

Availability and Utilization of Textbooks on Students' Academic Achievement in Public Day Secondary Schools

Malach Mogire Mogaka, Samson Ikinya Kariuki (PhD) and Norbert Ogeta (PhD)

Kenyatta University, Kenya

Abstract: - The study intended to investigate availability and utilization of textbooks on students' academic achievement in Public day secondary schools in Kisii County, Kenya. The concern was why the decline in students' academic achievement in public day secondary schools in Kisii County when the government of Kenya is funding all public secondary schools through the Free Day Secondary Education (FDSE) program. The study was guided by the production function model of education. The study adopted a correlational research design which involved students and teachers from the 246 public day secondary schools in Kisii County. The target population was 24266 participants comprising of 21843 form four students and 2,423 teachers in public day secondary schools in Kisii County. The sample size of this study was selected using on-proportionate sampling, systematic random sampling and purposive sampling techniques. Non-proportionate sampling technique was used to sample schools, systematic random sampling technique was used to sample students while teachers were sampled using purposive sampling technique. The Yamane simplified formula was used to calculate the sample size. The sample size was therefore 401 students and 25 teachers totaling to 426 subjects. Data collection was done by use of student questionnaire (SQ) and Teachers Interview Schedule (TIS). The data collected were both quantitative and qualitative. Quantitative data were analyzed using inferential statistics, Pearson's Product Moment Correlational Coefficient analysis and multiple regression. Qualitative data were analyzed thematically and were reported as direct quotations. Findings from the analyzed data were presented as tables, figures and graphs. The study found out that school resources needed for teaching and learning were available in public day secondary school in Kisii County. The study revealed that availability and utilization of textbooks, had a relationship with students' academic achievement.

Key Words: Availability, Utilization, Textbooks, Academic Achievement.

I. INTRODUCTION

Teaching and learning resources comprise of three basic components namely; human resource, physical facilities and material resources. Material resources include textbooks, set books, all classroom equipment such as desks, chairs, chalkboards, all laboratory equipment and library resources. Noordin et al.(2010) opined that teachers have a role of creating a conducive learning environment for children by making their lessons exciting using the available teaching and learning resources such as textbooks, real objects and other

reference materials. Students with an enthusiastic teacher have a greater interest in learning and try to search for more knowledge.

A study on textbooks and school library provision in secondary education in Sub-Sahara Africa by Wold Bank (2008), revealed that there was a serious shortage of textbooks and libraries services and at the same time, there was uneven distribution of these resources. On the same note, Asiabaka (2008) carried out a study on effective management of schools in Nigeria and noted that, disparity in acquisition of school facilities among schools was due to failure of the government to formulate a policy directive on minimum standards of school facilities. This is why some schools had adequate school resources such as well equipped libraries and other teaching and learning materials while others had poorly equipped libraries and insufficient teaching and learning materials. In this same vein, Olaniyan and Ojo (2008) noted that one of the factors hindering successful implementation of introductory technology in Nigerian secondary schools was lack of textbooks and training manuals.

The study by USAID (2010) on availability of textbooks in Ethiopia found out disparities among regions in terms of availability of textbooks and other reading materials. In relation to students' academic achievement, the study considered mother tongue reading scores prior to grade 4. While the study by USAID (2010) considered mother tongue reading scores prior to grade 4, the current study was concerned with availability and utilization of textbooks and how this relate to students' academic achievement in public day secondary schools.

Attakumah (2015), found that student-textbook ratios stood at 1:0.58, 1:0.55 and 1:0.71 for Core English Language, Core Mathematics and Integrated Science respectively. The study that textbook supply to senior high schools was irregular as the books were not supplied annually or biannually, but at planned intervals, and as such, schools did not know when they were due to receive textbooks. There was a significant relationship between core subject textbook availability and public senior high school academic achievement in the core subjects on the West African Secondary School Certificate Examination. Core subject textbook availability showed 80.3% of the variation in public senior high school academic

achievement in the core subjects on the West African Secondary School Certificate Examination. There was a significant difference between the academic achievement of public senior high schools that had relatively high student-textbook ratios and the academic achievement of public senior high schools that had low student-textbook ratios.

