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Determinants of Enrolment in Home Science Subject in Secondary Schools in Kenya: A Case of Elgeyo Marakwet County, Kenya

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Abstract:

This study sought to establish the determinants of enrolment in Home Science in secondary schools in Elgeyo Marakwet County. This study was guided by two specific objectives: to determine how availability of teaching resources affects enrolment of Home Science in secondary schools and to examine the influence of maintenance levels of the teaching resources on enrolment of Home Science in secondary schools. This study adopted a descriptive survey design. Purposive sampling technique was used to select all the six (6) County secondary schools offering Home Science subject. This was to ensure a homogenous group for the study with the aim of curbing extraneous variables. Purposive sampling technique was also used to select one hundred and sixteen (116) students in form four taking Home Science subject and Snow ball sampling technique was used to select fifty (50) form four students who dropped Home Science subject. Six (6) Home Science teachers were further purposively selected together with the six (6) Principals of the sampled schools. This study had a total sample of one hundred and seventy-eight (178) respondents. Data was collected by use of questionnaire, interview schedule and observation checklist. Data was analyzed descriptively. This study established that schools were fairly equipped and that availability of resources have an influence on enrolment of Home Science subject, where there is an increase of resources, the enrolment increases and vice versa. The study recommends that schools should be aided by both the public and private sectors in equipping and maintaining the available teaching and learning resources.

Keywords: *Teaching Resources, Enrolment and Home Science*

1. Introduction

The Ministry of Education (2006) defines Home Science as an applied science that puts scientific principles in our lives thus promoting self-reliance to an individual (Gitobu, 1990). Since its inception, several girl schools registered to offer examinations in Needlework and Foods and Nutrition and for the first time, it was examined in 1973 (Serem, 2011). Tremendous improvement in Home Science was made in the year 1981 where it became a compulsory subject in form 1 and 2 in all the girls and mixed schools (Sigot, 1987).

Home Science has undergone different reviews for the sole purpose of making it relevant. Among the notable review was its exemption in the Kenya Certificate of Primary Education (Mwiria, 2002). The review further brought clustering of subjects that occasioned most secondary schools to stop offering Home Science (MoE, 2008; Nyangara, Indoshi & Ethuon, 2010). This grouping did specify the optional subjects (Group four & five) where students were free to choose or drop it all at their personal interests. Table 1 represents the clustering

Group	Subject Grouping
Group 1	English, Mathematics, Kiswahili
Group 2	Biology, Physics, Chemistry, Physical Science, Biological Sciences
Group 3	History and Government, Geography, Christian Religious Education, Islamic Religious Education, Hindu Religious Education
Group 4	Home Science, Art and Design, Agriculture, Woodwork, Metalwork, Building Construction, Power Mechanics, Electricity, Drawing and Design, Aviation Technology
Group 5	French, German, Arabic, Music, Business Studies, Computer Studies

*Table 1: Secondary School Subject Groupings
Source: Ministry of Education, 2008*

Kenya aims at being a highly-industrialized nation by the year 2030 suggesting that subjects offered in group four and five would provide an impetus to this realization as they capitalize on knowledge in technology and innovation (Kinuthia, 2009). This goal may not be realized in light of the fact that these subjects are optional as per the minimum KCSE subject requirements.

Currently, Home Science subject experiences low enrollment which may be attributed to it being placed in group four. Naoe and Toshio (2003) reports that if a particular kind of curriculum is not made compulsory, students will not be attracted to it.

According to the preliminary study done in Elgeyo Marakwet by the researcher, there is an indication that there is a reduction in the number of students who choose Home Science subject vis a vis the total enrolment as indicated in Table 2 thus negative implication for the realization of vision 2030.

