



ACADEMIC PERFORMANCE IN SCIENCES: IMPLICATIONS FOR GENDER PARITY IN KENYAN SECONDARY SCHOOLS

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Abstract:

This paper sought to investigate the factors that contribute to gender disparity in science subjects' performance in Kenya Certificate of Secondary Education (KCSE) examinations in Kenya. The study was conducted in Kakamega East Sub-County, Kenya. Kenya has domesticated international legal instruments on equal and quality education for both boys and girls. However, data obtained from the Kenya National Examination Council (KNEC) on KCSE results depicts that boys perform better than girls in science subjects. Based on this context, the study examined factors that contribute to gender disparity in academic performance in sciences. The study further assessed the assumptions underlying gender parity as well as the negative influence of gender parity on students in Kenyan secondary schools. The study identified three research objectives that guided data collection and data analysis. The paper examined the impact of learners' attitudes towards science subjects. Assessment of the parental socio-economic impact of gender parity was done. The study further explored the role played by culture in influencing gender parity. The study targeted target boys boarding secondary schools and girls boarding secondary schools. The entire study population was 2200, out of which 400 students, 30 teachers, and 10 headteachers were sampled. The total sample size was 440. This conformed to a confidence interval of 0.05, the confidence level of 95 percent, which is a Z-score of 1.96 standard deviation of 0.5. The reliability was estimated through the use of Cronbach's Alpha Coefficient using Statistical Package for Social Sciences (SPSS) version 19.0. Data was collected through questionnaires and interview schedules. Frequency analysis and findings revealed that the socio-economic status of the family, pupils' attitudes, and culture contributed to gender disparity in science performance. Regression analysis revealed that attitudes, socio-economic status and culture influence gender parity by 9.4 percent. The study recommended that the Ministry of Education should provide proper career guidelines, which would motivate both boys and girls to pursue science subjects. The study might be significant to the government of Kenya and

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sub-Saharan countries, as policymakers would use the study findings to formulate educational policies aimed at redressing gender disparity. The study is significant to comparative and international education since it provides literature on gender disparities in science education. The literature on gender disparities in science education and would be of value to scholars and researchers.

Keywords: achievement, attitudes, culture, socio-economic status

1. Introduction

The performance of girls in science subjects in Kenyan schools has been a persistent problem. It is generally agreed that in the current knowledge economy society, science, technology, and innovation play a significant role in the achievement of Sustainable Development Goal number 4 on qualitative basic education for both genders. Several factors contribute to the low participation and performance of girls and women in science and technology education and science-based activities in Kenya and their lack of motivation for learning science and technology. These include a lack of relevant policies, inadequate curriculum content and delivery, and negative socio-cultural attitudes and practices. Therefore, the achievement of gender parity in science and technology should rely on an appropriate mix of strategies based on lessons learned from best practices and experiences at national, regional, and international levels. More boys than girls tend to opt for scientific and technological subjects in schools. Their performance in these subjects is better compared to girls. After school, boys more than girls, tend to pursue careers in the field of science and technology. This is a worldwide phenomenon, common to a variety of educational systems, and hence is a much-researched phenomenon. There is evidence that where research recommendations are reflected in practice, the disparities can be reduced.

The under-representation and under-achievement of girls in science and technology subjects is a severe inefficiency in educational systems in countries whose development depends crucially on the generation of human technological capacity. This is the case in sub-Sahara Africa. If more girls could be persuaded to take up science and technology subjects in schools, we would have the benefit of increased technological output with few extra inputs. When girls opt for the sciences stream, the figures show that they perform well. It does seem that girls have a less clear vision of what the goal of their studies should be. They claim that more often, boys have chosen the direction of their studies according to their personal preferences and not on the grounds of their professional future. They show themselves to be less sure of themselves when they are confronted with mathematics and other sciences. Where they are of equal ability in a class, a girl will hesitate before choosing to follow a science stream.

Within the family circle, the girl suffers from the traditional concepts that parents have of girls. It can be seen all too frequently that her domestic duties get in the way of her homework. Domestic duties compete for her time with study and revision at home.

