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ATTITUDE AND GENDER STEREOTYPES ON GIRLS' MATHEMATICS PERFORMANCE IN THE KENYA CERTIFICATE OF SECONDARY EDUCATION IN KATHIANI SUB-COUNTY, KENYA

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ABSTRACT

Introduction: The performance of female students in Mathematics in the national examinations and especially in the Kenya Certificate of Secondary Education (K.C.S.E) has been perturbing for quite a long time. This menace has been partly attributed to girls' attitude towards the subject and partly to gender stereotypes towards Mathematics.
Purpose: This study aimed to examine attitude and gender stereotypes to Mathematics on girls' performance in Mathematics in the Kenya certificate of secondary education (K.C.S.E) in the Kathiani sub-county of Machakos County- Kenya
Methodology: A descriptive survey design anchored this research study. The study comprised of 1804 girls, 87 Mathematics teachers and 32 principals of secondary schools as the target population. The reliability of the research instruments was tested through the application of the test and retest criteria in two secondary schools and a correlation coefficient 0.7 and above was realized.
Results: The study found that Mathematics was not an interesting subject to the girls for they hated the subject .The research further established that girls had developed a negative attitude towards the subject. The girls' negative attitudes affect the learning and the performance in the subject.
Recommendations: The teachers are advised to treat both boys and girls equally. This can be done by giving both of them the opportunities to be group leaders in their Mathematics groups as this will boost the girls' confidence towards the subject.

Keywords: Attitudes, Gender stereotypes, Performance, Mathematics.

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PUBLIC INTEREST STATEMENT

The importance of this research study results to the tutors of Mathematics will be indispensable. This is because the results of the study will enlighten the tutors of Mathematics with the requisite insight on some of the factors that tend to impact negatively on the performance in Mathematics by female students. Some of these factors include girls' attitude towards the subject and gender stereotypes. This will enhance a better performance in the subject and ensure that the achievement in Mathematics by female students is just as equivalent as their male counterparts.

INTRODUCTION

The subject of Mathematics in Kenya has been instructed as a compulsory subject in the institutions of basic education and as an optional subject in the institutions of higher learning (Mackay, 1981). The importance of Mathematics in the Kenyan school curriculum cannot be disregarded as it is an important component of the Kenya's educational curriculum. Orton (1987) pointed out that, "Mathematics is the key and gateway to science and neglect of Mathematics works injury of all knowledge since whoever is ignorant of it cannot view the other sciences and things in the world". The researcher further asserted that both males and females should realise Mathematics as an essential knowledge in their private life, political life, working life and socio-economic life of their countries where they dwell. Inevitably, good performance in the subject by all the students is vital regardless of their sex and gender. There is still a significant amount of work to be done in order to attain gender parity in Mathematics with respect to the attitudes, achievements and engagement of students (Hall 2012). The researcher established that students who have a favourable attitude towards Mathematics attain higher levels of success and that both of these criteria are connected to the period spent on Mathematics-related activities. The researcher continued by stating that contemporary female students confront a significant number of hurdles outside the classroom in relation to Mathematics and that these problems are becoming worse with time. She argued that such hurdles include the stereotypical attitudes held by parents as well as society's perceptions about Mathematics as being incongruous with having a feminine trait.

According to the findings of her research, Hall (2012) concluded that there is a need for modifications to the ways in which Mathematics is taught in order to give females more relevant experiences in the field of Mathematics. Iipinge (2014) reported in his research study that females had a negative attitude to Mathematics. The findings also demonstrated that female students had a poor attitude to the discipline instruction at the secondary school level. The researcher established that majority of girls felt that they would fail in Mathematics regardless of how much effort they put into studying it. This is because the females had a propensity to doubt their own ability when it came to solving Mathematics examinations. In a related research, Omwenga (2011) established that female students had negative attitude in Mathematics because certain mathematical concepts were too complex for them to grasp. In her study, Omwenga (2011) noted that the children had difficulties to understanding Mathematics. This was supported by Mutai's (2016) research findings which revealed that females had a negative attitude in Mathematics. According to her research boys exhibited a favorable attitude towards studying Mathematics.