School	Year	No. of form 2 students	No. of Form 2 Home Science students	% of form 2 Home Science students
Kaptagat Girls	2010	200	40	20
	2011	200	20	10
	2012	230	36	15.7
	2013	240	20	8.3
	2014	250	21	8.4
Kapkenda Girls	2010	136	13	9.5
	2011	142	24	16.9
	2012	170	21	12.4
	2013	210	18	8.6
	2014	230	20	8.6

Table 2: Percentage of Home Science students against all the form 2 cohort

Source: Field data, 2015

Home Science may be the only subject that directly focuses on everyday life meeting the basic needs and revolving around the home and on an individual's life. With all these daily practices, Home Science subject should attract as many students as possible because of its tremendous benefits. In this regard, the problem at hand is why students opt not to take Home science in Secondary school over other optional subjects leading to low enrollment at KCSE. Consequently, this concept may lead to extinction of the subject which may in turn make teacher training colleges not to offer the subject in their institutions and in the end lead to scarcity of trained Home Science teachers. Therefore, this study intends to explore the determinants of enrolment in Home Science in Elgeyo Marakwet County.

Literature has shown that Home Science needs equipment and materials necessary for the learner to be able to practice and internalize concepts. Unavailability of resources plays a role in influencing student's attitudes against the subject (Ode, Babayeju & Obalowu, 2013). Nyangara *et al.*, (2010) documents that most of the sampled schools had adequate Home Science facilities as lack of the equipment has a direct impact on the learners to acquire practical skills. They further opined that, the more the available teaching resources in a subject, the higher the enrollment, and the lesser the teaching resources available, the lower the enrollment.

Ozioma (2011) and Serem (2011) revealed that student's interests in vocational subjects are high because their interests were aroused by the practicals carried out in the labs. This factor can only see the light of day in those schools endowed with the necessary learning resources. On the other hand, students' feelings and sentiments on the availability of teaching and learning resources greatly affect their choice of subjects as echoed by (Ndalichako & Komba, 2014). Negative factors like inaccessible schools, lack of resources and poorly qualified personnel do affect academic performance (Brock & Cammish, 1997).

2. Materials and Methods

Descriptive survey design was used in this study. The study population comprised of 8 county schools in Elgeyo Marakwet County. Elgeyo Marakwet County was selected for this study because according to KCSE and KCPE analysis of 2013, out of the 91 secondary schools in the county only 12 schools offered Home Science. The criteria for selecting the county schools was informed on the assumption that county schools were many thus the possibility of having many students who may be affected by the determinants under the study. Principals, Home Science teachers and students in the County schools formed part of the study as they held valuable information.

Purposive sampling was used to select Six (6) Principals, six (6) Home Science teachers and 116 students taking Home Science. Snowballing was used to select 50 students who had dropped Home science. This resulted to a sample size of 178. The study employed use of questionnaires which were administered to teachers and students, to determine how availability of teaching resources affect enrolment of Home Science in secondary schools. Interview schedule was used to confirm availability and maintenance of resources from the Principals. Data was analyzed quantitatively and qualitatively after it was collected, examined for completeness, cleaned and then coded appropriately.

3. Results and Discussions

3.1. Number of Home Science Laboratories and how Equipped they were

A higher number of students 106 (64.2%), indicated that there was one (1) lab, 47 (28.5%) respondents mentioned two (2) labs and 13 (7.9%) indicated that they had no labs. This implies that majority of the schools had one lab. Therefore, the few schools that offer Home Science could lead to a large number of students either dropping or doing Home Science. This finding concurred with Nyangara *et al.*, (2010) who reported that two of their sampled schools did not have a lab and twelve others had inadequate labs. Ideally, Home Science subject requires two laboratories, one for Foods and Nutrition and the other for Clothing and Textiles. Due to limited resources, most schools will have one room meant to cater for all the practicals.

The respondents were further asked to indicate how equipped the laboratories were. A fairly equipped Home Science lab is one that is equipped to some extent but not very, whereas a fully equipped Home Science lab has all the equipment and materials needed to effectively teach the Home Science syllabus. Most of the labs were fairly equipped as indicated by 120 (73.2 %) of the respondents and a small percentage 22 (13.4%) did indicate that they were fully equipped. Therefore, it can be concluded that the labs were not well equipped. Figure 1.