The moment the girl gets back home, she embarks on household work and has limited time to do. In some families, when times are hard, girls are neglected, and preference is given to the boys. The family income sometimes cannot support keeping all children at school; thus, priority is given to the needs of the boy(s) (John, 2005). Besides, for some parents, the primary duty of girls is to get a husband and produce children. Academic problems are not the only kind of issue that reduces girls' motivation to pursue scientific subjects. At school, most boys prefer to work without girls, because they do not think the girls are prepared to put forth enough effort, particularly in mathematics, a subject where plenty of concentration and steady willingness to work is regarded as essential. Even when the girls are ready to work, the timetable for group studies disadvantages them, since the girl also should include domestic duties among the work she should do. In Kakamega East Sub-county, the essential elements have been an emphasis on science subjects. Science teachers use traditional methods of teaching that do not motivate learners. Improved instructional technology is making inroads in the school system, and institutions are of a new kind, intended to prepare learners to achieve higher (Mbaka & Wamae, 2004). A study of this kind also draws importance from the fact that meeting the aims of industrialization can be jeopardized if a large proportion of anticipated beneficiaries do not have adequate access to appropriate kinds of education and training in science. Excellent performance in science subjects such as Chemistry, physics, and biology is significant due to their perceived contribution to industrial and technological development, particularly in attaining the Sustainable Development Goals (SDGs) and Kenya's Vision 2030.

The development of a cadre of scientists and technicians involved in the selection and adaptation of essential technologies would potentially improve the anticipated events in agriculture, health, and industries in line with the MDGs and Kenya's development plans (Oduor, 2009). Failure in science subjects, Chemistry included, may, therefore, affect upward social mobility for many a household with poor performers. The significant role of science in the attainment of the SDGs and Kenya's development has prompted the Government of Kenya to make it compulsory for each student to specialize in at least two out of the three science subjects (Chemistry, Biology, and Physics) offered at the secondary school level. This notwithstanding, performance in these science subjects has continued to decline each year (KNEC, 2014). Available statistics show that in the last decade, students' achievement in science subjects has remained low nationally. Table 1.1 shows the overall national performance of students in Chemistry, Biology, and Physics at KCSE in the period 2013-2017. The average percentage performance in Chemistry was lower than in Biology and Physics.

Table 1.1: The KCSE Chemistry, Biology, Physics National
Overall Performance (2013-2017) Percentage Mean Score

| Year | Chemistry | Biology | Physics |
|------|-----------|---------|---------|
| 2013 | 22.71 | 30.32 | 36.71 |
| 2014 | 19.17 | 27.15 | 31.31 |
| 2015 | 24.89 | 29.19 | 35.11 |
| 2016 | 23.66 | 32.44 | 36.64 |
| 2017 | 27.93 | 26.21 | 37.86 |

Source: KNEC (2013 - 2017).

1.1 Objectives of the Study

The following objectives guided this study:

- To examine the influence of learners' attitudes towards science subjects.
- To assess the parental socio-economic impact of gender parity.
- To explore the role played by culture in influencing gender parity.

1.2 Hypothesis

H₀: Gender parity does not significantly influence academic performance in Kenyan secondary schools.

2. Learner Attitudes towards Sciences

Attitude is an individual's prevailing tendency to respond favorably or unfavorably to an object, person, or group of people, institutions, or events. An attitude determines what an individual will visualize, hear, think, or do. Opinions can be either positive values or negative prejudice (Pearson, 2014). The attitude in science means the scientific approach assumed by an individual for solving problems, assessing ideas, and making decisions in the sciences. Beliefs, therefore, motivate one's interest or feeling towards studying science. There is a direct link between students' attitudes towards science and student outcomes. Learners who have a positive attitude toward science tend to perform better in the subject. Teachers play an essential role in developing learner's competencies in the teaching process. Teachers are critical to shaping learner's attitudes towards performance in science. Teacher plays a significant role during the process of learning, which can influence students' attitudes toward science subjects, which in turn can affect students' performance. Teachers act as role models to students, whatever they appreciate, or will have a significant effect on their students (UNESCO, 2011).