Awuor (2013) noted in her research that female students' negative attitude in Mathematics and science linked to subpar performance in those disciplines. In a related study Sinyosi (2015) established that majority of learners did not like Mathematics, majority of learners thought Mathematics was a difficult subject and most of the learners felt that given the option they would drop the subject. According to the researcher, these attitudes by the learners led to poor academic achievement and especially in Mathematics. Female students have been seen to possess

prejudiced negative attitude towards Mathematics. They have even gone to an extent of confessing publicly that they hate the subject and even anything related to the subject including the Mathematics teachers. This has led to very poor test scores in the summative examinations something that has impacted the society negatively due to lack of female mathematicians in the society.

Gender stereotypes have been found to impact negatively on the academic performance of girls' particularly in Mathematics and the science disciplines. Gender stereotypes are referred to as the generalized view about attributes that are held by men and women. These gender stereotypes tend to affect how girls perform in Mathematics

A study carried out by PISA (2012) international report on Mathematics results on gender and Mathematics performance indicated that the gender gap in the subject had narrowed by nine score points between 2003 and 2012 in Finland, Greece, Macao China, the Russian federation and Sweden. In 2012 there was no gender gap in Mathematics performance favoring boys as compared to 2003. This is a clear indication that both male and female students have the capability to perform well in the discipline. Therefore gender stereotyping in Mathematics should not exist to limit the Mathematics achievement by female students.

In his study, Li (1999) found out that instructors are not exempt from social effects and as a result, they often hold gender stereotypes, especially because both students and teachers often see Mathematics as a male-dominated field. This result is consistent with Fennema, et. al's (1990) research which found out that teachers had different expectations for male and female students in Mathematics leading them to feel that males are superior to girls in the subject. In a similar research, Dickerson, McIntosh, and Valente (2013) pointed out that females do worse in Mathematics examinations without having inferior understanding in Mathematics owing to stereotype threat which is greater in locations where conventional female roles are more evident. This corroborates to Masanja (2007) who examined the gender gap in Science and Mathematics education and noted that although it may be present at the elementary level, it really emerges throughout adolescence and grows at higher levels of school. These findings were echoed by Omwenga (2011) who pointed out that there are few Mathematics teachers who can act as role models to the female students and this leads to girls considering Mathematics as a masculine phenomenon.

Similarly, Tadesse, Zewdie & Dagne (2015) established that female students lack role models and especially the female teachers whom they can emulate and this leads to low academic achievement and especially in Mathematics. In their study the researchers established that these female students lack the requisite motivation they need from their female colleagues who include their mothers, their female teachers and even other women in the society who can act as role models to enable the female students escalate their academic performance in Mathematics. These findings corroborates to Iipige (2014) who pointed out that teachers do contribute negatively to girls performance in Mathematics. The author pointed out that teachers treated boys and girls differently by giving more problems to be solved on the chalkboard to the boys than girls since they belief that the discipline is masculinity. Teachers play a crucial role in how students perceive different subjects and in this context they perceive Mathematics as a male domain ignoring the female students. This stereotyping has led to female students having less interest in the discipline since they believe in what their teachers believe leading to low achievement in the subject.

Gender stereotypes and the perception of Mathematics related careers as 'masculine,' a thought that women and girls aren't as competent as men in SMT areas, were found to be influencing variables in Jones' (2016) research. The researcher further established that educational stereotyping in Tanzania tends to discourage girls from pursuing Mathematics and other SMT subjects because they are considered to be

masculine. In a related study Jones (2016) findings are similar to Masanja (2010) findings who asserted that widespread acceptance of stereotyping of scientists and engineers as predominantly male domain from elementary to University level is still the norm in Tanzania. Stereotyping has existed in our educational institutions since long time ago and this practice should be put to an end for it has impacted negatively on the female students' participation and achievement in Mathematics leading to very few women in Mathematics related fields.

STATEMENT OF THE PROBLEM

Girls have continued to post desolate scores in Mathematics in the Kenya Certificate of Secondary Examination in Kathiani Sub-County according to Sub-County's education office report of 2021. This has raised a great distress among the players of education in the Sub-County to curb the trend. As a result the educational stakeholders have a feeling that affirmative measures should be deployed to ensure that the female students have displayed a desirable performance as expected by the ministry of Education, Science and Technology. Girls' attitudes towards Mathematics and gender stereotypes to Mathematics have been seen as some of the aspects that inhibit these students from achieving a good performance in the subject. As a result of this perennial menace, a research was proffered to explore attitude and gender stereotypes to Mathematics on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) in Kathiani Sub-County of Machakos County- Kenya.