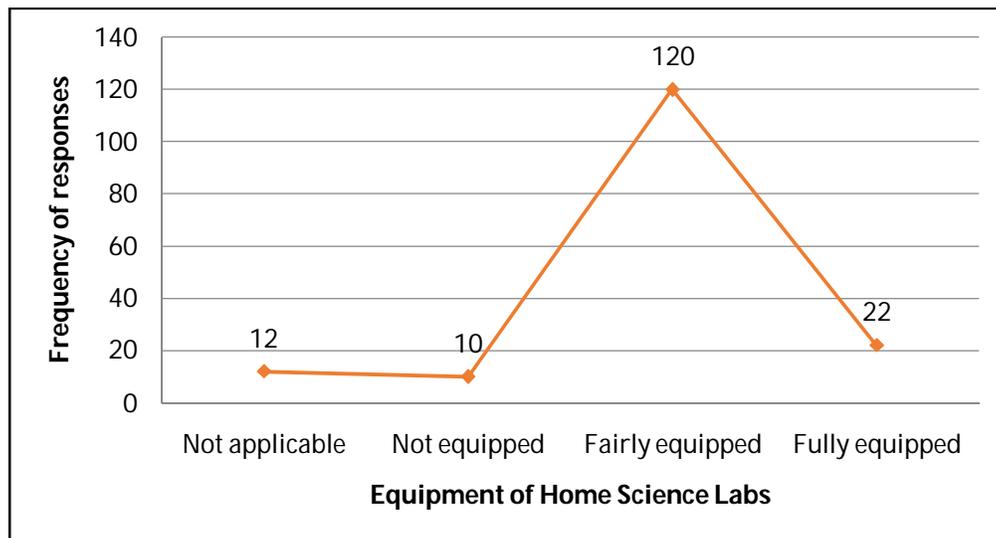


Figure 1: How equipped are Home Science Labs

The researcher further carried out an observation to complement responses from the questionnaires on the availability of the teaching resources and confirmed the availability of these equipment from the schools. To get valid responses, the researcher looked at the adequacy of the equipment from the six (6) schools where adequate signified that they had enough while inadequate had not enough equipment. Table 3

Rooms	Equipment	ADEQUACY			Total
		Adequate	Inadequate		
Clothing and Textile room	Sewing machines	1	5		6
	Ironing surfaces	1	5		6
	Irons	1	5		6
	Dressing mirror	3	3		6
	Small sewing tools and equipment	1	5		6
	Working surfaces	2	4		6
	Cupboards	1	5		6
Food and nutrition	Cooking equipment	1	5		6
	Work centers	2	4		6
	Food storage equipment	1	5		6
	Sinks	1	5		6
Class area	Text books	3	3		6
	Charts	1	5		6
	Sample garments	3	3		6
	Folders	3	3		6
Offices	Chairs	1	5		6
	Lockers	1	5		6

Table 3: Availability of Equipment in the Home Science Laboratory

It can be argued from the table that majority of the schools sampled did not have equipment necessary for the Home Science class. There was notable absence in relation to the charts, cupboards, working surfaces and sewing machines. The observations further indicated inadequacy in the equipment. Majority of the schools had a count of 3 in the areas observed such as irons, cooking equipment and food storage equipment. This implies that schools may shut out potential students wishing to select Home Science.

The findings of this study further indicated that most of the Home Science laboratories in Elgeyo Marakwet County were fairly equipped. An observation of the sampled school depicted that majority of the schools did not have adequate Home Science equipment. These findings are similar to a study by Mbithe (2012) in which she reported that 9 (75%) of the laboratories in Kangundo District were not well equipped.

Results from a study by Nyangara *et al.*, (2010a) and Mbaabu, Gatumu and Kinai (2011) posted different results from this study where they established that most schools had adequate facilities. For instance, Nyangara *et al.*, (2010b) indicated that Home Science labs had adequate facilities and their greatest inadequacy was on fire extinguishers and refrigerators as most of their sample was drawn from rural schools that had no electricity to run the refrigerators. Mbaabu *et al.*, (2011) did report that 93 (77.50%) of the respondents considered their school laboratories to be well equipped.

