

**DETERMINANTS OF PERFORMANCE IN MATHEMATICS AMONG GIRLS IN
PUBLIC PRIMARY SCHOOLS IN ISINYA SUB-COUNTY, KAJIADO COUNTY
KENYA**

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ABSTRACT

Mathematics is very important in various fields covering a wide range of academic activities undertaken by pupils in primary schools. It forms a solid foundation for future academic success. The purpose of this study was to assess the determinants of performance in mathematics amongst girls. The study sought to determine the extent to which teacher factors, girl factors, and school factors influence girls' mathematics performance. The study was driven by the academic achievement theory and the dynamic theory of school variables. The study employed both quantitative and qualitative methodologies and the target population consisted of 33 head teachers, 80 mathematics teachers, and 325 seventh-grade girls, totaling 438 respondents, from whom a sample of 208 was drawn by use of Yamane's Formula. Three head teachers and 19 mathematics teachers were chosen at random from each zone. However, 30 girls in class VII were randomly selected from each zone. The researcher sampled 12 head teachers, 88 mathematics teachers, and 120 girls in class VII using this procedure. Questionnaires and interview guides were used as data collection instruments. Qualitative data was analyzed thematically and presented in narrative form. Quantitative data was analyzed descriptively using frequencies, percentages, mean, and standard deviation. The study established that teacher related factors affect the performance of girls in mathematics subject, girls showed negative attitude towards mathematics, peer pressure is detrimental to girl's math's achievement. Most of the schools in Isinya Sub County have no conducive facilities to enhance performance of girls in mathematics. The study recommends that there is need to improvise measures that enhance teacher capacity for teaching efficiency. The government' school management and other stake holders such as parents and advocacy organization needs to come up with multidimensional approach measures that work towards transforming girls identify and value.

Keywords: *Teacher Factors, Girls' Factors, School Factors, Performance in Mathematics*

INTRODUCTION

Mathematics is among the subjects taught in primary schools that is used in a variety of fields and covers a large range of activities. According to Singh, Granville, and Dika (2012), providing learners with a strong basis in initial math learning is vital to their forthcoming theoretical achievement, not to reference to their daily functioning. This is especially true, according to Singh et al (2012), considering the rising hassles of the mathematics program in primary schools now. This confirms that if a youngster joins elementary school, it is predictable that primary school mathematics will receive more attention in mathematic. The drop in females' mathematical achievement, on the other hand, is cause for concern.

In India, Fraser and Kahle (2014) assert that many girls in primary schools manifest a decline in mathematics concepts often presented in their test scores. In New York, McCaffrey, Korentz, Lockwood and Hamilton (2010) also assert that teachers are key to girls' performance in mathematics. According to McCaffrey et al (2010), teachers' efficacy and beliefs helps girls' academic growth. Teachers' effort in education, the aim they set for their lessons, and their degree of ambition are influenced by their level of education, teaching strategies, socialization, efficacy, and preparedness, and educators with a robust sense of effectiveness frequently show better heights of preparation and group.

In Austria, Habyarimana (2011) claims that educational facilities like libraries, resource centers, and classrooms have a good and significant impact on girls' mathematics performance. According to Darling-Hammond (2010), most of the conversation concerning science and mathematics schooling among girls, and also the want for instructors who are knowledgeable in these subjects, has attentive on high school students and teachers, where a solitary topic certificate is obligatory to impart across many punishments and the major metric for achievement is frequently regarded as a fruitful change to a postsecondary institution of advanced learning. It's a different story when it comes to evaluating the readiness of fully credentialed multiple-subject teachers to teach mathematics to female students in elementary schools.

