

The Role of Gender and School Type in Influencing Performance in Kenya Certificate of Secondary Education Examination: Research Findings from Public Secondary Schools in Kakamega County, Kenya.

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Abstract

Performance in national examinations is a subject that elicits a lot of emotion and concern among education stakeholders, be they students, parents, teachers, educational administrators or political leaders. This is because performance in the said examinations is the sole criterion used to allocate opportunities for further training and employment. Many studies have been done to explore the factors that influence performance in examinations in Kenya and the world over. This study sought to investigate the relationship between students' gender and school type (whether boys', girls' or mixed) schools and performance in Kenya Certificate of Secondary Education (K.C.S.E.) examination. The study also attempted to find out whether there are differences in performance in K.C.S.E examination between students of different gender and school type. Three different samples were selected from six public secondary schools in Kakamega County. These were 277 form four students, forty-one form four subject teachers and six careers guidance and counselling masters. Three questionnaires were used in data collection for the different samples selected. The data were then analysed by computer using the Statistical Package for Social Sciences (SPSS) Programme. Three statistical techniques were used to test the hypotheses formulated for this study. These were the Pearson's Product Moment Correlation Coefficient which was used to test for relationships between variables; the Analysis of Variance was used to test for differences between variables and the Stepwise Multiple Regression Analysis to test the individual and cumulative effect of Independent Variables on the Dependent Variable. The research design was an **ex post facto** one. The findings revealed that students' gender and school type were significantly related to performance in K.C.S.E examination. Statistically significant differences in performance in K.C.S.E examination were discerned between gender and school type. These findings formed the basis for the recommendations that the Ministry of Education should encourage single-sex schools and strengthen career guidance and counselling and mentorship programmes in secondary schools to motivate learners, as a matter of policy.

Key Words: Gender, school-type, performance, equity.

Introduction and statement of the problem

The study sought to find out whether there is a relationship between performance of students in Kenya Certificate of Secondary Education (K.C.S.E) examination and their gender. The study also sought to establish whether there is a relationship between performance in K.C.S.E examination and school type, whether boys', girls' or mixed, in public county schools in Kakamega County.

The study set out to answer the following questions:

- a) Is there a relationship between performance in K.C.S.E. examination and the gender of the student?
- b) Is there a relationship between performance in K.C.S.E examination and the school type attended by the student?
- c) Is there a difference in performance in K.C.S.E examination between gender?
- d) Is there a difference in performance in K.C.S.E examination between School type?

Research hypotheses

The following null research hypotheses were formulated for testing by this study:

H01 (a): There is no relationship between performance in K.C.S.E examination and the students' gender.

H01 (b): There is no relationship between performance in K.C.S.E examination and School type.

H02 (a): There is no difference in performance in K.C.S.E. examination and students' gender.
H02 (b): There is no difference in performance in K.C.S.E. examination and the School type.

Rationale

Formal education in Kenya, as in other countries of the world, remains the single most important avenue for manpower training necessary for economic, social and technological development. In Kenya, performance in Public/National examinations is the basic criterion used to select students for various positions as well as to allocate opportunity for further education. It became imperative therefore to investigate the relationship between the selected variables and students' performance in public examinations, in this case K.C.S.E examination.

Selection of K.C.S.E examination was made predicated on the following factors: first, secondary education cycle constitutes a high percentage students whom at the end of which many are ejected out of the system by the examination. Second, performance in K.C.S.E examination plays vital role in selection and placement of students in post-secondary institutions as well as career training. Since examinations are the basic criteria upon which selection for further education is based, therefore differences in performance manifests itself in differences in opportunities at subsequent stages.

Significance of the study

The findings of this study are expected to contribute to increased understanding of students' characteristics that affect learning and consequently, performance in national examinations.

To teachers and educational administrators, the findings of the study are expected to be useful in the preparation of instructional schedules within the school. For example, if a particular gender is found to be consistently performing below par, then added attention has to be paid to that gender even under more or less uniform school conditions.

To the educational policy maker, the findings of this study are expected to act as guidelines in the streamlining of school sex composition policy which, in Kenya, has remained unclear and vague to date.

Lastly, to the researcher, this study was expected to whet interest in the problem of differential access to education and performance between the sexes. The study, therefore, was seen as a starting point for the researcher's quest to fully comprehend and, hopefully, provide information to solve the problem.