The Ministry of Education Science and Technology, MOEST (2010) explains the importance of ensuring that there are adequate and appropriate resources for teaching and learning so that educational programmes could be implemented effectively. The adequacy of teaching and learning resources determines the success or failure of the education system. Students' academic achievement is one of the methods of determining the extent of teacher's adequacy. Adan (2011) in the study on challenges faced by head teachers in implementing Free Day Secondary Education program in Wajir, reported that the main concern of education in the district was inadequacy of school physical facilities. The only adequate materials available at the time of that study were textbooks. The study continued to argue that most schools in the district were in dire need of facilities like classrooms, chairs, desks, laboratories, toilets as well teaching aids. The study recommended that, to address the problem of provision of teaching and learning resources a larger percentage of Free Day Secondary Education funds should be diverted to cater for teaching and learning resources. Although the study by Adan (2011) disagrees with availability and adequacy of other school facilities such as classrooms, toilets chairs and laboratories, it concurs with this study on availability and adequacy of textbooks. This study therefore concludes that textbooks needed for teaching and learning are available in public day secondary schools in Kenya.

II. METHODOLOGY

This study adopted a correlational research design. Salkind (2011), argues that a correlational research design describes a linear relationship between variables and that it does not imply a cause-and-effect relationship. It expresses the degree of linear relatedness between variables and shows the strength of relatedness. In this correlational research design, the study adopted an ex post facto research method. According to Cohen et al (2003), Ex post facto research is a method of teasing out possible antecedents of events that have happened and cannot, therefore, be manipulated by the investigator.

III. RESULTS

The level of availability and utilization of text books among the selected secondary schools was assessed through the use of Likert-itemed questionnaire which helped the student respondents to rate the availability and utilization of the text books in various subjects. Using the rating on a five point Likert scale ranging from very highly available (ratio of 1:1) to very low (ratio of 1:5) for availability and from very highly utilized (5) to very low (1) for utilization, the level of availability and utilization of the text books was gauged per subject. For easy interpretation and applicability in inferential

analysis, the responses were converted into continuous scale ranging from 1 to 5, where higher scores represented very high availability and utilization, and vice versa. Table 1 presents the findings on availability and utilization of text books per subject's summarized in mean and standard deviation.

Table 1: Text Book Availability and Utilization

Text Books	Availability		Utilization		Overall	
	Mean	SD	Mean	SD	Mean	SD
English text book 4	4.42	0.86	3.94	1.14	4.18	1.00
Literature set book	3.28	1.39	3.61	1.13	3.45	1.26
Kiswahili Kidato 4	4.37	0.91	3.99	1.06	4.18	0.99
Fasihi Set book	3.26	1.38	3.63	1.18	3.45	1.28
Maths text book 4	4.44	0.84	2.56	1.29	3.50	1.07
Physics text book 4	4.34	0.94	3.72	1.21	4.03	1.08
Chemistry text book 4	4.35	0.90	3.68	1.28	4.02	1.09
Biology text book 4	4.40	0.85	3.73	1.32	4.07	1.09
Geography text book 4	4.13	0.98	4.07	1.01	4.10	1.00
History and Government book 4	4.09	1.05	3.87	1.14	3.98	1.10
C.R.E. text book 4	4.04	1.09	3.92	1.11	3.98	1.10
Agriculture text book 4	4.10	1.05	4.08	0.98	4.09	1.02
Business studies text book 4	4.05	1.11	3.69	1.21	3.87	1.16
Mean availability and utilization	4.06	0.68	3.68	0.83	3.87	0.76

Source: Survey data (2018)

Table 1 reveals that although many day secondary schools in Kisii County, have not attained text book - student ratio of 1:1, majority of them have fairly strong text book - student ratios, as reflected by an overall mean of 4.06 with a standard deviation of 0.68. This implies that, on average, the text book-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 could be attributed to Free Day Secondary Education by the Kenyan government, where the schools have been receiving a significant portion of the capitation funds to buy textbooks. This has been enhanced by the government's review of the text book distribution policy that culminated in engagement of publishers of duly approved textbooks to deliver the text books directly to the schools. However, this ratio of availability of text books is not matched with their utilization, as reflected by mean average utilization level of 3.68 (SD=0.83). Whereas most of the schools have on average of four text books for every five students, the usage of these text books is only at 73.6% as interpreted from a mean of 3.68. This implies that despite the near adequacy, use of the text books is relatively low among most of the schools.