In Sub-Saharan Africa, according to Amarel (2008), most studies evaluating teachers' mathematical proficiency have concentrated on gauging educators' opinions of their readiness deprived of a comparison investigation of other subtleties such as school and family participation elements, as well as females' mathematics achievement. According to Umameh (2011), mathematics is a subject that is taught as a required subject in Nigerian primary schools. Conferring to Umameh (2011), math is the backbone and a vital instrument for any country's scientific, technological, and financial growth. Similarly, Davies and Hersh (2012) see math as a vital topic not just for obtaining an academic certificate in high school or college. Though, it is discouraging to observe that, despite the position of math in Nigeria's educational arrangement, poor results have been documented in recent public examinations. According to Mefor (2014), performance in mathematics, especially amongst the girls in primary schools in internal and national examinations is low.

Over the Ministry of Education in Kenya, the government encourages girls to pursue education, which is entrenched in the Basic Education Act of 2013, which requires the management to provide rudimentary learning infrastructure, including as school amenities,

play resources reserve hubs, instructional incomes, and competent staff, as well as qualified personnel (Republic of Kenya, 2015). Despite these measures, though, Kwamboka (2012) reports that girls' math proficiency is dangerously low.

Despite the importance of mathematics in any county's technical progress, poor performance by primary school females in mathematics remains a recurrent problem in many of the county's schools (Uwezo, 2010). According to a survey published by KNEC (2017) to track students' math achievement, 62 percent of girls in Kajiado County were unable to solve math questions. Similarly, according to a study done by Uwezo (2010), seven over ten girls in class VII were unable to complete class IV mathematical exercises.

Uwezo (2010) also discovered that 60% of girls in public elementary schools in Kajiado County lack basic mathematical skills, with 34% of the girls unable to do simple activities that demonstrate basic mathematical understanding. This shows that, despite the value placed on girls' mathematical achievement by Kenyan society, girls' mathematics performance continues to worsen. The Isinya Sub-county is no different, with many girls receiving poor arithmetic grades.

A Ministry of Education survey (2020) indicate in Isinya Sub-county, girls are manifesting a downward trend in mathematics' achievement shown in Table 1.

Table 1: Mathematics' Performance in KCPE among Girls in Isinya Sub- County

Year of KCPE	Mathematics' Performance Among Girls (%)
2016	30.13
2017	29.10
2018	28.61
2019	27.81
2020	26.03

Source: KNEC (2020)

Despite these figures, few empirical research have looked at the factors that contribute to girls' poor mathematic performance, necessitating this study.

Statement of the Problem

Math is very significant in various fields and covering a wide range of academic activities undertaken by students in primary schools. It forms a solid foundation for future academic success. Salau (2014) noted that there was a significant relationship between achievement in Mathematics and sciences. Salau (2014) also pointed out that Mathematics regarded as a science and that there is a relationship between Mathematics and students' overall ability outcomes. However, Salau never looked at learner factors like attitude and peer influence, teacher factors like educational level, teaching experience and classroom management which can also affect learner performance. Also Salau study focused on Mathematics and sciences subjects while this is limited to Mathematics performance in girls.

Despite the known importance of mathematics and the emphasis shown in policies and school curriculum, the performance of mathematics among girls has always been very low in Kenya compared to boys (Mabula, 2015). The situation is worse among females in public elementary institutes in Isinya Sub- County, with many of them receiving low academic grades in national mathematics examinations. As previously indicated, conferring to statistics published by the Ministry of Education (2020), girls in Isinya Sub-County scored a dismal 30.13 percent in mathematics in the 2016 KCPE, 29.10 percent in 2017, 27.81 percent in 2017, and 26.03 percent in 2020. For example, Salau never looked at learner factors like attitude and peer influence, teacher factors like educational level, teaching experience and classroom management which can also affect learner performance. Efforts to address these issues haven't achieved much in the way of notable results. Notwithstanding these figures, few experimental lessons have looked at the factors that affect girls' mathematic performance, necessitating the research. From the above it is paramount to undertake the present study so as to fill the existing research gap.

Purpose of the Study

The research measured the determinants of performance in mathematics among girls in public primary schools in Isinya Sub-county.

