

Adequacy and Quality of Teaching and Learning Resources provided by the Free Primary Education Programme in Public Schools in Ndaragwa Division, Nyandarua County, Kenya

Ndirangu Wahome Muthima

Department of Curriculum, Instruction and Educational Management, Egerton University, Njoro, Kenya

Mark Ndunda Mutinda

Faculty of Environment and Resource Development (FERD), Egerton University, Box 536-20115, Egerton, Kenya,
mutindamark@yahoo.com

Abstract

The study was designed to assess the adequacy and quality of teaching and learning resources provided to public primary schools within Ndaragwa Division of Nyandarua County by the tuition Free Primary Education (FPE) programme in Kenya. A cross-sectional survey design was employed to interview 130 class teachers and 23 head teachers who were purposively selected using structured questionnaires. Data was analyzed using descriptive and inferential statistics. The overall mean score (3.08) of the adequacy and quality of the teaching and learning materials was found to be significantly $p < 0.05$ higher than the set mean of 3 ($t = 2.03$, $df = 129$, $p = 0.044$), though a high variation was found to exist among the schools in the division ($SD = 0.956$, $CV = 31\%$) as some schools had low mean scores of 1.78 while others had high mean scores of 4.22. Five of the nine items supplied by the programme (relevant textbooks, blackboards, chalk, duster, and stationery for students) were found to be significantly $p < 0.05$ adequate and of high quality, while the remaining four (reference books, adequate class textbooks, resource centres, and equipment found in resource centres) were found to be inadequate and of low quality. The study concluded that: (i) the provision of the teaching and learning resources by the FPE programme was not uniform among the different schools in the division, (ii) the five items that were found to be adequate were not related to the number of students, (iii) four items were found to be inadequate as per the required standards. The study recommended that the schools create new ways of acquiring the items that were not adequate in their schools.

1. INTRODUCTION

Education is the cornerstone of the development process in a nation. While it increases the productive capacity of its constituent's individuals, education has an incremental effect on the society's aspirations in the economic, social-cultural and political realms. Countries around the globe have put up notable efforts to ensure the right of education for all, but despite these activities more than 100 million children worldwide have no access to primary education (UNESCO, 2002).

The realization of universal primary education in Africa has progressed well, increasing on the average from 54 % in 1990 to 60 % in 2002 (UNESCO, 2002). In Kenya during the same period (1990 -2002) the net enrollment ratio declined from 80 % to 74 % (MOEST, 2005). This decline was caused by the cost sharing policy introduced in 1980, where the Parents were required to cater for the cost of uniforms and teaching materials and the government to cater for the school infrastructure and the teacher's salary.

The Free Primary Education (FPE) policy introduced by the Kenya government in 2003 eliminated the payment of school fees in line with Millennium Development Goals (MDGs) of making primary education accessible to all (GoK, 2005). The initiation of the FPE increased the education budget by 46 % and the enrollment in primary schools from five to seven million (5-7 million) pupils in 2003 (GoK, 2005). This large increase in the number of students without the addition of resources in the schools affected the quality of education (UNESCO, 2005). This is because teachers in some cases are hard pressed to cope with large numbers of learners that had increased disproportionately without commensurate expansion of teaching and learning resources. As a result, some learners were forced to sit on the floor. This had adverse effects on the learning outcomes and teachers' morale in public primary schools (Thiong'o, 2006) creating a negative perception on the FPE by the teachers (Mugumo, 2005).

Teaching and learning resources influence pupils learning outcomes and enhance the morale of the teachers. In a study conducted in Papua New Guinea (Vulliamy, 1997), demonstrated that in a developing world context, the lack of the most basic facilities in schools not only lowers the staff and student morale

but also acts as an impediment to effective teaching and learning. This was confirmed by study by Lockheed and Verspoor (1991) who reported that the availability of textbooks and other instructional materials had a consistently positive effect on student achievement in developing countries. Urwick and Junaidu (1991) found that provision of textbooks, teaching aids and writing materials affected the quality schooling. According to Fuller and Heyneman (1989) teaching and related material inputs are linked directly to teaching and are related consistently to higher pupil achievement, after controlling for the influence of family background. According to Hallack (1990), textbooks are the instructional device par excellence, and central to teaching. Classrooms deprived of text books promotes little in the way of reading skills.