Trowbridge (2004) argues that students' attitudes about the value of learning sciences may be considered as both an input and outcome variable because their attitudes towards the subject can be related to educational achievement in ways that reinforce higher or lower performance. Considering this, students who do well on any topic generally have positive attitudes towards that subject. However, those who have negative attitudes towards an issue tend to perform poorly in the question (Olatunde, 2009). Students' attitude toward the learning of sciences is, therefore, a factor that has

long attracted the attention of researchers. The way a student rates his/her ability in a subject significantly affects the attitude of the student towards the subject. UNESCO (2011), found out that, girls remained unconfident in pursuing physics, even when they are generally doing well in the subject. This also worsens as they progress up the academic ladder, so that, by the time they get to college, their confidence and ability to undertake science subjects is uncorrelated with the actual talent. Jones and Wheatley (2012) found that male students generally have a better perception towards sciences (especially physical sciences) than their female counterparts who are much inclined to the biological sciences.

2.1 Parental Socio-economic Status

Kose (2011) asserts that the socio-economic status of the family has an essential effect on the student's academic achievement at school. According to Kean and Tsai (2008), every action of the family is a determiner that influences the children's educational outcomes. The studies conducted on the relationship between the students' academic achievement and the families' socio-economic status concentrate on such topics as family income, parents' level of education, family model, location of residence, the language used in the family, ethnic roots, previous level of education, acquired behaviors and talents. According to the Organization for Economic Co-operation and Development (OECD), academic achievement at school is not only connected with school-related factors but also with the socio-economic environment in which students are raised (Kean & Tsai, 2008).

Kose (2011) correlated these findings when he observed that the family's socio-economic characteristics determine students' academic attainment. Therefore, failure among lower-class students with low school success rates is attributed to the absence of cultural background and lack of friends from the high-class. Also, Kose (2011) points out that learners from high socio-economic status are more likely to succeed in academics due to the motivation and support from their families. Therefore, when it comes to choose of subjects in schools, they are more likely to choose science subjects with the aim of pursuing careers that are in line with the family expectations. Eweniyi (2013) concurs with the findings that students' low academic achievement is associated with familial and parental influences. Kean and Tsai (2008) observe that every action of the family determines the children's educational outcomes. Besides families' socio-economic status, parents' level of education influences students' academic achievement. Studies emphasize that the education level of parents of successful students is higher than the education level of the parents of unsuccessful students. Kean and Tsai (2008), states that the average period that parents participate in education is an essential factor in students' academic success. De Broucker and Underwood (2010) point out that those parents with a high level of education provide the most conducive environment for their children to study, thus providing the necessary motivation for them to proceed to higher education. Apart from family social status, student academic achievement is closely connected to family income (UNESCO, 2011).

Blanden and Gregg (2010) point out that family income influences children's educational gains. The per capita expenditure in the family is an indicator of the continuous income of the family. The amount of per capita expenditure has a positive effect on school achievement. For this reason, the increases in the constant income of the family facilitate the rise in literacy and the rise of school achievement in both boys and girls at all stages of education. The students with more affluent families obtain better grades compared to those with more impoverished families. There is a strong relationship between family income and science academic achievement, depending on the income distribution in the country. Kose (2011) stated that based on the results of their study that the academic performance of students with families of poor a financial state is continually falling, but that there is no clear result to show that this income influences children's educational outcomes. Student academic achievement can be predicted based on the socio-economic variables that exist in students' lives.