PURPOSE OF THE STUDY

This study was guided by the following objectives:

1. To determine how attitude to Mathematics impact on girls' performance in Mathematics performance in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County.
2. To examine how gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya certificate of secondary education (K.C.S.E) in Kathiani Sub-County.
3. To establish the teachers' opinions on how attitudes and gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County.
4. To determine the principals' opinions on how attitudes and gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County.

RESEARCH QUESTIONS

This study was guided by the following research questions:

1. How do attitudes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County?
2. How do gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County?
3. What are the teachers' opinions on how attitude and gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County?
4. What are the principals' opinions on how attitude and gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County?

METHODOLOGY

Research design

This study was cemented on the descriptive survey design which aimed to answer the questions how, what, when and where about the phenomenon under research study. The design was regarded to be relevant for this research study for it exhibited how the variables under study were distributed and related. These variables include: girls' attitudes to Mathematics, gender stereotypes to Mathematics girls and girls' academic performance in Mathematics which are pertinent to this study.

The Location of the Study

This research study was carried out in Kathiani Sub-County of Machakos County. The demographic report from Kathiani Sub-County office revealed that the residents of the area are manifested with poverty and poor living standards due to their low economic earnings. This is because the area experiences semi-arid kind of climate that does not allow the residents to carry out substantial agricultural activities. This has led the residents to engage in small scale crop farming and sand harvesting as their economic activities. Kathiani, Ithaeni, Ngoleni and Mitaboni markets are the semi urban centres in the Sub-County. The sub-county has 32 girls' secondary schools (30 public secondary schools and 2 private schools) (Sub-County Education Office, 2021). Kathiani Sub-County was invoked for this research study due to the perpetual dismal performance in Mathematics by the female students in the K.C.S.E in the recent examination years.

Population and Sample

The target population was accrued from the 30 girls' public secondary schools and the 2 private schools in the Sub-County, their Mathematics teachers and the principals of the secondary schools in the Sub-County. Therefore, the 1804 form 3 girls in the secondary schools in the Sub-County, their 87 Mathematics teachers and the 32 principals' of the secondary schools comprised of the total population of the study.

The computation of the sample size of the form 3 students using the Slovin's sample size computation formula gave a total of 327 girls. Through purposive sampling, the researcher included one more student totaling to 328 students. This was done to unify the sample size so as to select 41 students from each sampled school. This sample size from each school was considered to be appropriate for the study.

In selecting the sample size for the Mathematics teachers, the researchers used purposive sampling. The purposive sample gave a total of 16 teachers (8 male teachers and 8 female teachers). Convenient sampling was used to select the sample size of the principals of the sampled secondary schools. Therefore all the 8 principals of the sampled schools selected for research were incorporated to take part as respondents of the study. Therefore the sample size will be 328 students + 16 teachers + 8 principals = 352 respondents

To ensure that the study sample covered every part of the Sub-County, the researcher stratified all the 32 girls' secondary schools in Sub-County into four zones. These zones comprised of Kathiani, Iveti, Mitaboni and Ithaeni. Purposive sampling was used to select two secondary from every zone targeting schools with average Mathematics performance as analyzed from the Sub-County's past K.C.S.E performance records in Mathematics performance. It is through this stratification sampling that all the characteristics of the target population under investigation were ensured for representation. In obtaining the students' sample size, Slovin's formula was used in the computation giving a total of 328 students. In obtaining the sample size for the Mathematics teachers, the researchers purposively selected the sample by ensuring that gender sensitivity was adhered to. Basing on the analysis of K.C.S.E performance in every sampled school, one male and one female teacher who had produced a higher performance in the national examinations was selected. This selection gave a sample of an equivalent number of female and male teachers which culminated to 16 teachers of Mathematics from the four zones (8 male teachers and 8 female teachers). Convenient sampling was used in

obtaining the sample size for the principals giving a total of 8 principals of the sampled schools. Therefore a sample size of 352 respondents (328 form three female students, 16 Mathematics teachers and the 8 Principals) was obtained and considered appropriate for the study. Random and systematic sampling were used to gather the sample of the students from high populated schools while convenient sampling was used to gather the students sample from schools with low population. The researcher sampled a total of 41 students from each sampled school and this gave a total number of 328 students which was the study sample for the Form 3 students.