The study established that, on average, English Literature set books are shared in the ratio of about three to five, as

interpreted from a mean of 3.28 (SD=1.39). Fasihi set books are also equally few as reflected by a mean of 3.26 with a standard deviation of 1.38. This low availability of English Literature set books and Fasihi set books can be explained by the fact that these set books are not bought by the schools through FDSE as it is the responsibility of the parents to provide their children with set books. Mathematics and English text books are the highest available text books among secondary schools which were sampled for the study. This was reflected by the response of the students which revealed that close to nine out of ten (88.8%) of the students had a mathematics text book (mean=4.44, SD=0.84) and almost similar proportion (88.4%) of them had an English text book (mean=4.42, SD=0.86).

On utilization, it emerged that mathematics text books was rated the least utilized text book. Despite the fact that nearly nine out of ten of the students had a mathematics text book, their usage only stood at a mean of 2.56 (SD=1.29) in the scale of 1 to 5, implying that just about a half of the students and the teachers use the books as expected. On the other hand, text books for the selective subjects - Geography and Agriculture emerged to be highly utilized text books at a mean of 4.07 (SD=1.01) and 4.08 (0.98), respectively.

In overall, it was established by the results of the study that Kiswahili language, English language and Geography text books were highest in terms of availability and utilization at a mean of 4.18 (SD=0.99), 4.10 (SD=1.00) and 4.10 (SD=.99), respectively. On the flip flop, English literature (mean=3.45; SD=1.26) and Kiswahili Fasihi (mean=3.45; SD=1.28) were rated the least in the average availability and utilization. However, the relatively large standard deviation in both cases indicate that there is large variability in terms of average availability and utilization of these text books among the secondary schools in Kisii County.

These findings are in agreement especially on Fasihi set books with the study by Gaichu (2015), in which a majority of (65%.8%) indicated that there was inadequacy of Kiswahili learning resources. The findings of that study revealed that, among the respondents of the question on the relevancy of Kiswahili materials in their library gave out their explanations in two major perspectives; either the library had one type of Kiswahili material or the Kiswahili books that were in library were not enough. At the same time 34.2% of the respondents indicated that there were no relevant Kiswahili learning materials because the school was financially unstable to purchase Kiswahili materials. Majority of student who indicated that there were no Kiswahili materials in their school, were drawn from day schools.

Relationship between availability and utilization of text books and student academic achievement

H₀₁: *There is no statistically significant relationship between availability and utilization of text books and student's academic achievement in public day secondary schools in Kisii County...*

To investigate whether there was any statistical significant relationship between availability and utilization of text books and student's academic achievement, the null hypothesis was tested. A parametric test, Pearson Product Moment Correlation Coefficient was computed, with scores on availability and utilization of text books as the independent variable and student's academic achievement as the dependent variable. The level of availability and utilization of text books was computed from a frequency of responses and converted into a continuous scale, where high scale ratings implied high perceived level of availability and utilization of text books and vice-versa. Student's academic achievement for each respondent was obtained from the results of a common exams administered to them. The significant level (p-value) was set at .05. If the p-value was less than 0.05, the null hypothesis would be rejected and conclusions reached that a significant difference does exist. If the p-value was larger than 0.05, it would be concluded that a significant difference does not exist. Table 2 shows the correlation analysis results in SPSS output.

Table 2: Relationship between Availability and Utilization of Text books and Student's Academic Achievement

		Textbook Availability & Utilization	Academic Achievement
Textbook Availability & Utilization	Pearson Correlation	1	.531**
	Sig. (2-tailed)		.000
	N	377	377
Academic Achievement	Pearson Correlation	.531**	1
	Sig. (2-tailed)	.000	
	N	377	377

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

The finding of the study show that there was a statistically significant positive correlation ($r=.531$, $n=377$, $p<.05$) between availability and utilization of text books and student's academic achievement, with a high level of availability and utilization associated to a better students' academic achievement and vice-versa. Noting that the relationship is statistically significant, the hypothesis that, "*there is no statistically significant relationship between availability and utilization of text books and student's academic achievement*" was rejected. Therefore, it was concluded that there is a statistically significant positive relationship between availability and utilization of text books and student's academic achievement. This implies that for students' to have a high academic achievement there must be adequate and relevant text books.