2.2 Cultural Factors

Culture determines or dictates various things in a person's life. This ranges from norms, values, beliefs, and even the economic activities of the society. Culture is transmitted from one generation to another. This means that the parents and society perception of education determine children's view about the same. Gender socialization is an obstacle to girl's equal participation in education. Through home and societal socialization, boys and girls learn gender stereotypical roles, norms, and attitudes. In most African communities, girls are brought up learning and knowing that women are not good in sciences (Chege & Sifuna, 2010). Due to this, girls acquire a negative attitude about their ability to compete at the same level as boys. Boys, on the other hand, are brought up believing they can handle any subject. Cultural beliefs, traditions, and norms in Kenya have a significant effect on girl student academic performance. In the case of day schools, girls are subjected to domestic work daily, while in the case of boarding schools, the girl student is negatively affected mostly during school holidays. Besides, the boy is given preference in a family where financial resources are scarce. In some cases, the girl student does not attend school as desired (Orodho, 2010).

Parents have distinct attitudes towards their daughters and sons. Girls are brought up for female duties such as raising children while boys have a whole working life to concentrate on career building. Parents and the community at large believe that girls lack qualities of assertiveness, initiative, and independence. Also, parents respond differently whenever things go wrong for boys and girls in academic performance. These parental attitudinal differences are due to culture (Chege & Sifuna, 2010). Girls are not encouraged to enter those academic areas that were historically dominated by boys. Most societies view a girl's education as a waste of time because they will leave home. Such cultural traditions make girls shy off from schooling and develop dependent attitudes.

Culturally defined duties for girls, particularly in domestic circles, socialize girls to take the roles of deputy mothers at home. Due to the cultural division of allocation of responsibilities and labor between sexes, which start at an early age, the opportunity cost

of educating girls to school is lower than that of boys. Therefore, parents tend to favor boys' education because they tend to believe they will take care of them in old age. Mothers depend on their daughter's labor before marriage, so they do not see the need to send them to school. Chege and Sifuna (2010) pointed out that parents tend to discourage too much schooling for their girls. There is always a fear that if a female is highly educated, she may find it hard for them to get a husband or be a good wife. Besides, females stay away from too much education to avoid venturing into academic disciplines, which would make it hard to follow their husbands in case of transfer of residence (Sifuna & Chege, 2010).

3. Statement of the Problem

All over the world women, encounter problems as consumers and providers of education. By comparison with their male counterparts, their participation in formal education tends to underachieve in post-primary education, especially in science, mathematics, and technology-related subjects. They are also under-represented in senior and promoted posts in education service. There is evidence that the education content, process, and organization of formal education reinforce gender stereotyping tendencies of society. Education systems can overcome many of women's difficulties. With Universal Primary Education being free, girls tend to do well boys. However, once out of the primary school enrolment, females under-achieve in a variety of subjects, especially in physical science, engineering, and technology-related topics. This study, therefore, investigated issues of gender disparity in academic performance of sciences in secondary schools in Kenya.

3.1 Significance of the Study

The study might be significant to the government of Kenya and sub-Saharan countries, as policymakers would use the study findings to formulate educational policies aimed at redressing gender disparity. The study might also be significant to school administrators and the entire education stakeholders as it identifies significant causes of gender disparity in science performance among students. The study is significant to comparative and international education since it provides data on strategies to be laid by Kenya government for minimisation of gender disparity. The study might also contribute to the literature on gender disparities in science education and will be of value to scholars and researchers.

4. Theoretical Framework

Pearson's gender relations theory guided this study. According to Pearson's opinion, the community or society perceives all activities carried out to be based on social interaction and the roles of women and men (Pearson, 2014). The society seems to have authority on the nature of what men and women do, and their real contributions to reproduction and

production, which turns out to be culturally biased against females. Pearson's theory of gender relation was significant for this study because it stresses the various economic, cultural, and economic norms, which must be considered for females to take the opportunities to engage in social activities like education. These economic and cultural norms stressed, in theory, are factors that influence girl academic performance in schools. This theory is relevant to the study because it incorporates the variables necessary to understand why girls are discriminated against. In traditional society, a man is the head of the family, a position held by a male parent. This implies that the patriarchal idea is dominant in accessing science subjects. The duties assigned to females in society are narrowly explained and defined, but they are expected to be good mothers.