Instrument for Data Collection

1. Self-Administered Questionnaire

Primary data was collected by the use of self-administered questionnaires. Questionnaires were administered to the students of the 8 sampled schools for the research study. The Mathematics teachers of the students helped during the data collection process in distributing and collecting the questionnaires which were filled by the students. The students' questionnaires were divided into five sections with each section aiming to gather data on the impact of girls' attitude towards Mathematics and gender stereotypes against girls on girls' performance in Mathematics in the Kenya Certificate of Secondary (K.C.S.E) examination in the Sub-county.

2. Interview Schedule

The interview process involved the researcher, the sampled teachers of Mathematics and the principals of the sampled secondary schools. Open ended questions were used during the interview procedure. The responses from the teachers and principals were manually recorded and were further analyzed as per the objectives of the study.

3. **Document Analysis**

K.N.E.C documents from the sub-County office of education on Mathematics performance in the Sub-County were analyzed and schools' past national examination results were also analyzed.

The data collection instruments were presented to the supervisors and members of the department for scrutiny to ensure that they were valid and ideal for data collection on the case under research study. The comments and improvements from the departmental experts were discharged before the researchers carried out the research study.

The reliability of the research instruments was tested through the application of the test and retest criteria. The results from the two schools were juxtaposed using the Pearson's correlation coefficient computation to check on their correlation. The researchers obtained a positive correlation of 0.7 and above. This indicated that the questionnaires were reliable and appropriate for this study.

Procedure for Data Collection

The researchers administered questionnaires to the students and interviewed the teachers of Mathematics and principals of the sampled schools. Data collection through documents analysis from the Sub-County director of education on girls' performance in Mathematics in the Sub-County was also deployed to collect the data. This approach was used to ensure that the opinions of the students and that of sampled teachers were captured at great depth while document analysis would give an insight of the prevailing tendency in girls' performance in Mathematics in the Sub-County.

Before the actual data collection process, the researchers made a reconnaissance visit to the sampled schools with an aim of seeking for permission from the schools' administration to collect the data from female students only. This ensured the respondents were prepared for the process hence encouraging a high response rate during the study.

Primary data was amassed by subjecting the students to similar questionnaires which were distributed and collected with the help of their Mathematics teachers. Primary data was also obtained by subjecting the sampled teachers of Mathematics to an interview where by the teachers gave their opinions in accordance with the objectives under

investigation. The researcher amassed secondary data by analyzing the recorded data from the Sub-County director of Education office on past K.C.S.E performance in the Sub-County. He also analyzed the sampled schools past K.C.S.E Mathematics performance.

The researchers converted the primary data that was amassed by use of questionnaires and interviews to frequencies and percentages for easy understanding, visibility and interpretation of the phenomena under investigation and the anonymity of the respondents was adhered to.

Methods of Data Analysis

The amassing of primary data was done by use of questionnaires and interviews. This data was computed into frequencies and percentages. This ensured easy visibility to ensure that the data could be understood and interpreted easily on the case under investigation. The collected data was summarized to guarantee that generalizations, patterns of behavior and individual results were determined. Quantitative data analysis was computed with the help of the Statistical Package of Social Sciences Software Programme (SPSS) version 22 while qualitative data was thematically analyzed. Descriptive statistics was used in the analysis and the results were presented in the form of tables displaying frequencies and percentages of the responses from the respondents.

RESULTS

Research Question 1: How do attitude to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County?