Definition of terms.

The following terms were used in this study are they are defined herein below:-

County public secondary schools: Schools that admit 85% of their students from the county in which they are located. These schools are funded by the government under the free day secondary school education programme

Education: Unless otherwise stated, it was used to mean formal education.

Performance: Was used to refer to the aggregate score or points of selected seven subjects in the K.C.S.E examination. The result was dichotomised into good performance and poor performance.

Good performance referred to a mean grade of C+ and above while poor performance referred to a mean grade of C plain and below. A mean grade of C+ is the minimum entry requirement for direct admission to university to pursue bachelor's degree in Kenya.

School: Used to mean secondary school forms one to four (9th to 12th grade), unless otherwise stated.

School-type: Was used to refer to the sex composition of the school, whether boy's school, girls or mixed (co-educational) school.

Research design and methodology

The research design used in this study was *ex post facto*, defined by F.N. Kerlinger (1984) as:

A systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variables of independent and dependent variables.

This research design was used because of its applicability to this study. It was justified on the basis of the fact that this study sought to investigate the existence of relationships between variables. Kerlinger (1984) further argues that despite any weaknesses of the design:

... much *ex post facto* research must be done in psychology, sociology, and education simply because many research problems in the Social Sciences and education do not lend themselves to experimental inquiry. A little reflection of some of the important variables in educational research - intelligence, aptitude, home background, parental upbringing, teacher personality, and school atmosphere - will show that they are not manipulable. It can even be said that *ex-post facto* research is more important than experimental research (because) the most important social scientific and educational research problems do not lend themselves to experimentation....

Population and sampling

The target population of this study was form four students in public county secondary schools in Kakamega County, form four subject teachers and career guidance and counselling masters.

Schools

Six secondary schools were randomly selected (two boys', two girls' and two mixed schools) from a population of county public secondary schools in Kakamega County.

Students

Students formed the majority of the study sample. From the six schools selected, form four students were used as subjects of this study. They had undergone four years of secondary education and were preparing to sit for the Kenya Certificate of Secondary Education (K.C.S.E) examination at the end of the year. It was therefore hoped that they were more mature and would give more realistic responses. Only one stream was used from each school. In all the cases, the researcher used the stream that was made available by the school administration. A total of 277 students participated in this study. Of these, 168 students (60.6%) were boys while 109 (39.4%) were girls. Ninety five students (34.3%) were from mixed schools, 27.4 percent from girls' schools and 38.3 percent from boys' schools.

Teachers

Form four subject teachers in the selected schools formed the second sample of this study. A total of forty-one teachers took part in this study. Thirty eight teachers (19.5 percent) were graduates and three (7.3 percent) were Diploma holders

Career Masters

Six career masters and guidance counsellors participated in this study, one from each school. Their selection was predetermined insofar as their school was selected.

Instruments of data collection and procedure.

Questionnaire

Questionnaires were the major data collection tools used in this study. Three types of questionnaires were used in each school. These were students' questionnaire, subject teachers' questionnaire and career and counselling masters' questionnaire.

Students' questionnaire:

The student questionnaire had four parts. The first part was an introductory letter stating the purpose of the questionnaire. The second part sought general background information from the respondents. The information sought included name of student name of school, school type (whether mixed, girls' or boys'), sex of student, age, parental education, training and occupation, family size and subjects registered for in K.C.S.E. The third part was the academic attitudes scale. This scale was constructed by the researcher using the Likert model of attitude measurement as a guide. The section had nineteen items concerning schooling and education in general to which the subjects were to respond on a five-point continuum, that is, strongly agree, agree, undecided, disagree and strongly disagree. For a positively stated item, a score of five (5) was given for a strongly agree response in that order to a score of one (1) for a strongly disagree response. If an item was negatively stated, the reverse scoring method was used, that is, a score of five (5) for strongly disagree and one (1) for strongly agree. Whether the item was negatively or positively stated, a score of three (3) was given in case of an 'undecided' response. The fourth section was the academic aspirations scale. It had five items seeking information on how far academically the student wanted to go, whether he/she felt she/he would be able to pass the examinations and what the student wanted to pursue as a career after secondary school.