5. Research Methodology

Mixed method approach was adopted for the study. The descriptive survey research design was used for this study because the study involved a description of the behaviours or attitudes of the respondents. The target population for this study was 2200. It was drawn from headteachers, teachers, and students from boarding secondary schools in Kakamega East Sub-county, Kenya. The sample size was derived from the target population of 2200. According to Mugenda and Mugenda (2008), 10% to 30% of the population is a suitable sample size. Subsequently, 10 head teachers, 30 science teachers, and 400 students were sampled. The total sample size was 440. This conformed to a confidence interval of 0.05, a confidence level of 95 percent, which is a Z-score of 1.96 standard deviation of 0.5. The reliability was estimated through the use of Cronbach's Alpha Coefficient using Statistical Package for Social Sciences (SPSS) version 19.0. The data was collected using questionnaires. Three sets of questionnaires were used; one questionnaire for headteachers, one for teachers, and another one for students. Data analysis involved organizing, summarizing, and synthesizing data to provide necessary information for description. Regression analysis was used to test hypothesis of the study. A tally system was developed where the total number of frequencies for given variables were calculated. The data was then presented using tables.

6. Results and Discussions

The purpose of this study was to establish factors contributing to gender disparity in science performance in Kenya certificate of secondary education in Kakamega East, Kenya. The findings were grouped according to the categories under which the respondents in the study area participated. The responses were summarized and compiled in frequencies and converted to percentages. The data were analyzed using descriptive statistics. Therefore, the study presented findings following the issues and views articulated by respondents who were science teachers, students, and headteachers. The following objectives guided the study: to examine the influence of learners' attitudes

towards science subjects, to assess the parental impact of gender parity, and to explore the role played by culture in influencing gender parity.

The study, therefore, sought headteachers, teachers' and learners' perceptions on the extent of learners' attitudes towards the pursuance of science subjects. The findings were captured in Table 6.1.

Table 6.1: Perceptions of head teachers, teachers and students on learners attitudes towards sciences

| Rating | Head teachers | | Teachers | | Students | |
|-------------------|---------------|------------|-----------|------------|------------|------------|
| | n | % | n | % | n | % |
| Strongly disagree | 2 | 20 | 8 | 24.2 | 53 | 13.3 |
| Disagree | 0 | 0 | 0 | 0 | 69 | 17.2 |
| Agree | 3 | 30 | 10 | 33.3 | 84 | 21.0 |
| Strongly agree | 5 | 50 | 15 | 50.0 | 194 | 48.5 |
| Total | 10 | 100 | 30 | 100 | 400 | 100 |

Data contained in Table 6.1 revealed that 50 percent of the headteachers strongly agreed that learners' attitudes influenced their participation in science subjects. Besides, 30 percent of the headteachers agreed that the attitude of learners influenced their involvement in the sciences. Additionally, 20 percent of the headteachers strongly disagreed that learners' attitude influenced their participation in science subjects. Further findings contained on data in Table 6.1 indicated that 50.0 percent of the teachers strongly agreed that learners' attitudes influenced their participation in science subjects. Furthermore, 33.3 percent of the teachers agreed that the attitudes of learners influenced their involvement in the sciences. Additionally, 24.2 percent of the teachers strongly disagreed that learners' attitude influenced their participation in science subjects. The research findings contained on data in Table 6.1 also showed that 48.5 percent of the students strongly agreed that learners' attitudes influenced their participation in science subjects.

Furthermore, 21.0 percent of the students agreed that the attitude of learners influenced their participation in the sciences. More so, 17.2 percent of the students disagreed that learners' attitudes influenced their participation in the sciences. Additionally, 13.3 percent of the students strongly disagreed that learners' attitude influenced their participation in science subjects.

Overall data contained in Table 6.1 revealed that over 70 percent of headteachers, teachers, and students indicated that learners' attitudes influenced their participation in science subjects. This implied that learners' attitudes play a crucial role in the pursuance of science subjects. The research findings concurred with Trowbridge (2004), who asserted that students' beliefs about the value of learning sciences might be considered as both an input and outcome variable because their attitudes towards the subject can be related to educational achievement in ways that reinforce higher or lower performance. Hence attitudes significantly influence gender disparity academic performance of sciences in secondary schools.