Table 1: Girls Attitudes towards Mathematics and Performance in Mathematics

	Strongly Disagree/ Disagree		Agree/ Strongly Agree		Mean	SD
	F	P (%)	F	P (%)		
I don't like Mathematics and I wish I can drop it	172	61.9	106	38.1	3.26	1.694
My friends and I like practicing Mathematics by solving Mathematical problems	82	28.9	201	71.02	2.40	1.362
My teacher has a bad attitude which affects my attitude to learn Mathematics	196	70.76	81	29.4	3.73	1.463
My Mother tells me she never liked Mathematics when she was at school	249	85.86	41	14.14	4.27	1.153
Total					**13.66**	**5.672**
Average					**3.41**	**1.418**

Source: (Survey Data, 2022)

One of the statements was that the students did not like Mathematics and they wished they could drop it, 61.9% strongly disagreed/ disagreed, 38.1% agreed/strongly agreed. The students were also asked whether they like practicing Mathematics with their friends, 28.9% strongly disagreed/disagreed, 71.02% agreed/ strongly agreed. When asked whether their teachers had a bad attitude which affected their attitude to learn Mathematics, 70.76% strongly disagreed/ disagreed, 29.4% agreed/strongly agreed. On the statement

that their Mothers told them that they never liked Mathematics when they were at school, 85.86 strongly disagreed/disagreed with the statement while 14.14% agreed/ strongly agreed to the statement.

The average standard deviation is 1.418 and the average mean is 3.41. Therefore the standard deviation can be considered to be a high standard deviation since it is greater than 1.The implication of the standard deviation in the above table is that the responses of the students were spread out on girls' attitude and performance in Mathematics.

Research Question 2: How do gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County?

Table 2: Gender Stereotypes against Girls and Performance in Mathematics

	Strongly Disagree/Disagree		Agree/ Strongly Agree		Mean	Std. Deviation
	F	P (%)	F	P (%)		
The belief that girls do not do well in Mathematics influences my performance in Mathematics	187	64.26	10	35.74	3.50	1.648
My parents do not encourage me to work hard in Mathematics	226	77.66	68	23.1	4.03	1.378
My teacher beliefs that girls cannot do well in Mathematics compared to boys	223	77.97	63	22.03	3.97	1.409
The members of my community say that boys are good in Mathematics compared to girls	177	59.80	119	40.20	3.33	1.751
Total					**14.83**	**6.186**
Average					**3.70**	**1.546**

Source: (Survey Data, 2022)

A statement on the belief that girls do not do well in Mathematics impacted on their performance in Mathematics, 45.3% strongly disagreed, 15.6% disagreed, 12.1% agreed and 21.8% strongly agreed. On the statement that their parents did not encourage them to work hard in Mathematics 59% strongly disagreed, 14.7% disagreed, 14.7% agreed and 7.5% strongly agreed. On the statement that their teachers believed that girls could not do well in Mathematics compared to boys 55.4% strongly disagreed, 17.3% disagreed, 9.8% agreed and 10.7% strongly agreed. On the statement that the members of the community said that boys were good in Mathematics compared to girls 43.6% strongly disagreed, 14% disagreed, 9.1% agreed and 29.6% strongly agreed.

The average mean is 3.70 while the average standard deviation is 1.546. This shows a high standard deviation of the data distribution. Consequently we can deduce that the students gave varied responses on gender stereotypes against girls and performance in Mathematics.

Research Question 3: What are the teachers' opinions on how attitude and gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County?

Table 3: **Teachers' opinions on how attitude to Mathematics impact on girls' performance in Mathematics**

Responses	Frequency	Percentage
Yes	15	100.0
No	-	-
Total	**15**	**100.0**

Source: (survey data, 2022)

All the teachers (100%) responded by saying that negative attitudes by both teachers and students impact negatively on girls' performance in Mathematics as the society has a strong attitude that Mathematics is a boy dominated subject.

Table 4: Teachers opinions on how gender stereotypes to Mathematics impact on girls' performance in Mathematics

Response	Frequency	Percentage
Yes	12	80.0
No	3	20.0
Total	**15**	**100.0**

Source: (survey data, 2022)

Among the teachers who were interviewed, 80% of them responded that being a community member and a teacher they thought that gender stereotypes considered Mathematics as being a masculine phenomenon impacted on girls' performance in Mathematics in their schools as it was a general perception that boys students do well in Mathematics than girls students. The other teachers (20%) indicated that nowadays there are ladies who have done Mathematics and are teachers and role models in the community and thus disagreed that gender stereotypes did not consider the subject as being a masculine phenomenon.

Research Question 4: What are the principals' opinions on how attitude and gender stereotypes to Mathematics impact on girls' performance in Mathematics in the Kenya Certificate of Secondary Education (K.C.S.E) examination in Kathiani Sub-County?