Results of this study implies that most schools in this county don't offer Home Science due to the limited resources in the Home Science laboratories and in the event that they offer, there is a high likelihood that students may be restricted from choosing it hence the low enrolment in the subject. Physical state of the equipment has a link on the enrolment because poorly maintained equipment has a high chance on lowering the enrolment and vice versa.

Further information on the adequacy of the equipment was sought from the Principals' interview schedule which reported that some schools have Home Science equipment but lacked a room to call their own as the purported Home Science room was a multipurpose room hence they had to keep shifting the equipment over and again for the room to suit the intended purpose at hand.

Researchers own observation showed that some schools had equipment that had broken down due to wear and tear. The intentions were to establish whether they impacted on low enrollment.

Responses	Frequency	Percentage
Poor	2	33.3
Good	3	50
Excellent	1	16.7
Total	6	100

Table 4: Maintenance levels of Physical Resources and Equipment

The findings show that majority of the schools 3(50%) had good equipment, very few 2 (33.3%) had poor equipment whereas only 1 (16.7%) had excellent equipment. Poorly maintained equipment and resources may imply that there is a reduced number of students.

3.2. Frequency of Doing Practicals

This study sought to investigate the frequency with which Home Science practicals were done in the sampled schools. The study established that 57 (35%) did the practicals during exams only whereas the highest number of teacher respondents indicated that they did practicals after every topic 23 (14%) the option of after every topic also had a higher student response 56 (34 %). Another set of student respondent 27 (16 %) responded that they did the practicals during every double lesson. From the findings of this study, it can be concluded that the Home Science lab was mainly used during exams and at the end of every topic.

In addition, the school administration facilitates this through provision of finances to purchase the requirements for the Home Science practicals only during exams and in limited cases at the end of a practicable lesson. Therefore, students are not exposed to Home Science practical more often as they should. Figure 2

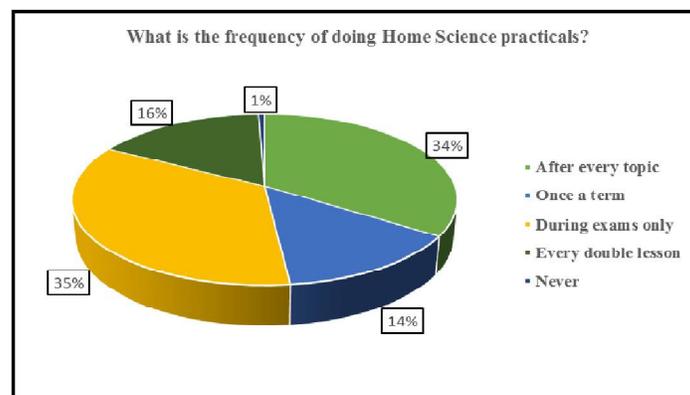


Figure 2: Frequency of doing Home Science Practicals

From the findings of this study, there is an indication that Home Science practicals in Elgeyo Marakwet County are rarely done. Similar finding was obtained by Nyangara *et al.*, (2010) where they reported that 10.3% teachers carried out practicals and majority of them, 89.7% decided on the amount of time for practicals as it was a feeling that when less time was accorded for the practicals, they had a high chance of completing the syllabus on time. This finding differs with a study by Mbithe (2012) who reported that 64% of the respondents used the lab during the double lesson. This could be attributed to the fact that since the Home Science labs in Elgeyo Marakwet County are fairly equipped with limited resources, there is a high likelihood that the Home Science teachers opted to do the practicals at the end of the topic and during exams. There seems to be some strong belief that the school administration facilitates this through provision of finances to purchase the requirements for the Home Science practicals only during exams and in limited cases at the end of a practicable lesson. Therefore, there is a strong feeling that students may not be exposed to Home Science practical more often as they should.