Teachers' questionnaire

The teachers' questionnaire had two sections, namely section one which had twenty items covering bio data and basic information. Section two was largely of a comparative nature, between boys and girls in school as perceived by teachers. This section was responded to by teachers in mixed schools and those who had taught in both boys' as well as girls' schools. The section had seven items dealing with comparison in class performance, interest in academic work, attitudes towards school and academic aspirations.

Career and counselling masters' questionnaire

Careers and counselling masters' questionnaire had twenty-one items. The items covered name, type of school, sex, age, training, experience, training in careers guidance and counselling, importance of counselling and parental involvement in guidance and counselling of students.

Piloting

Piloting was done to assess the type of responses the researcher expected from the field. The questionnaires were piloted using graduate students in the Faculty of Education and supervisors of this study.

Data collection procedure

Before proceeding for data collection a clearance permit was obtained. The researcher paid a visit to each of the six selected schools and made an appointment for questionnaire administration with the school authority, convenient to both the school routine and the researcher. The researcher was assigned a collaborating teacher in each school who was to help in the data collection exercise. On the agreed date, the researcher visited each school and gave out questionnaires.

A total of 277 students' questionnaires, forty-one teachers' and six careers and counselling masters' questionnaires were filled.

Data analysis techniques

The data obtained from the field were coded for analysis by computer using the Statistical Package for Social Sciences (S.P.S.S.) Programme. The purpose of the analysis was to test the hypotheses formulated for this study, above.

Hypotheses stating 'no relationship' between variables were tested using the Pearson Product-Moment Correlation Coefficient. These were hypotheses H01 (a) and H01 (b). Hypotheses stating 'no difference' between variables were tested using the analysis of variance (ANOVA), these were hypotheses H02 (a) and (b).

The Correlation coefficient (r_{xy})

The correlation coefficient was used to find out the strength of relationship between the variables in this study. This statistic was preferred because not only does it show that there is a relationship but it also does show the strength and direction of the relationship. The correlation coefficient varies from negative one (perfect negative correlation) to positive one (perfect positive correlation). A correlation matrix showing all possible pairs of variables in the study was obtained.

The Pearson Product Moment Correlation Coefficient is calculated by the formula:

$$r_{xy} = \frac{\sum xy - \frac{\sum x \cdot \sum y}{N}}{S_x \cdot S_y \cdot (N-1)}$$

Where: $\sum xy$ is the sum of xy

S_x is the standard deviation of X

S_y is the standard deviation of Y

$\sum x$ is the sum of X values

$\sum y$ is the sum of Y values

The correlation coefficients were further tested for statistical significance using the t' test. To test the null hypothesis $H_0: r_{xy} = 0$, the following formula was used:

$$t = \frac{r \sqrt{N-2}}{\sqrt{1-r^2}}$$

Where: r is the correlation coefficient.

N - the number of cases

Degrees of freedom: $N - 2$

Analysis of variance (ANOVA).

The analysis of variance (ANOVA) was used to assess whether differences between variables were statistically significant. The F-ratio was calculated by the formula:

$$F = MSB \div MSW$$

Where: MSW is the mean square between groups calculated by dividing the sum of squares between groups by degrees of freedom.

MSW is the mean square within groups calculated by dividing the sum of squares within groups by degrees of freedom.

The Stepwise multiple regression analysis

The stepwise multiple regression analysis was used to evaluate the effect of the independent variables on the dependent variable, that is, performance in K.C.S.E. examination. The degree to which each independent variable, in order of strength, accounted for variation in the dependent variable was assessed and the findings presented in a summary table. The justification of its use was based on the account of its popularity and versatility (W.R. Borg):

Multiple regression has become one of the most widely used statistical techniques in educational research. Its popularity stems from its considerable versatility and information yield about relationships between variables. Multiple regression can be used to analyse data from causal-comparative, correlational or experimental research. It can handle interval, ordinal or categorical data.

Data analysis, presentation of findings and interpretation

Data pertaining to students' responses

Table 1: Number of students from each school type

School Type	Number	Percent
Mixed	95	34.3
Girls'	76	27.4
Boys'	106	38.3
TOTAL	277	100

A total of 277 form four students from the selected schools took part in this study. Ninety-five students (34.3percent) were from mixed schools, 76 students (27.4 percent) were from girls' schools while 106 students (38.3 percent), were from boys' schools (Table 1).