Table 5: Principals' opinions on how attitude to Mathematics impact on girls' performance in Mathematics

Responses	Frequencies	Percentage
Yes	7	100
No	__	__
Total	**7**	**100**

Source: (survey data, 2022)

When interviewed, all the principals (100%) accorded that attitudes impacted girls' performance in Mathematics in KCSE examination since most of the girls had a negative attitude towards the subject thus poor performance. This is because most of the girls do not do regular Mathematics practices to improve their performances.

Table 6: Principals' opinions on how gender stereotypes to Mathematics impact on girls' performance in Mathematics

Responses	Frequency	Percentage
Yes	6	85.7
No	1	14.3
Total	**7**	**100**

Source: (survey data, 2022)

When interviewed, 85.7% of the principals were of the opinion that gender stereotypes affected girls' performance in Mathematics in K.C.S.E examination as most of the girls viewed Mathematics as a male dominated subject thus cannot perform well while only 14.3% of the principals interviewed indicated that gender stereotypes did not have any impact on the performance of girls in Mathematics as it's a subject for both gender hence the society and school need to treat it as such.

DISCUSSIONS

Students have exhibited different attitudes towards different subjects. These attitudes have either been positive attitudes or negative attitudes. Similarly this has been the case with girls whereby some have displayed positive attitude towards Mathematics while others have displayed negative attitude towards the subject. On the same the girls' students in the study location are not exceptional for some have got positive attitude while others have got cynical attitude towards Mathematics. These attitudes towards the subject have been seen to impact the way the students perform in the subject and especially in the K.C.S.E examination. This study sought to determine the impact of girls' attitudes towards Mathematics in the K.C.S.E examination in Kathiani Sub-County and results have shown that girls' attitudes impact on their performance in a number of ways:

Most of the students strongly agreed that they do not like Mathematics and they wish they can drop it. This is because most of them do not perform well and the subject marks makes them to achieve a very low mean grade in their internal examinations. Most of the students agreed that they carry enough practice in Mathematics. Therefore this implies that their dismal performance in Mathematics could be due to other factors and not their failure to carry out enough practice in the discipline. Most students disagreed that their teachers have a bad attitude towards them and this means that the attitude of the teachers does not affect their attitude to learn Mathematics. However a certain percentage agreed that the bad attitude of their teachers towards them affects their attitude in Mathematics. Moreover pertaining students attitudes towards the subject, most students disagreed that their mothers never liked the subject while in School and this affects their attitude to learn the subject. However a certain percentage of the students agreed that their mothers have influenced them to have negative attitude towards the subject due to their justification that they never liked Mathematics while in school.

All the teachers (100%) indicated that they thought attitudes by both teachers and students impacted on girls' performance in Mathematics. All the principals (100%) indicated that attitudes impacted on girls' performance in the discipline in the K.C.S.E examination as most of the girls had a negative attitude towards the subject. Therefore this has contributed to poor performances since most of the girls do not do regular Mathematics practices to improve their performances in the discipline. These results support Iipinge (2014) findings who indicated that girls have the tendency of undermining their own abilities in solving problems in Mathematics. The negative peer attitude leading to incitement to the subject amongst female students can be very lethal in the achievement of better performance. This inhibits the participation in Mathematics based careers due to low grades at the lower level since female students will have a very poor background in Mathematics

leading to lack of interest in the subject related fields (Omwenga, 2011).

Gender stereotypes are found in many communities in the world. The people living in the study area are no exception. The gender stereotypes in most communities are against the girl child. When these gender stereotypes are extended to the school system, they tend to stifle the education of the girl child. This is reflected in their academic performance. Gender stereotypes are exhibited in the teaching and learning of Mathematics. How gender stereotypes to Mathematics impact on girls' scores in Mathematics in the K.C.S.E examination in Kathiani Sub-County was examined. The results have shown that the stereotypes to Mathematics impact on girls' performance in the subject in a number of ways. The girls' students strongly disagreed to the statement that the belief that girls do not do well in Mathematics.