Objectives of the Study

The research was directed by the subsequent aims:

- i. To establish the effect of teacher factors on performance in mathematics amongst girls in Isinya Sub- County;
- ii. To determine the degree to which girls' factors affect performance in mathematics amongst girls in Isinya Sub-County;
- iii. To establish how school factors affect performance in mathematics amongst girls in Isinya Sub- County.

LITERATURE REVIEW

The Concept of Girls' Performance in Mathematics

Primary school mathematics abilities are meant to give girls the foundation they need to excel in elementary school and beyond. Teachers should focus courses in elementary school on basic abilities that will lead to advanced mathematics in high school and college, according to Anobile, Cicchini, and Burr (2012). Girls lay the groundwork for future life skills from elementary school to the end of their college studies (Anobile et al, 2012). Ordering, geometry, and performing basic operations are examples of principles taught in primary schools. Anobile et al (2012), on the other hand, claim that mathematical challenges are common among primary school girls.

Mathematics skills score high in many nations in Sub-Saharan Africa as compared to other corrections in elementary schools, and any pupil who excels in such services is considered to have excellent reasoning talents. According to Ojedapo, Fazio, Bailey, Thompson, and Siegler (2014), a primary school student who achieves a score of 75.0 percent or higher on any mathematical test is deemed exceptional in mathematics. Teaching through representation or visuals, according to Fuhs and McNeil (2013), will assist girls to create links between the real world and the mathematics skills that are critical for academic

achievement. Girls may become perplexed by classroom learning if they do not make a connection between life and arithmetic.

Teacher Factors and Performance of Mathematics amongst Girls

Teachers have an important impact on the achievement of girls in primary institutes when it comes to mathematics. The enormous effect that mathematics educators can have both in inspiring additional females to perform better in mathematics in school and in enhancing knowledge results is a frequent theme that arises from the works on girls' teaching. However, according to Moore (2000), a major setback in the performance of girls in mathematics is the problem of unqualified, competent, experienced mathematics' teachers with positive attitude towards girls' capabilities in solving tasks in mathematics.

Stacki (2002) discovered that educators' gender had an impact on other actions of student engagement, like educator insights of student skill and girls' engagement with mathematics teachers, which was even better than the consequence on attainment in a study conducted in the United States. A study conducted in Zimbabwe by Hyde, Fennema, and Lamon (2010) found that mathematics teachers' expertise plays a major impact in enhancing girls' self-esteem, which in turn enhances their mathematics performance. According to Hyde et al (2010), experienced and qualified mathematics' teachers act as role models to girls. In Kenya, the statistical relationship between mathematics' teachers and performance of girls in mathematics cannot be overemphasized.

In a study carried out in Nairobi and Rift Valley Provinces, Teachers' training, attitude, experience, mentoring skills, and material mastery, according to Githua and Mwangi (2013), are key drivers of females' mathematics achievement. The quality of mathematics education, teaching tactics, socialization, efficacy, and preparedness, according to Githua and Mwangi (2013), influence the effort instructors put into mathematics education, the areas they usual for their lessons, and their equal of ambition. However, the study context was not in Kajiado County prompting the need to carry this study.

Girl Factors and Performance in Mathematics amongst Girls

Factors related to girls in primary schools are key determinants on their ability to perform well in mathematics. These include; attitudes, peer pressure, age and social competencies. According to Andrews (2010), girl issues like gender play a significant and multifaceted role in mathematics' education. A study conducted out in Venezuela by Fennema and Sherman (2014), for example, found that there were disparities in mathematics ability based on the gender of participants. Fennema and Sherman (2014) indicated that several gender changes in pupils' attitudes affected girls' performance in mathematics. In research done in the United Kingdom, Martin and Porter (2013) established that many suffer due to lack of self-concept, self-drive and personal motivation to undertake mathematics. According to Martin and Porter (2013), many girls don't have self-assurance in their capability to resolve math problems and thus, attain inferior consequences than they then would.