Table 2: Gender of students

Gender	Number	Percent
Male	168	60.6
Female	109	39.4
TOTAL	277	100

Table 2 shows that 168 students (60.6 percent) were male while 109 students (39.4 percent) were female.

Findings pertaining to students' performance

Table 3: Performance of students by school type

Performance	School type					
	Mixed		Girls		Boys'	
	Number	Percent	Number	Percent	Number	Percent
Low	62	22.4	62	22.4	53	19.1
High	33	11.9	14	5.1	53	19.1
TOTAL	95	34.3	76	27.4	106	38.3

Total 3 shows performance in K.C.S.E examination by school type. Sixty-two students (22.4 percent) from mixed schools, 62 students (22.4 percent) from girls' schools and 53 students (19.1 percent) from boys' schools performed poorly in K.C.S.E examination. Among students who performed well, boys' schools had the highest percentage (19.1 percent) followed by mixed schools with 33 students (11.9 percent) and only 14 students (5.1 percent) from girls' schools performed well. While students performing well and poorly in boys' schools were same in number (53 students in each category) most of the students in mixed and girls' schools performed poorly in this examination.

Table 4: Students' performance by gender

Performance	Gender			
	Male		Female	
	Number	Percent	Number	Percent
Low	91	32.9	86	31.0
High	77	27.8	23	8.3
TOTAL	168	60.6	109	39.4

Table 4 shows students' performance in K.C.S.E examination by gender. The table shows that 91 male students (32.9%) and 86 female students (31.0%) performed poorly in K.C.S.E. examination. It was found that 77 male students (27.8%) and only 23 female students (8.3%) performed well. It was observed that there were more girls among the low performing group.

Findings pertaining to students' academic attitudes

Table 5: Academic attitudes by gender of students

Attitudes	Gender			
	Male		Female	
	Number	Percent	Number	Percent
Negative	73	26.4	49	17.7
Positive	95	34.3	60	21.7
TOTAL	168	60.6	109	39.4

Students' academic attitudes were analysed in relation to their gender. The findings are presented in Table 5. It was found that 73 male students (26.4 percent) and 49 female students (17.7 percent) had negative academic attitudes while 95 male (34.3 percent) and 60 female students (21.7 percent) had positive academic attitudes. Although more male students had more positive academic attitudes than females, the difference was not significant.

Table 6: Students' attitudes by school type

Attitudes	School Type					
	Mixed		Girls'		Boys'	
	Number	Percent	Number	Percent	Number	Percent
Negative	42	15.2	37	13.4	43	15.5
Positive	53	19.1	39	14.0	63	22.7
TOTAL	95	34.3	76	27.4	106	38.3

Table 6 shows the analysis of students' attitudes by school type. The findings showed that 42 students (15.2 percent) from mixed schools, 37 students (13.4 percent) from girls' schools and 43 students (15.6 percent) from boys' schools had negative attitudes. Fifty-three students (19.1 percent) from mixed schools, 39 students (14.0 percent) from girls' schools and 63 students (22.7 percent) from boys' schools had positive academic attitudes. The relationship between school type and academic attitudes was, however, not significant.

Table 7: Students' aspirations by school-type

Aspirations	School Type					
	Mixed		Girls'		Boys	
	Number	Percent	Number	Percent	Number	Percent
Low	22	7.9	24	8.7	17	6.1
Average	29	10.5	24	8.7	32	11.6
High	44	15.9	28	10.1	57	20.6
TOTAL	95	34.3	76	27.4	106	38.3

Students' aspirations were analysed by school type. The findings in Table 7 show that among students categorized as having low aspirations, 22 students (7.9 percent), 24 students (8.7 percent) and 17 students (6.1 percent) were from mixed, girls' and boys' schools respectively. Twenty- nine students (10.5 percent) from mixed schools, 24 students (8.7 percent) from girls' schools and 32 students (11.6 percent) from boys' schools were categorized as having average aspirations, while 44 students (15.9 percent) from mixed schools, 28 students (10.1 percent) from girls' schools and 57 students (20.6 percent) from boys' schools were categorized as having high aspirations. However, the relationship between school type and level of aspiration was not significant.