In Nyandarua county similar changes have occurred due to increased number of students leading to crowded classes, where schools have been forced to subdivide classrooms and build more classes to cater for the increased number of students in schools (GoK, 2008). The population of students in public primary schools in Ndaragwa division was reported to be 9,284, of which 4,753 were boys and 4,531 girls (GoK, 2008). With these increased numbers it is possible to experience the problems that were noted by UNESCO (2005) these problems were overstretched facilities, overcrowding in schools, inadequate teaching and learning resources and high pupil-teacher ratio. This is likely to affect the quality of teaching and learning in the division and by extension the morale of the teachers.

The study therefore sought to establish the level of adequacy and quality of teaching and learning resources under FPE in this division. In view of the foregoing, the expected gains from the free primary education programme are likely not to be fully realized or not realized if these challenges facing the FPE programme in reference to adequacy and quality of teaching and learning resources are not identified and subsequently addressed.

1.2. Statement of the problem

Free primary education was introduced in Kenya in 2003 in line with the Millennium development goals (MDGs) of making primary education to be accessible to all and to increase the number of students enrolled in primary schools by removing the policy of cost sharing that had been implemented in 1980 and which had reduced student enrollment in primary schools in the country. The FPE programme increased the total education budget by 46 % and total student enrollment in primary school by 71 %. These two changes created a challenge in the adequacy of student facilities and the increase in the number of students handled by a teacher (student: teacher ratio) affecting the quality of education in the country.

In Ndaragwa Division, the number of pupils has been increasing as well. However, it is not clear how the increase has affected the adequacy and quality of the teaching and learning materials supplied to public primary schools by the FPE in the division, which was the objective of this study.

1.3 Purpose and objectives of the Study

The study sought to determine the adequacy and quality of teaching and learning materials provided through the FPE in Ndaragwa division of Nyandarua County.

The specific objectives of the study were to:

- (i) assess the adequacy and quality of teaching and learning resources in public primary schools provided through the FPE

- (ii) compare the perceptions of the class teachers and the head teachers on the adequacy and quality of teaching and learning materials in primary schools.

2. METHODOLOGY

2.1. Study area

The study was carried out in Ndaragwa Division, Nyandarua County, Kenya. Geographically the division lies between latitude 0° 8' to the north and 0° 50' south and between 35° 13' E and 36° 42' E. It covers approximately 592.2km², which is about 0.02% of the whole County (GoK, 2008). Climatically the division has moderate temperatures the highest temperatures are recorded in the month of December, with an average of 21° C and the lowest in the month of July, with an average of 7.1° C. The rainfall in the area averages 500 mm per annum, which is suitable for agricultural production. Agriculture is the main occupation practised by 85 % of the population. Mixed farming is practiced by the farmers, where crops such as wheat, maize and vegetables are grown. Improved dairy breeds are also kept by the farmers.

The primary school going children provide the labour used on these farms, a situation that causes the farmers not to take their children to school (GoK, 2008), despite the government's effort to provide FPE in the Division.

2.2 Design and Data collection

The research used a cross-sectional survey design that used a structured questionnaire to collect data on the level of adequacy and quality of teaching and learning resources in public primary schools using a 5 point Likert scale.

2.3 Sampling and sample size

2.3.1 Population of the Study

The study population included all the public primary school head teachers and the class teachers of standard 1 up to standard 8 in the 23 schools located in Ndaragwa division. The population amounted to a teaching force of 298 Teachers with 176 female teachers and 122 male teachers (GoK, 2008). The schools are mainly single streamed, 18 of them located in the rural areas and 5 located in the towns.

2.3.2 Sampling Procedures and Sample Size

Purposive sampling was used to select 130 class teachers and all the 23 head teachers in public primary schools in Ndaragwa Division for this study. The head teachers and the class teachers were all working under the FPE programme, they were the most appropriate to provide the required information for this study.

2.4 Data Analysis

Data was analysed using descriptive and inferential statistics using the Statistical Package for Social Scientists (SPSS version 22). Frequency distributions and *t*-tests were used in the analysis of the data.

The head and class teacher's perception was used to assess the adequacy and quality of the teaching and learning resources provided for under the free primary education programme in Ndaragwa division. The respondents assessed the adequacy and quality using a five (5) point Likert scale (1=very inadequate to indicate lack of enough materials, 2=inadequate, 3=neither adequate nor inadequate, 4=adequate and 5=very adequate, to indicate satisfactory levels of the materials). The respondents assessed nine different teaching and learning resources, which included the following: (i) reference books, (ii) relevant class textbooks, (iii) adequate textbooks, (iv) blackboards,

(v) chalk, (vi) dusters, (vii) stationary, (viii) resource centre, and (ix) equipped resource centre based on the acceptable standards documented by the government (Ndege, 2008) and given in Table 1.