The study further sought teachers' and learners' perceptions of the extent of learners' attitudes towards the pursuance of science subjects. The findings were captured in Table 6.2.

Table 6.2: Perceptions of head teachers, teachers and students
 on how learners' socio-economic status influences their choice of science subjects

| Rating | Head teachers | | Teachers | | Students | |
|-------------------|---------------|------------|-----------|------------|------------|------------|
| | n | % | n | % | n | % |
| Strongly disagree | 1 | 10 | 5 | 16.7 | 14 | 3.5 |
| Disagree | 0 | 0 | 0 | 0 | 67 | 16.8 |
| Agree | 2 | 20 | 9 | 30 | 91 | 22.7 |
| Strongly agree | 7 | 70 | 16 | 53.3 | 228 | 57 |
| Total | 10 | 100 | 30 | 100 | 400 | 100 |

Data contained in Table 6.2 revealed that 10 percent of the headteachers strongly disagreed the socio-economic status of students influenced their choice of science subjects. Another 16.7% of the teachers strongly disagreed that the socio-economic status of learners influenced the choice of science subjects. Besides, 3.5 percent of the students strongly disagreed that the socio-economic status of students influenced their choice of science subjects. However, none of the headteachers and teachers disagreed that the socio-economic status of learners influenced the students' choice of science subjects. More so, 16.8 percent of the students disagreed that the socio-economic status of students influenced learners' choice of science subjects.

Further findings from Table 6.2 revealed that 20 percent of the headteachers agreed that the socio-economic status of learners influenced students' choice of science subjects. Additionally, 30 percent of teachers agreed that the socio-economic status of learners influenced students' choice of science subjects. More so, 22.7 percent of the students agreed that the socio-economic status of learners influenced students' choice of science subjects. Further research findings from Table 6.2 revealed that 70 percent of the headteachers strongly agreed that the socio-economic status of learners influenced students' choice of science subjects. Besides, 53.3 percent of the teachers strongly agreed that the socio-economic status of learners influenced students' choice of science subjects. Furthermore, 57 percent of the students strongly agreed that the socio-economic status of learners influenced students' choice of science subjects.

Overall data from Table 6.2 indicated that at least 80 percent of the headteachers, teachers, and students agreed that the socio-economic status of students influenced learners' choice of science subjects. This implied that the socio-economic status of students plays a crucial role in determining the choice of science subjects by the students. The study findings concurred with Kose (2011), who noted that parental socio-economic characteristics influenced learners' academic attainment. This was an indication that socio-economic status significantly influences gender parity in academic performance of sciences in secondary schools.

The study also sought headteachers', teachers', and students' perceptions of how culture affects learners' choice of science subjects. The findings were captured in Table 6.3.

Table 6.3: Perceptions of head teachers, teachers and students on how culture affects learners choice of science subjects

| Rating | Head teachers | | Teachers | | Students | |
|-------------------|---------------|------------|-----------|------------|------------|------------|
| | n | % | n | % | n | % |
| Strongly disagree | 1 | 10 | 5 | 16.7 | 48 | 12.0 |
| Disagree | 0 | 0 | 0 | 0 | 56 | 14.0 |
| Agree | 4 | 40 | 10 | 33.3 | 76 | 19.0 |
| Strongly agree | 5 | 50 | 15 | 50.0 | 220 | 55.0 |
| Total | 10 | 100 | 30 | 100 | 400 | 100 |

Data contained in Table 6.3 revealed that 10 percent of the headteachers strongly disagreed that culture influenced learner's participation in science subjects. Besides, 40 percent of the headteachers agreed that the culture of learners influenced their participation in sciences. Additionally, 50 percent of the headteachers strongly agreed that learners' culture influenced their participation in science subjects.