Table 8: Students' aspirations by gender

Aspirations	Gender			
	Male		Female	
	Number	Percent	Number	Percent
Low	28	16.7	35	32.1
Average	46	27.4	39	35.8
High	94	55.9	35	32.1
TOTAL	168	100	109	100

Table 8 shows data on students' aspirations analysed by gender. Twenty-eight students (16.7 percent) of the male students had low aspirations as compared to about a third of the female students (32.1 percent). A higher percentage of the girls (35.8 percent) as compared to male students (27.4 percent) were in the average aspirations category. However, more than half of the male students (55.9 percent) had high aspirations as compared to only 32.1 percent of the female students. The relationship between gender and aspirations was significant. Male students had higher aspirations than female students.

Findings on comparison of boys and girls by teachers

Table 9: Teaches' responses on the comparison of boys and girls in class performance, K.C.S.E performance, interest in academic work, attitudes and academic aspirations.

Teachers rating	Class performance		KCSE performance		Interest in academic work		Attitudes		Aspirations	
	No.	%	No.	%	No.	%	No.	%	No.	%
Girls better than boys	4	12.9	1	3.2	3	9.7	5	16.1	5	16.1
Girls equal to boys	7	22.5	9	29.0	3	9.7	2	6.5	4	12.9
Girls below boys	20	64.5	21	67.8	25	80.6	24	77.4	22	71.0
TOTAL	31	100	31	100	31	100	31	100	31	100

Table 9 shows a summary of the findings on comparison of boys and girls as rated by teachers. In class performance, 12.9 percent of the teachers rated girls as better than boys, 22.6 percent indicated boys and girls performed equally well. Most of the teachers (64.5 percent) however, felt girls performed below boys in class. Only one teacher (3.2 percent) rated girls as better than boys in K.C.S.E. performance, nine teachers (29.0 percent) rated girls as equal to boys while more than two-thirds rated girls as performing below boys in K.C.S.E examination.

Table 9 also shows that only three teachers (9.7 percent) rated girls as having more interest in academic work and equal to boys respectively. Twenty – five teachers (80.6 percent) felt girls had lower interest in academic work as compared to boys.

In academic attitudes, five teachers (16.1 percent) rated girls as having more positive attitudes than boys. Two teachers (6.5 percent) indicated that girls and boys had similar academic attitudes while most of the teachers (77.4 percent) rated boys as having more positive academic attitudes than girls.

Five teachers (16.1 percent) rated girls as having higher academic aspirations than boys, four teachers (12.9 percent) indicated that both boys and girls had more or less similar academic aspirations while 71 percent of the teachers rated boys as having higher academic aspirations than girls.

From table 9, it was found that, on average, more than two-thirds of the teachers rated boys as better than girls on all five variables, that is, class performance, K.C.S.E. performance, interest in academic work, academic attitudes and academic aspirations.

Table 10: Teachers’ recommendation on sex composition in secondary schools

Teachers’ recommendation	Number	Percent
Single – sex Schools	17	54.8
Mixed Schools	14	45.2
TOTAL	31	100

Teachers were asked which school-type they would recommend. Their responses were presented in Table 10. Seventeen teachers (54.8 percent) said they would recommend single sex secondary schools. They indicated that in single-sex schools, students are more responsive to education and concentrate in their academic. The teachers also indicated that there are fewer discipline-related problems in single-sex schools as compared to mixed schools where students were found to be pre-occupied with non-academic affairs. The main discipline issue was rampant boy-girl relationships. Fourteen teachers (45.2 percent) indicated they would recommend mixed co-educational schools because they were reflective of real life situations and prepared students for future mutual co-existence. They also indicated that in mixed schools, there is active participation and competition by both sexes thereby leading to improved performance. This, however, was not supported by the findings of this research.

Findings from statistical data analysis.

Responses from the students’ sample were analysed statistically in relation to the hypotheses formulated for this study. Three statistical techniques were used to test the hypotheses. These were:

- a. The Pearson Product-Moment Correlation Coefficient to test null hypotheses which stated “no relationship” between variables.
- b. The analysis of variance (ANOVA) to test hypotheses which stated “no difference” between variables.
- c. The Stepwise Multiple regression analysis was used to assess the effect of independent variables on the dependent variable.

The findings from the analyses are presented below.

Hypotheses stating no relationship between variables.

Hypotheses stating no relationship between variables were tested by the Pearson’s Product-Moment Correlation Coefficient and the findings presented in Table 11.