The situation is similar in many nations in Sub-Saharan Africa, with girls' factors at the heart of their capacity to achieve in mathematics. In a study conducted in Nigeria, Oyedonkun (2013) discovered that girls who have role models such as classmates, parents and teachers perform well in mathematics. According to Oyedonkun (2013), despite the assertions that gender factors determine mathematics' performance, girls who are well-motivated and have support from their peers, teachers and parents register impressive grades in mathematics' test

scores. Nevertheless, a gap exists as the study was in the regional context and thus the context of girls' performance in mathematics in public primary schools may be different from Kenya.

In Uganda, Kabaka (2011) reports that girls' factors such as gender, peer pressure, parental motivation and attitude among others contribute immensely to the performance of girls in mathematics. According to Kabaka (2011), personal challenges such as taking new identity at school, adjusting to the strange buildings, new teachers and new academic activities pose challenge to girls to perform well in mathematics. Nonetheless, a gap exists as the study was in the regional context and thus the context of girls' performance in mathematics in public primary schools may be different from Kenya.

In Kenya and Isinya Sub- County in particular, the extent to which girl factors determine performance of girls in mathematics cannot be disregarded. A study carried out by Eshiwani (2000) noted that girl factors such as values, attitudes, social organizations, family or parental characteristics among others play a key role on how girls perform in mathematics. However, further investigate is wanted to identify the degree to which these girl variables influence mathematics achievement among girls; hence the need for this study.

School Factors and Performance in Mathematics amongst Girls

School factors are a set of dynamics found within a school set up and play a significant role in ensuring that girls perform better in mathematics by providing the pre-requisite resources. Clark (2010) asserts that such school factors include; physical facilities and instructional resources. According to Fraser and Kahle (2014), other kinds of instructional incomes comprise of games, acting, protests, trials, actual scenarios, genuine items and examples, representative and graphical symbol, and other forms of representation. Conferring to the United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2013), in order for a school to achieve good performance, instructional incomes need to be residence place and utilized efficiently in classroom repetition. Rivkin, Hanushek, and Kain (2011) showed a research in the United States that demonstrated a connection amid the availability of school amenities and students' mathematical attainment. They also stated that poor academic achievement among girls is caused by a lack of facilities and resources in public primary schools. A library is another important facility that correlates to girls' math success.

In Kenya, primary schools have seen cases of girls performing poorly in mathematics. Onyango (2010) says that, in order to strategize for physical incomes, it is necessary to classify the incomes needed, manner a wants valuation based on excellence criteria, and evaluate the component cost and material consumption. However, he only looked generally looked at resources for all subject but not specifically Mathematics hence the need of this study.

In Isinya Sub- County, there are limited school facilities and instructional resources are equally not adequate and appropriate. For example, a report by Lucas and Mbiti (2012) shows that FPE was launched with a sole objective of enhancing access to quality primary education through delivery of school physical facilities and delivery of instructional resources such as books and teaching aids for all subjects including mathematics. However, in many civic primary institutes in Kajiado County and especially, Isinya Sub- County, the ratios of physical facilities and resources such as mathematics' books to students, more so

girls are still very high (Lucas & Mbiti, 2012). A gap exists as the study didn't focus on the performance of girls in mathematics in public primary schools.

The Dynamic Theory of School Factors

The Dynamic Theory of School Factors proponents were Slater and Teddlie (1992). Slater and Teddlie (1992) assume that effective schooling is a dynamic, ongoing process. Moreover, the dynamic model assumes that effective schools/educational systems are expected to change in order to remain effective as their contexts change; they must, therefore, adapt their schooling to the changing context. Grounded on the assumption that school-level influences will have equally direct and indirect effects on student achievement, this concept has been put forward. It is projected that school elements will have an influence on classroom features, notably teaching training. Among the reasons for this supposition is the detail that efficiency lessons have demonstrated that the classroom level is extra essential than the school and organization levels, and that specifying classroom elements is regarded to be an absolute requirement for important the system and school levels. Because of this, the dynamic theoretical model is applied to components of school life that are linked to similar fundamental ideas of mathematics instruction amount, learning opportunities, and education quality. The Dynamic Theory of School Factors was relevant in the present study as it highlighted the changes that the school management need to make so as to enhance girl's performance in mathematics in Isinya Sub- County.