However some students agreed that the community believes that girls cannot do well in the discipline. This belief makes the girls to be slack in the subject leading to dismal performance. The students disagreed that their parents did not encourage them to work hard in Mathematics to a certain degree although some students agreed that some parents do not encourage them to work hard the subject which has resulted to them scoring very little marks in the exam due to lack of motivation from their parents. The students strongly disagreed that their teachers believed that girls could not do well compared to boys. A good percentage of students agreed that their teachers belief that they cannot do well in Mathematics. This demotivates the female students to perform well in the subject. The students strongly disagreed that the members of the community believe that boys are good in the discipline when compared to girls. A number of students strongly agreed that the members of the community believe that girls cannot do well in the subject. This stereotyping by the members of the community has resulted to the girls performing poorly in the examinations due to psychological mindset that they cannot do well in Mathematics.

Teachers who were interviewed, 80% of them responded that being a community member and a teacher they thought that gender stereotypes to Mathematics as being a masculine phenomenon. The other teachers (20%) indicated that nowadays there are ladies who have done Mathematics and are teachers and role models in the community and thus disagreed that gender stereotypes did not consider Mathematics as being a masculine phenomenon. The study also got principals' opinions, 85.7% of them pointed out that gender stereotypes to Mathematics affected their scores in Mathematics in K.C.S.E examination as most of the girls viewed Mathematics as a male dominated subject thus cannot perform well while only 14.3% of the principals interviewed indicated that gender stereotypes did not affect girls' performance in Mathematics as it's a subject for both gender and the society and school need to treat it as such.

This study agrees with Halphern (1992) in that gender differences in Mathematics start to manifest at the onset of adolescence resulting from socialization patterns experienced and other school related factors. Therefore, this process through which children undergo during socialization shapes their engagements in various issues. As a result, the female students start practicing what they have learned from the society at their adolescence stage and this affects their performance in the discipline starting from the secondary school level going onwards. Teachers on the other hand also hold different expectations for male and female students in their Mathematics classes and therefore teachers believe boys are better than girls in Mathematics (Asante 2010). Students did not think that it was true the subject was a masculine phenomenon. The students indicated that attitude towards teachers, bad company, lack of practice and negative attitude, lots of assignment no practice and teacher biasness were other factors that the students indicated affected their performance in Mathematics.

CONCLUSION

The study concluded that Mathematics performance was poor since the girls hated the subject. The researcher further pointed out that girls had developed a negative attitude towards the subject. This cynical attitude greatly impacted negatively on the learning of the subject. The attitude has made female students regard themselves as incapable of excelling in Mathematics has led to desolate test scores in the discipline.

The study concluded that teachers treated boys and girls differently by giving more problems to be solved on the chalkboard to the boys than girls since they believe that Mathematics is Masculinity. Teachers play a crucial role in how students perceive different subjects and in this context they perceive the subject as a male domain ignoring the female students. This stereotyping has led to female students having less interest in the discipline since they believe in what their teachers believe leading to low achievement in the subject.

RECOMMENDATIONS

1. In relation to girls' attitude towards Mathematics, the instructors should align their teaching techniques with the students' learning level. This would ensure that the students do not form negative attitude towards the subject.

2. The research strongly advises that students take charge of their negative attitude towards Mathematics which would enhance positive feedback towards their teachers' teaching approaches. Their teachers should advise them accordingly on the implications of having a negative attitude towards Mathematics.

3. In relation to gender stereotypes against girls and their performance in Mathematics, the teachers are advised to treat both boys and girls equally. This can be done by giving both of them the opportunity to be group leaders in their Mathematics groups as this will boost the girls' confidence in the subject.

4. The instructors are advised to organize inter-school Mathematics competitions between boys' schools and girls' schools to enhance the female students' performance in the subject. This will empower the girl child since she will realize that she has the same potential as the boy child.

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The authors hereby unanimously concur that this work is a contribution of all the stakeholders which was concordantly researched and analyzed.

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Authorship and Level of Contribution

Isaac Wambua Muasya developed the objectives of the study, research questions and the research methodology.
Lewis Muli Ngesu came up with the statement of the problem, purpose of the study and discussion of findings.
Erastus Nzou Mwove contributed in the development of the research topic, the abstract, introduction of the study, research results, conclusions, and recommendations. He proofread the research article and he is the corresponding author of this research study paper.

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