Table 1: Minimum Instructional Materials Requirements for Primary Schools in Kenya

LOWER PRIMARY (STANDARD 1-4)	
Basic pack of School Stationery	1 per student per year
Chalk 6 core textbooks	5 boxes per classroom per year 1 text book per 3 pupils in each standard
8 core teachers' guides	1 per subject per grade for each teacher
Supplementary Reading books	1 for every enrolled pupil
UPPER PRIMARY (STANDARD 5 – 8)	
Basic pack of School Stationery Chalk	1 per student per year 5 boxes per classroom per year
6 core textbooks	1 text book for 2 pupils in each class
8 core teachers' guides	1 per subject per grade for each teacher
Supplementary Reading books	1 for every enrolled pupil
Science Kit for Class 5 – 8	1 per school
Wall Maps of the world, Africa, East Africa and Kenya	1 per school
English Dictionary	1 per 6 pupils
<i>Kamusi</i> (Swahili dictionary) for standard 6 to 8	1 per 6 pupils
Atlas for standard 6 to 8	1 per 6 Pupils

Source: Primary School Instructional Materials management Handbook, 2004

In order to gauge the adequacy and the quality of the teaching and learning resources scores for each of the nine resources were added together to form a grand score, whose mean was determined and used for comparison. A set standard (mean of 3) was used as the dividing point between adequacy and inadequacy on a scale of 1 low to 5 high. The resulting means were compared for adequacy using the one sample *t*-test. Cronbach alpha a measure of internal reliability was used to assess the reliability of the combined scores.

3. RESULTS

3.1 Adequacy and Quality of Teaching and Learning Materials

The adequacy and quality of teaching and learning resources supplied to public primary schools in Ndaragwa division by the FPE programme was assessed by the class teachers using a 5 point Likert scale, the results are given in Table 2.

Table 2: Class Teachers' Perceptions on the Adequacy of Teaching and Learning Materials (n=130)

Teaching and learning materials	Very adequate (5)	Adequate (4)	Neither adequate nor inadequate (3)	Inadequate (2)	Very inadequate (1)
Reference books	0	0	6.9	70.0	23.1
Relevant class text books	33.8	13.1	15.4	30.0	7.7
Class text books adequacy	11.5	23.8	10.0	40.8	13.9
Blackboards	33.1	52.3	5.4	3.1	6.2
Chalk	48.5	31.5	6.2	4.6	9.2
Dusters	30.0	36.2	8.5	8.5	16.9
Stationery	31.5	16.2	9.2	17.7	25.4
Resource centre	13.1	26.2	15.4	27.7	17.7
Equipped resource centre	10.8	16.9	10.8	24.6	36.9

The results of teachers' perception on the adequacy and quality of the teaching and learning materials (Table 2), showed that a variation existed among the different items. The following teaching and learning items were found to be adequate: relevancy of class textbooks (46.9 %), blackboard (85.4 %), chalk (80 %), dusters (66.2 %), and stationery (47.7 %), while the following items were found to be inadequate: reference books (93.1 %), relevant class textbooks (68.6 %), resource centre (45.4 %), and equipment in the resource centres (61.5 %). The results indicate that a variation in the adequacy and quality of the items exists within the schools in the division. The items that are not related to the number of students such as blackboards, chalk, dusters, and stationery were found to be adequate as few items were needed for each class.

3.2. Overall assessment of the Adequacy and Quality of Teaching and Learning Materials

To determine the overall adequacy and quality of teaching and learning materials the teachers' perceptions were converted into scores and a mean score for each item was determined. The mean scores for each of the nine indicator items for the teaching and learning materials were compared with a set mean of 3 on a scale of 1 to 5 to indicate their adequacy using the one sample t-test, the results are given in Table 3.

Table 3: Mean Comparison of the Adequacy of Learning and Teaching Materials (n=130)

Teaching and learning materials	Mean	Std. dev.	t-value	p-value	Comments
Reference books	1.84	0.525	-25.20	.001	Significant
Relevant class textbook	3.14	1.207	1.380	.001	significant
Adequacy of class textbook	2.78	1.275	-1.925	.050	significant
Blackboards	4.03	1.033	11.368	.001	Significant
Chalk	3.93	1.079	9.829	.001	Significant
Dusters	3.68	1.341	5.820	.001	Significant
Stationary	3.03	1.391	.252	.025	significant
Resource centre	2.89	1.330	-.923	.035	significant
Equipped resource centre	2.40	1.406	-4.864	.001	Significant
Overall (Grand) Mean	3.08	0.956	2.03	.044	Significant

The overall mean of the adequacy and quality of teaching and learning materials was 3.08, which was found to be significantly $p < 0.05$ higher than the set mean of 3 ($t=2.03$, $df 2$, $p=.044$). A high variation in the adequacy and quality of teaching and learning materials was realized ($SD = 0.956$, $CV= 31\%$) indicating that the provision of teaching and learning materials under the FPE programme in the different schools was not the same as some of the schools had very low mean values (1.78) while others had high values (mean of 4.22).