Academic Achievement Theory

The proponent of Academic Achievement Theory is Walberg who indicated that psychological characteristics of individual students and their immediate psychological environments influence educational outcomes (cognitive, behavioral and attitudinal) (Reynolds & Walberg, 1992). According to this hypothesis, individual learners' psychological characteristics as well as their immediate psychological environments have an impact on educational results such as cognitive, behavioral, and attitudinal outcomes. Learning outcomes are influenced by nine key variables, according to Walberg, including students' skill/previous attainment, incentive, phase/developing level, amount of teaching, superiority of teaching and classroom environment. Other factors that influence educational outcomes include parental participation, home setting, peer clutch, and contact to mass broadcasting external to the school (2012). According to Walberg (2012), psychosocial features like self-idea, approaches, actions, inherent inspiration, and general student appointment in knowledge are valuable in program assessment trainings and can offer educators with valuable info in order to position more optimally operative schoolrooms. In order to advance girls' mathematics attainment, it is necessary to include both educational process goals and achievement goals in this study. As a result, the relevance of this theory is that girls' insights of the public setting, originality, contribution in extracurricular doings, self-concept and attention in mathematics have implications on math's performance. The Academic Achievement theory was relevant in the present study as it helped the management understand psychological characteristics of individual girl students and their immediate psychological environments and in turn enhance girl's performance in mathematics in Isinya Sub- County.

The research used a self-developed questionnaire with closed-ended assessment substances to acquire measurable statistics from Mathematics teachers. The investigator collected qualitative information from head teachers and girls in class VII by means of structured interviews and open-ended test items. Thematically aligned with the research purposes, qualitative information was evaluated and obtainable in prose style. Quantitative statistics was examined using descriptive statistics such as incidences, fractions, average, and standard deviation.

RESULTS

Levels of Performance in Mathematics among Girls

The study sought to determine the performance of girls from the years 2016 up to 2020.

Table 2: Mathematics Performance amongst Girls in Class VII

Year of Examination	Term I	Term II	Term III
2016	33.7	36.9	26.9
2017	26.8	28.0	26.4
2018	29.5	29.2	31.0
2019	25.4	27.9	29.9
2020	28.7	29.4	27.7

Assessment on performance of girls based on mean scores show a on and off trend, the best Performance (M=36.9) was registered in second term in 2016, while poorest perforce was recorded in 2019 first term (M=25.4). Mostly these results also show steady decline in girls' performance in math except in the year 2018 where girls recorded slight improvement. From the qualitative data, head teachers reported that the mathematics performance amongst girls varied from one class to the other, in most cases, girls performed below average. The majority of the girl's perceived math's subject as difficult and thus little efforts on math's which translated to poor performance. The findings supported Mefor (2014) that performance in mathematics, especially amongst the girls in primary schools in internal and national examinations is low.

Teacher Factors and Performance in Mathematics amongst Girls

The study sought to determine the extent to which teacher factors affected performance in mathematics amongst girls in KCPE in the school. Results are presented in Table 3.

Table 3: Teacher Factors and Performance in Mathematics amongst Girls

	N	Max	Min	Mean	Std Dev.
My level of education has not improved performance in mathematics amongst girls in my school	65	2.00	5.00	4.12	0.93
I have taught mathematics for a long time which has really determined KCPE performance in mathematics amongst girls in my school	65	1.00	5.00	3.82	1.32

I rarely believe that girls can learn mathematics which has negatively determined their mathematics' performance	65	3.00	5.00	4.12	0.55
My experience has determined performance of girls in mathematics	65	3.00	5.00	4.08	0.48
I do not feel motivated to teach girls mathematics since their performance in mathematics' examination is low	65	1.00	2.00	1.37	0.49
In my school, girls lack female mathematics' teachers to model girls to like mathematics	65	3.00	5.00	4.31	0.64