3.3. Effects of Availability of Resources on Enrolment

The respondents were asked to give their opinions on effects of the availability of resources based on seven statements as outlined in Table 5 and Table 6. Students responses indicated that availability of instructional materials are very important in teaching and learning of Home Science as this scored the highest mean, 4.34 ± 0.983 and on teachers questionnaire, it posted 4.00 ± 1.549 this concept was emphasized by the statement pertaining to adequacy or inadequacy of teaching and learning Home Science facilities in the school in comparison with enrolment, majority of the students were undecided, they posted a mean of 3.28 ± 1.291 and 3.26 ± 1.271 respectively.

Statement that more students are encouraged to choose Home Science because of the available resources recorded (2.29 ± 1.245) and that of teachers 2.33 which signifies that students may not be in a position to determine whether availability of resources with enrolment has an effect.

Statement on choosing other optional subjects because they don't require specialized resources scored 2.1 and statement on discouraging students from taking Home Science because of the limited resources scored a mean of 1.88 in relation to students. From the teacher's response, most of them were of the opinion that they did not discourage students on the basis of available resources (1.67). This finding suggests that students may be left to choose Home Science at will and does not necessarily mean that Home Science is pegged on the availability of resources. In a study by Kamau & Orodho (2014) it was reported that most students 72 (23.7%) and 68 (22.4%) were strongly satisfied and satisfied respectively that the number of Home science learning resources were enough. In this regard, it is clear that with adequate teaching and learning resources, there is a high chance on improving the results of Home Science as a subject in schools. Also, students attitude on perception of the subject is enhanced therefore a high chance of recruiting a large number of students in the subject.

Statement	Mean	SD
More students are encouraged to choose Home Science because of the available resources	2.29	1.245
Most students are encouraged to choose other options because they do not require specialized kinds of resources	2.1	1.253
My Home Science teacher discouraged me from taking Home Science because the available resources are only meant for certain number of students	1.88	3.276
Adequacy or inadequacy of teaching and learning resources are responsible for the enrolment in Home Science	3.26	1.271
There are adequate teaching and learning Home Science facilities in my school	3.28	1.291
High cost of financing Home Science directly influence enrolment in Home Science	3.05	1.364
Instructional materials are very important in teaching and learning of Home Science	4.34	0.983
Mean	2.89	1.53

Table 4: Students Responses on Effects of Availability of Resources on Enrolment

The interview with the principals did shed some light into which majority of them felt that Home Science as a subject should be able to attract more students and that availability of more resources greatly contributes to higher enrolment besides other factors. Another point from the teacher's questionnaire worth noting is that regarding ability of teaching and learning Home Science resources can be easily improvised from the available resources scored a very high mean (4.33 ± 0.516) signifying that Home Science teachers strongly agreed to this point.

Therefore, it implies that in cases where resources are not available, those that can easily be sourced from around may make the financing of the subject more bearable other than buying them. From this perspective, it may be the feeling of school administrators that teachers of home science usually present very huge unnecessary budgets to their advantage that makes the subject expensive.

Statement	Mean	SD
More students are encouraged to choose Home Science because of available resources	2.33	.516
More students are encouraged to choose other options because they do not require specialized resources.	3.00	1.897
I discourage some students from taking Home Science because the available resources are only meant for certain number of students	1.67	1.633
Adequacy or inadequacy of teaching and learning resources are responsible for the enrolment in Home Science	4.00	1.095
High cost of financing Home Science directly influence enrolment in Home Science	2.17	1.835
Instructional materials are very important in teaching and learning of Home Science	4.00	1.549
Teaching and learning Home Science resources can easily be improvised from available resources	4.33	.516

Table 5: Teachers' Responses on the Effects of availability of resources

4. Conclusions

The study found out that, most of the Home Science labs in Elgeyo Marakwet County were not adequately equipped and that the Home Science lab was mainly used during exams and at the end of every topic due to limited resources. Students therefore may not be exposed to Home Science practical more often as they should. This tended to influence student's choice of the subject.

5. Recommendations

Based on the findings of this study, the following recommendations are made;

- i. All schools should be provided with teaching and learning resources to help start up and also support the existing ones so as to boost the enrolment.
- ii. Schools should be aided by both the public and private sectors in equipping and maintaining the available teaching resources

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