In assessing the different items related to the teaching and learning materials, a high variation in their adequacy and quality was found to exist. The following four items were found to be significantly $p < 0.05$ inadequate and of low quality: reference books, adequate class textbooks, resource centres, and equipment found in resource centres. Five of the nine items assessed were found to be significantly $p < 0.05$ adequate and of high quality, they included: relevancy of class textbooks, blackboards, chalk, duster, and stationery.

The five items that were found to be adequate (relevancy of class textbooks, blackboards, chalk, duster, and stationery) were not related to the number of students in the class, they were items that could be used by many students in one class, such as the blackboard.

3.3. Comparison between class teachers and head teacher's perceptions

The head teachers' perceptions on the adequacy and quality of the teaching and learning materials were compared with those of class teachers interviewed for this study. The comparisons were done in order to determine any existing differences in the assessment and to triangulate the data for more accuracy.

The Likert scale was converted into scores ranging between 1 (low) to 5 (high), the scores from each of the nine indicator items were added together to form an index of the adequacy and quality of teaching and learning materials for class teachers and head teachers. The developed indices ranged between 5 and 45, the descriptive statistics are given in Table 4.

Table 4: Descriptive statistics of the indices of teaching / learning materials for the head and class teachers

	Mean	n	Std. Deviation	Std. Error Mean
Head Teachers Index of Teaching and Learning Materials	28.5264	625	5.89081	.23563
Class Teachers Index of Teaching and Learning Materials	27.6592	625	4.34646	.17386

The indices for the adequacy and quality of the teaching and learning materials for head and class teachers were compared. The indices were first weighted for comparison purposes due to the differences in the number of samples for the head and class teachers.

The paired sample t-test was used to compare the mean differences of the head and class teacher’s perceptions. The indices developed from the perceptions of the head and class teachers on the adequacy and quality of teaching and learning materials were used for the test (Table 4). The mean of the head teachers was found to be higher than the mean of the class teachers. These results were found to be statistically significant ($t= 3.121$, $df 624$, $p \leq 0.05$). This implied that the head teachers assessed the adequacy and quality of teaching and learning materials provided by the FPE programme to be of a higher value than the class teachers. The possible reason for this is that the head teachers are more involved in administration and not in the actual teaching and can therefore not have a clear perception of the problem on the ground, compared to the class teachers who are involved in the actual teaching.

4 CONCLUSION AND RECOMMENDATION

The following **conclusions** were made based on the findings of the study:

- (i) The adequacy and quality of teaching and learning materials provided under the FPE programme in Ndaragwa division was not uniform in all the schools, as some schools reported adequacy while others reported inadequacy.
- (ii) The provision of the following five teaching and learning items were found to be in adequate and of high quality: relevancy of class textbooks, blackboards, chalk, duster, and stationery, while the following items were found to be inadequate: reference books, adequate class textbooks, resource centres, and equipment found in resource centres.
- (iii) The five items that were found to be adequate were not related to the number of students in the class.
- (iv) The head teacher’s assessment of the adequacy and quality of the teaching and learning resources provided under the FPE was higher than the class teacher’s assessment.

The study **recommends** that the distribution of the teaching / learning materials to the different schools should be based on the number of pupils to ensure equal distribution in all schools.

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AUTHOR’S BIOGRAPHY



Ndirangu Wahome Muthima, Is the Principal Nyahururu highway schools, where he is involved in the management and administration of the schools and also teaches physics and mathematics to O and A level students. His background is in Education management and curriculum development in Science education. He holds a B.Ed.(Science) degree from Kenyatta University, Kenya. Currently he is an ABD student in the Department of Curriculum, Instruction and Educational Management, Egerton University, Njoro, Kenya.



Mark N. Mutinda, PhD is a Lecturer in Natural Resources Management, Faculty of Environment and Resource Development (FERD) at Egerton University, Kenya. He has a background in management of natural resources and dryland restoration ecology. He holds a Diploma in Range Management from Egerton College, BSc in Animal Production, MSc and PhD degrees in Natural Resources Management from Egerton.

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