Statistical evidence show that majority of the teachers agreed that in most schools in Isinya, girls lack female mathematics' teachers to model girls to like mathematics (Mean = 4.31 SD =0.64). Their level of education has not improved performance in mathematics amongst girls in the school (Mean = 4.12 SD =0.93) and that they rarely believe that girls can learn mathematics which has negatively determined their mathematics' performance (Mean = 4.12 SD =0.55). These findings contradict the study conclusion by Akiri and Ugborugbo (2009) found that there is no statistical relationship between teacher effectiveness and academic performance.

Results further revealed that teachers experience determine performance of girls in mathematics (Mean =4.08 SD =0.48), most of the teachers have taught mathematics for a long time which has really determined KCPE performance in mathematics amongst girls in the school (Mean = 3.82 SD =1.32). However, there was high standard deviation demonstrated and that teachers disagreed with the statements that they don't feel motivated to teach girls mathematics since their performance in mathematics' examination is low (Mean = 1.37 SD =0.49). These findings are in line with study conclusion by Akinsolu (2010), concluded that teacher-student ratio, teacher's experience and qualification has a significant impact on academic performance.

Some head teachers reported that teacher factors such as experience, skills teaching motivation were instrumental in inspiring girls to embrace math's subject and thus positive performance. These findings confirm the assertions by Ewetan and Ewetan (2015) emphasized that the level of teacher's experience has significant impact on academic performance in Mathematics.

On contrary others reported that teacher factors had no influence at all on performance amongst girls in mathematics and the whole issues relied on learners' self-concept. The findings concur with those of Kara and Njagi (2013) on teacher factors influencing academic achievement who found that the teachers experience, age, gender and professional qualification were not significant with academic performance of students.

Results show that math's teachers used various motivation strategies in class for instance; math's teachers' encouraged each student to have a growth mindset. They provided necessary guidance to pupils during every math's lesson, they encouraged, group work, critical thinking and collaborating and solving math's problems. Teachers also employed the use of technology and play fun math games. These findings support the study findings by

Unterhalter and Dutt (2021) pupil motivation was key creating positive learning culture amongst learners.

Girl Factors and Performance in Mathematics Amongst Girls

The study sought to determine the extent to which girls related factors affects performance amongst girls in KCPE in the school. Results are presented in Table 4.

Table 4: Girl Factors and Performance in Mathematics amongst Girls

	N	Max	Min	Mean	Std Dev.
Girls show negative attitude towards mathematics which has not improved mathematics' performance	65	3.00	5.00	4.18	0.68
Peers encourage girls to avoid mathematics since it is difficult which has not improved their mathematics' performance	65	4.00	5.00	4.29	0.46
In my school, family members and parents rarely act as good role models to girls to enable them work hard in mathematics	65	4.00	5.00	4.35	0.48
In my school, parents are rarely involved in their girls' study activities as a way of improving performance of girls in mathematics	65	4.00	5.00	4.38	0.49

Statistical evidence show that the majority of the teachers agreed that, in most schools in Isinya Sub County parents are rarely involved in their girls' study activities as a way of improving performance of girls in mathematics (Mean =4.38 SD =0.49) and that family members and parents rarely act as good role models to girls to enable them work hard in mathematics (Mean = 4.35 SD =0.48). A similar conclusion by Meenu Dev (2016) corroborated that parental participation in pupil's education consequently influences their academic performance.

The study further revealed that Peers encourage girls to avoid mathematics since it is difficult which has not improved their mathematics' performance (Mean =4.29 SD =0.46) Girls show negative attitude towards mathematics which has not improved mathematics' performance (Mean =4.18 SD =0.68). These findings concur with research findings by Similarly, Kpolovie, Joe and Okoto (2014) asserted that student's attitude to school and their interest in learning influence their academic performance.