Table 11: Correlation of independent variables and the dependent variable, performance in KCSE

Independent variable	Correlation coefficient	t' Calculated	Remarks
Aspirations	0.529	10.344	S
Attitudes	0.318	0.074	S
Gender	-0.251	-4.310	S
School type	0.141	2.372	S

NOTE: N.S – Not significant

S- Significant

$P < 0.05$

Degrees of freedom: N- 2

H01 (a): There is no relationship between performance in K.C.S.E. and gender of the student.

Data pertaining to the above hypothesis were correlated and the findings presented in Table 11. A correlation coefficient of 0.251 was found between performance in K.C.S.E examination and the gender of the student. The null hypothesis stating no relationship between performance in K.C.S.E examination and gender of student was, therefore, rejected. Boys were found to perform better than girls in the K.C.S.E examination.

H01 (b): There is no relationship between performance in K.C.S.E examination and school-type, that is, mixed, boys' or girls' schools.

Data pertaining to the above hypothesis were correlated and findings presented in Table 11. A correlation coefficient of 0.141 was found between performance in K.C.S.E examination and school-type. The null hypothesis H01 (b) was therefore rejected. Boys' schools were found to perform better than the other two school types, that is girls' and mixed schools, in K.C.S.E examination.

Table 12: Correlation matrix showing relationships between variables.

Variable	V19	V17	V16	V04	V03
V19 Performance	1.000				
V17 Aspirations	0.529	1.000			
V16 Attitudes	0.318	0.210	1.000		
V04 Gender	0.251	0.240	0.015	1.000	
V03 School type	0.141	0.081	0.033	0.324	1.000

Table 12 is a summary correlation matrix showing relationships between variables in the study.

Hypotheses stating no difference between variables

Hypotheses which sought to establish whether differences exist between variables were tested by the analysis of variance (ANOVA)

H02 (a): There is no difference in performance K.C.S.E. examination between boys and girls (gender).

Table 13: Students' performance in K.C.S.E by gender

Source of variation	Sum of squares	d.f	Mean square	F
Between	21.95	3	7.31	
Within	41.94	273	0.15	47.64

$F_c (3; 273) P < 0.05 = 2.60$

Data pertaining to the above hypothesis were analyzed by analysis of variance and F- test and results presented in Table 13. The results revealed significant difference in performance in K.C.S.E examination between boys and girls. Boys performed significantly better than girls. The null hypothesis is H02 (a) was therefore rejected.

H02 (b): There is no difference in performance in K.C.S.E examination between school-types.

Table 14: Students' performance in K.C.S.E examination by school-type.

Source of variation	Sum of squares	d.f	Mean square	F
Between	24.31	11	2.21	
Within	39.58	265	0.149	14.79

$F_c(11; 265) P < 0.05 = 1.96$

Data pertaining to the above hypothesis were subjected to the analysis of variance and F- test and the findings, presented in Table 14. The results revealed that there is a significant difference in performance in K.C.S.E between school-types. Hypothesis H02 (b) was therefore rejected. Boys, schools were found to perform better than girls and mixed schools. However, when the schools were dichotomized into mixed and single-sex, the later were found to perform better than the former in K.C.S.E examination.

All the hypotheses stating 'no difference' between variables were rejected. Significant differences were found between the variables in the hypotheses.

Findings from the stepwise multiple regression analysis.

The stepwise multiple regression analysis was used to evaluate the cumulative effect of independent variables on the dependent variable, performance in K.C.S.E examination. The variables in the table were entered in order of strength, an automatic process in the stepwise multiple regression computer programme. The findings from the analysis are presented in Table 15.

Table 15: Summary of the findings from Stepwise Multiple Regression Analysis.

Step number	Variable name	Simple r	Multiple R	R-Sq. Change	Beta	F
1	Aspirations	0.529	0.529	0.28041	0.447	68.477
2	Attitudes	0.318	0.570	0.04497	0.217	17.930
3	Gender	-0.251	0.586	0.01852	-0.153	7.860
4	School Type	0.141	0.617	0.00073	-0.107	0.339
5	Age	0.002	0.618	0.00088	0.034	0.435

Constant -0.22365

In table 15 above, simple – r is the bivariate correlation co-efficient between each independent variable and the dependent variable.

