 0.05$). The R square value of 0.664 represents a simple correlation. It indicated a relatively strong degree of correlation. The adjusted R Square value of 0.650 indicated how much of the dependent variable, "students' performance", could be explained by utilization of textbooks. In this case 66.4% of student's performance variability could be explained to be as a result of utilization of textbooks in public county secondary school in Makueni County. The R square and adjusted R squared had minimal difference, implying that utilization of textbooks resources predicated students' performance. That meant that 33.6% of the variation in student performance could not be explained by utilization of textbooks. This infers those other factors other than utilization of textbooks resources influenced the academic performance of the students in the county. Hypothesis 1 which stated that utilization of textbooks resources had no significant influence on students' academic performance in public secondary schools in Makueni County, was tested using chi-square (χ^2) test at 0.05 significant level at 1 degree of freedom. The results revealed that a significant interaction was found ($X^2(10) = 31.90, p < 0.05$), the p-value (0.000) was less than 0.05, therefore the null hypothesis was rejected and the alternative hypothesis accepted that there was a positive significant influence on utilization of textbooks resources and students' academic performance. Thematic analysis indicated that there was high utilization of textbooks in public secondary schools in Makueni County.

5. Conclusion

The findings confirmed that utilisation of textbooks in public secondary schools in Makueni County had a statistically significant influence on students' performance. The conclusion is that textbooks are highly utilised in county secondary schools. This was deduced by both teachers and principals in county secondary schools in Makueni County.

6. Recommendations for Policy and Practice

In this section recommendations are made according to the findings and conclusions from the analysis of the data collected in the study, the following recommendations are suggested:

Though textbooks are highly utilised, there was a need for donors, corporates and the Ministry (MoE) to devise more ways to improve the utilisation of the available textbooks to improve performance at KCSE in public secondary schools in Makueni County.

A similar study to be conducted on utilisation of text book resources in private schools to investigate the same objectives.

References

- Bowles, S. (1970). *Towards an Educational Production Function*. URL: <http://www.nber.org/chapters/c3276>. (p. 11 - 70). Chapter pages in book: (p. 11-70). Harvard University.
- Clark, D. (2013). *Childhood Antisocial Behaviour and Adolescent Alcohol Use Disorder*. New York. University of Pittsburgh.
- Creswell, J.W., Plano Clark V.L., Gutmann M.L., and Hanson W.E. (2003). *Advanced Mixed-Methods research designs*. In A. Tashakkori & Teddlie (Eds.), *Handbook of Mixed Methods in Social and Behavioral Research*, TO, Sage. Denzin.
- EFA Global Education Monitoring Report Team (2005). *Education for all: the quality imperative*; EFA Global Monitoring Report, 2005. Corporate author: Global Education Monitoring Report Team [952]. ISBN: 978-92-3-103976-8, 92-3-103976-8.
- GoK, (2016) *Basic Education Statistical Booklet*, Nairobi. Ministry of Education, Kenya.
- GoK, (2019) *Basic Education Statistical Booklet*, Nairobi. Ministry of Education, Kenya.
- KUCCPS, (2019) *Kenya Universities and Colleges Central Placement Service*.
- Lamas, H.A. (2015). *School Performance*. Vol.3, No (1): pp. 313-386. doi <http://dx.org/10.20511/pry2015.v3n1.74>. ISSN 2307-7999
- Mugenda, O.M. and Mugenda, D. (2012). *Quantitative and Qualitative Approaches*, Nairobi. ACTS Press Company Limited.
- OECD, (2008). *Education at a Glance 2008: OECD Indicators*. ISBN: 9789264046283 Publication: 9/9/2008 www.oecd.org/edu/eag2008.
- OECD, (2013). *What makes schools Successful? Resource, Policies and Practices. Vol. 4. OECD Review of Policies to Improve the Effectiveness of Resource Use in Schools (School Resources Review) Design and Implementation Plan for the Review*.
- OECD, (2016), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264267510-en>.
- Ogunleye P. G. (2016). *Library Use and Students Academic Achievement: Implication for Counseling*. Librarian, University of Lagos, Nigeria. ISSN 2224-5758 (Paper) ISSN 2224-896X (Online) Vol.6, No.2, 2016. Information and Knowledge Management.
- Okeke, S. O. and Okoye, N. E (2013). *Effective Resource Utilization: A Better Approach to Teaching and Learning of Physics*. Department of Physics. Federal College of Education (Technical) Umunze-Anambra State, Nigeria.

- Omariba, A., Ondigi, S. R. and Ayot, H. O. (2016). *Challenges Facing Teachers in Integrating Educational Technology into Kiswahili Teaching*. A Case of Selected Secondary Schools in Kisii County, Kenya. *International Journal for Innovation Education and Research*, 4(12), 23-39.
- PRLog, (2012). *Boarding School in Guateng with variety of Facilities*. Retrieved from (<http://www.prlog.org/>).
- UNESCO, (2011). *School Infrastructure and Resources do Matter: analysis of the incidence of School Resources on Performance of Latin American Students*. *School effectiveness and school Improvement*. 22(1), 29-50, 2011. Unesco.org. UNESCO.
- UNESCO, (2014). *Teaching and Learning: Achieving Quality for All*. *EFA Global Monitoring Report 2013/2014*. Paris: UNESCO. Retrieved on [www. UNESCO.org](http://www.unesco.org), accessed on 26/05/2014
- UNESCO, (2015). *Education for All by 2015: will we make it? Initiatives to improve the quality of teaching and learning*. unesco.org.
- Usman, Y. D. (2016). *Educational Resources: An Integral Component for Effective School Administration in Nigeria*. Federal Road Safety Commission (FRSC) RS4.35 Nassarawa Eggon Unit Command, Nasarawa State, Nigeria. Vol.6 (No. 13).
- Woodhall, M. (2004). *Cost-Benefit Analysis in Educational Planning*. UNESCO-Digital Library. 4th Ed. –IIEP.