Head teachers reported that how an individual perceives (in terms of attitude, interest self-esteem, and motivation personal goals, and personality traits) a subject like math's consequently determines how she will perform, in their opinion, some girls perceived math's subject as boys' subjects and thus culture affected their performance. These findings are in line with study conclusion by Sibanda et al. (2015) that regular studying, self-motivation, punctuality in school and girls' personal goals as well as personality traits affect their performance in math's subject.

Critical examination of information given by girls show that peer pressure is detrimental to girl's math's achievement because clever girls were indirectly demotivated and absorbed popular misinformed cliques. This implies that girls may consciously hide or distort their math's performance capabilities (potential) or results to fit-in their friends' opinions.

These findings are in line with study conclusion by Fuhs and McNeil (2013) knowing that a peer would help if needed resulted in a learning benefit.

Assessment also shows that role models are essential in improving the Sense of belonging and fit which are critical in fostering positive personality and accomplishments in math's subjects. Girls chose role models based on personality and accomplishments. Exposure to competent female role models can improve girl's performance on math tests, feelings of self-efficacy, and commitment to pursue Mathematics. The girls reported that motivational strategy used by teachers and parents promoted girls' extrinsic motivation, use of motivational strategies led to a better performance of girls learners in math's subject. Motivation helped to improve in mathematics and enable girls recognize subjects that are recipes for their dream careers. These findings support study conclusion by Sankok (2012), motivation impacts the desired effect of learning by the student, including goals, effort, persistence, and performance.

Girls reports show that individual self-concept affects girl's achievement in mathematics. This belief tends to affect the approach of girls towards Mathematics. In most cases, girls with positive self-drive were more likely to perform better than girls with low self-esteem. Results also showed that most of the Girls in Isinya Sub County had low self-concept and esteem which affected their learning of Mathematics subject. The findings concur with research conclusions by Kyriakides (2019) Positive self-beliefs are at the heart of the positive attitude toward Mathematics.

School Factors and Performance in Mathematics amongst Girls

Teachers were asked to indicate the extent to which the availability the following materials in school and results are presented in Table 5.

Table 5: School Factors and Performance in Mathematics amongst Girls

	Great Extent	Fairly	Never	Mean	Std Dev.
Availability of instructional resources		39(60%)	26(40%)	2.40	0.49
Conducive physical facilities	14 (21.5%)	40 (61.5%)	11 (17%)	1.95	0.62
Development of reward schemes	17 (26.2%)	18 (27.7%)	30 (46.2%)	2.20	0.83

Statistical evidence (40, 61.5%) show that most of the schools within Isinya Sub County had moderate quality in reference to physical facility conduciveness, they also moderate availability of instructional resources (39, 60%). However, evidence show that most of the schools (30, 46.2%) had not developed reward schemes to motivate best performers in math's subject. The findings supported Adelman (2013) findings that schools should provide resources, hold mathematics workshops, and provide advice to primary school female learners in order for them to adapt to new ways for increasing their arithmetic performance.

Table 6: School Factors and Performance in Mathematics Amongst Girls in School

	N	Max	Min	Mean	Std Dev.
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Instructional resources are not available in my school to supplement teaching of mathematics amongst girls and perform	65	2.00	5.00	4.28	0.70
My school has no conducive facilities to enhance performance of girls in mathematics	65	4.00	5.00	4.38	0.49
In my school, there is no reward scheme for girls who perform well in mathematics	65	4.00	5.00	4.31	0.47

Majority of the teachers agreed that most of the schools in Isinya Sub County have no conducive facilities to enhance performance of girls in mathematics (Mean =4.38 SD =0.49) they haven't organized for reward schemes for girls who perform well in mathematics (Mean = 4.31 SD= 0.47). Instructional resources are not available in many schools to supplement teaching of mathematics amongst girls and performance (Mean = 4.28 SD =0.70). These findings contradict the recommendations by Tety (2016) noticed that instructional materials have an impact on academic performance.