However, to estimate the level of influence of availability and 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 3.

Table 3: Model Summary on Regression Analysis of Influence of Availability and Utilization of Text Books on Student's Academic Achievement

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.531 ^a	.282	.280	8.7970

a. Predictors: (Constant), Textbook Availability & Utilization

The model summary reveals that the level of availability and utilization of text books accounted for 28.2%, as signified by coefficient $R^2=.282$, of the variation in students' academic achievement. This finding implies that variation in the level of availability and utilization of text books explains about 28% of the variability in students' academic achievement. This infers that other factors not studied in this research contribute to 72% of students' academic achievement in the county. This therefore means that there are other factors other than availability and utilization of textbooks that contribute to students' academic achievement in the county. However, this is a fairly large influence on a dependent variable by one predictor. Hence, it reveals the importance of availability and appropriate utilization of text books in students' academic attainments

The findings of this study concurs with those of Alufohai (2016) in a study to examine the influence of school-based factors on Senior Secondary School Students' achievement in English Language in Edo State Nigeria. The study by Alufohai (2016) adopted a descriptive survey research design where Simple random sampling technique was used to select 40 English teachers and their 1504 senior secondary students. Data collected were analyzed using Spearman Brown Rank Correlation technique and the results revealed that teachers' use of instructional materials significantly influenced student's academic achievement in English Language ($p<0.01$). Bitamazire (2005), also reported that availability of textbooks and other instructional materials have a positive correlation on student's performance because they facilitate understanding of abstract concepts, directing attention, guide thinking, providing feedback and helping in class control.

IV. CONCLUSION

The study concludes that, although many public day secondary schools in Kisii County, have not attained text

student ratio, majority of them have fairly strong text book - student ratios. This could be attributed to Free Day Secondary Education by the Kenyan government, where the schools have been receiving a significant portion of the capitation funds to buy textbooks and subsequent government's review of the text book distribution policy that made the publishers of duly approved textbooks to deliver the text books directly to the schools. This notwithstanding, the near adequacy and use of the text books is relatively low among most of the schools, which could be the possible explanation for poor academic achievement among most of the public day secondary schools in Kisii County. Paradoxically, use of textbooks provide the students with opportunity to reflect and learn how to learn, hence, students with low exposure to textbooks hardly have a functional mastery of the knowledge and skills appropriate for quality academic attainments.

REFERENCES

- [1]. Adan, A. (2011). *Challenges encountered by head teachers in Implementing Subsidized day secondary education (FDSE) in Wajir District*, (Unpublished master's thesis). Kenyatta University, Kenya.
- [2]. Asiabaka, P.I. (2008). *The Need for Effective Facility Management in Schools in Nigeria*. Department of Education Foundations and Administrations, Faculty of Education, Imo State University Oweri, Nigeria. New York Science Journal; <http://www.sciencepub.org>. ISSN1544 -0200.
- [3]. Atakumah, D. (2015). *Relationship between Textbook Availability and Academic Achievement in Public Senior High Schools in the Volta Region*. August 26.
- [4]. Cohen et al. (2007). *Research methods in education*. (5thed.). London: Taylor & Francis Group
- [5]. MOEST, (2012). *Sessional Paper No. 1 2005 – Policy Framework for Education, Training and Research*. Meeting the Challenges of Education Training and Research in Kenya in the 21st Century, Nairobi.
- [6]. Noordin et al. (2010). Research efficacy among engineering and science Undergraduates. *Inter Forum on Engng.Edu*.
- [7]. Olaniyan, D. A. &Ojo, L. B. (2008). *Challenges against Implementation of Introductory Technology Curriculum in Nigeria Junior Secondary Schools*. European
- [8]. Salkind, N. J. (2011). *Statistics for people who think they hate statistics* (4th ed.). Thousand Oaks, CA: Sage.
- [9]. USAID (2010). Ethiopia Early Grade Reading study Data Analytic report: language and early learning. Ethiopia: Addis Ababa.
- [10]. World Bank: (2008): *Text Book and School Library Provision in Secondary education in Sub-Saharan Africa*. Washington, D.C: African Region Human Development Department.