Further findings contained on data in Table 6.3 indicated that 50.0 percent of the teachers strongly agreed that learners' culture influenced their participation in science subjects. Furthermore, 33.3 percent of the teachers agreed that the culture of learners influenced their involvement in the sciences. Additionally, 16.7 percent of the teachers strongly disagreed that learners' culture influenced their participation in science subjects. The research findings contained on data in Table 6.3 also showed that 55.0 percent of the students strongly agreed that learners culture influenced their participation in science subjects. Furthermore, 19.0 percent of the students agreed that the culture of learners influenced their participation in the sciences. More so, 14.0 percent of the students disagreed that learners culture influenced their participation in sciences. Additionally, 12.0 percent of the students strongly disagreed that learners' culture influenced their participation in science subjects.

Overall data contained in Table 6.3 revealed that over 50 percent of headteachers, teachers, and students indicated that culture influenced their participation in science subjects. This implied that learners' culture plays a crucial role in the pursuance of science subjects. The research findings concurred with Chege and Sifuna (2010). They asserted that societal culture makes girls acquire negative attitudes about their ability to compete at the same level as boys. In contrast, boys, on the other hand, are brought up believing they can handle any subject.

6.1 Testing Hypothesis of the study

The study hypothesis was:

H0: Gender parity does not significantly influence academic performance in Kenyan secondary schools. In order to determine the influence of gender parity on

academic achievement, regression analysis was done. Results of the analysis were as indicated in the Table 6.4.

Table 6.4: Regression model on influence of gender parity

| R | R Square | Adjusted R Square | Std Error of the Estimate | Change statistic | | | | |
|-------------------|----------|-------------------|---------------------------|------------------|----------|-----|-----|-------------------|
| | | | | R Square Change | F Change | df1 | df2 | Sig F Change |
| .249 ^a | .062 | -.094 | .395 | .349 | .398 | 5 | 30 | .846 ^a |

a. Predictors: (Constant); attitudes, social economic status, culture

b. Dependent Variable: academic performance

Concerning the data contained in Table 6.4, results were summarized by the following regression analysis equation;

$$Y = a + bX;$$

Where Y = dependent value (academic performance) that was being predicted in this study. X was an independent value (predictors). The value (a) was the constant in the regression analysis equation. It was the intercept point of the regression line and Y-axis. The (b) value was the coefficient of X. It was the slope of the regression line. The independent Variable for the hypothesis H0 in the study was Gender parity does not significantly influence academic performance in Kenyan secondary schools.

The results in Table 6.4 indicated that the significance level was at sig F= 0.846. It was greater than p= 0.05. The relationship F(5,30) = 0.389. p>0.05, adjusted R2=9.4 percent. The hypothesis was, therefore, rejected. This meant that X= factors influencing gender parity predicted academic performance in secondary schools. The study, therefore, revealed that attitudes, socio-economic status, and culture predicted academic performance in secondary schools by 9.4 percent.

7. Findings of the Study

- The study revealed that over 70 percent of headteachers, teachers, and students indicated that learners' attitudes influenced their participation in science subjects
- The research further found out that the socio-economic status of parents influenced learners' involvement in academics.
- The study also revealed that over 50 percent of headteachers, teachers, and students indicated that culture influenced their participation in science subjects.
- The study showed that attitudes, socio-economic status, and culture predicted academic performance in secondary schools by 9.4 percent.

8. Conclusion

The conclusions made were based on the findings of the study. The study concluded that:

- Attitudes influence academic performance of students in sciences in Secondary Education.
- Socio-economic status of parents influenced learners' involvement in the academic achievement of sciences in secondary schools.
- Culture influenced the performance of girls and boys in sciences at Secondary education level.
- Attitudes, socio-economic status, and culture significantly predicted academic performance of sciences in secondary schools by 9.4 percent

9. Recommendations

From the observations made in the course of this study, the following stakeholders should consider putting in place the following recommend proposals:

- Ministry of Education should provide proper career guidelines, which would motivate both boys and girls to pursue science subjects.
- Teachers to sensitize parents and learners on the importance of science subjects.
- An obsolete cultural practice that doesn't promote gender parity to be redressed.

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