Multiple – R is the multiple correlation coefficients between independent variables and the dependent variable. The multiple – R value increases at every subsequent step. The independent variables in the regression equation had a multiple correlation of 0.618 with the dependent variable. When the multiple correlation coefficient was tested for statistical significance by the t' test, it was found to be significantly different from zero. This finding forms the basis for the conclusion that the independent variables in the regression equation were significantly related to and had an impact on performance in K.C.S.E examination.

R- Square change represents the proportion of variation explained by the variables in the equation. In total, the independent variables in the regression equation accounted for 38.284 percent of the variation in performance in K.C.S.E examination.

Summary of the study, conclusions and recommendations

Objectives of the study

The main objectives of the study were to investigate whether relationships exist between performance in K.C.S.E examination and:-

- a) Gender
- b) School – type (whether mixed, girls' or boys' schools).

The study further sought to investigate whether there are differences in performance in K.C.S.E. examination between students with different:-

- a) Gender
- b) School – type

To achieve the above objectives, guiding null hypotheses were formulated for testing.

Summary of finding pertaining to the hypotheses formulated.

Two types of hypotheses were formulated for this study, namely, hypotheses on relationships and hypotheses on differences. Hypotheses formulated stating no relationship between variables were rejected. These were hypotheses H01 (a) and H01 (b). Statistically significant relationship was found between performance in K.C.S.E. examination and gender of the student. There was also statistically significant relationship between performance in K.C.S.E examination and school-type.

Hypotheses stating no differences in performance in K.C.S.E examination were rejected. These were hypotheses H02 (a) and H02 (b). Statistically significant difference was found in performance in K.C.S.E examination between girls and boys. Boys performed better in the K.C.S.E. examination as compared to girls. There was also statistically significant difference in performance in K.C.S.E. examination between school-types. Boys' schools performed better followed by girls' and mixed schools in that order. However, this difference may have been amplified by differences in performance by gender (Hypothesis H02 (a)). When the schools were classified as single sex and mixed, then single sex schools were found to perform better than mixed schools in K.C.S.E examination.

Recommendations based on the findings of this study.

Recommendations for further Research

This study and the findings therefrom may not be applicable to different spatial-temporal and socio-cultural milieu from the one covered.

Therefore:-

- i. Research of similar nature is recommended in all regions of the country so as to come up with integrated findings that can be generalized to apply to the whole country.
- ii. Similar research is recommended at various stages of Kenya's educational system in order to conclusively establish the role of the variables in this study in affecting students' performance in national examinations.
- iii. Research is recommended into other school factors that may affect performance of students in examinations. The research should cover such areas as school organization and administrative procedures, availability of teaching and learning accoutrements in form of textbooks, libraries, laboratories and workshops; teacher qualification and training, teacher remuneration and dedication to their work as educators, teacher supervision and inspection, and teaching methods in use in our schools.
- iv. This study also recommends research into out of school factors that are likely to affect students' performance in school. Such factors as parental support in form of provision of collateral learning materials, and encouragement should be investigated for effects on students' performance in examinations.

Recommendations for policy and practice

- i. This study found statistically significant relationships between performance in K.C.S.E examination and students' gender and school-type. The relationships were, to a greater extent, in favour of boys. These findings form the basis for the recommendation that, at all stages, extra attention should be paid to girls. The attention should be in form of provision of adequate and appropriate teaching and learning materials. In mixed schools, more attention should be paid to girls to enable them improve on their performance.
- ii. This study also revealed that single-sex schools perform better in K.C.S.E examination than mixed schools. This finding forms the basis for the recommendation that ideally, students should attend single-sex secondary schools.
- iii. Teachers rated the availability of facilities as the most important (non- student) aspect that affects performance in examinations. Therefore, the ministry of Education should make a follow up with an aim of ensuring that the Free Day Secondary funds meant for the procurement of learning materials are used prudently for the intended purpose.
- iv. The ministry of Education is advised to strengthen grassroot quality assurance and standards structures by way of provision of adequate and trained staff to monitor the quality of education in secondary schools.
- v. To parents, this study recommends that they should take the education of their daughters with the same dedication and seriousness as they do their sons'. Parental bias would only militate against the education of girls.

The limitations of this study notwithstanding, it should be seen as an attempt to build up information that could be very useful to those concerned with the formulation and implementation of educational policy and practice.

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