Head teachers response show that most of the schools in Isinya Sub County lacked resources, for instance, some teachers indicated that their schools were understaffed, most school lacked teaching aids, some of the school did not have basis infrastructure facilities such as quality classrooms or sufficient water source, play grounds that could guarantee quality learning environment and all these aspects affected how girls performed in math's subjects. These findings concur with Narad and Addullah (2016) that learning facilities were significant determinants of academic performance.

The head teachers reported that availability of teaching and learning materials, and competency of teachers, school environment and that size of a class or students to teacher ratio also influence girls performance. Similarly, Bakasa (2011) found that school factors such as effective teaching when combined with class size have a positive impact on academic performance.

Head teachers also reported that the location of a school has a significant impact on the academic performance of girls more so in math's subject. These findings support the study conclusion by Nambuya (2013) who revealed that the availability of physical resources affected the academic performance of pupils.

The girls clarified that most of the schools in Isinya Sub –county did not provide girl's with teaching and learning resources in mathematics In their opining lack of adequate teaching materials affected girls performance in math's subject. The findings concur with study results by Kyriakides (2019) learning resources such as teaching aids prove to be an a formidable supplement for teachers when the reinforcement of a skill or concept is necessary. It was revealed that some of the school in Isinya Sub – county lacked modern facilities to support quality learning process. The findings support research conclusions by Mbiti (2012) that school facilities and the physical environment of the classroom can enhance learning and build culture.

The girls reported that most of the schools in Isinya Sub – county were stretching towards promoting a culture where girls like mathematics, the admiration strived to ensure that all girls were taught by professional teacher who likes mathematics and knows math deeply. In building positive math's culture teachers reflect on their practice and continue to develop as experts in effective math teaching practices. The results showed that

only a few of the school had reward program for girls who performed outstandingly. However, the resource mobilization to guarantee reward program was limited. These findings support the study findings by Walberg (2012) rewards can form positive reinforcement, given that they give learners a sense of meaningfulness and accomplishment for learning to master a certain subject, skill, or activity.

Conclusions

The study concludes that teacher related factors such as experience, education, competency and organization affect the performance of girls in mathematics subject. In most schools in Isinya, girls lack female mathematics' teachers to model them like mathematics, that teachers experience determine performance of girls in mathematics and the teachers' level of experience and attitude was strongly mentioned to influence girls' achievement in mathematics.

The study concludes the girls' factors affect the performance in mathematics amongst girls in Isinya Sub-County; Interest manifested by girls' pupils, regular studying, class attendance, self-motivation, peer pressure and attitude towards learning, Girls who show negative attitude towards mathematics which has not improved mathematics' performance Peer pressure is detrimental to girl's math's achievement because clever girls were indirectly demotivated and absorbed in popular misinformed cliques.

The study concludes that school factors affect the performance of girls in mathematics subject in Isinya Sub- County. Most of the schools in Isinya Sub County had no conducive facilities to enhance performance of girls in mathematics, some schools in Isinya Sub County were understaffed, most school lacked teaching aids.

Recommendation

Given that teacher related factors were found to play a critical role in improving girls' performance in math's subject; there is need to improvise measures that enhance teacher capacity for teaching efficiency. Such may include strategies like developmental training and teacher motivation strategies.

It is recommended that the head teachers being a major stakeholder in the schools should provide the right leadership skills and also motivate the teachers towards having the right attitude geared at improving the girls' performance in Mathematics in schools.

The government through the Ministry of Education being a major stakeholder in education should provide adequate and timely resources in schools to ensure that there is adequate infrastructure geared towards improving girls' performance in Mathematics in schools.

On enhancing girls' individual factors; the governments, school management and other stakeholders such as parents and advocacy organization needs to come up with multidimensional approach measures that work towards transforming girls identify and value.

In dealing with school related factors that hamper girl's performance in Maths; similarly call for multiple efforts from government, school administration and parents. This is critical in providing strategic plans and necessary resources that enhance quality learning environment for girls' experience not only in math's but in career.

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