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Original Research Article

**Relationship between School Characteristics and Students' Academic Aspiration.
The case of Public Secondary Schools in Laikipia County- Kenya**¹E. Waweru Kingori; ²J. Kanjogu Kiumi; ³I. Wanjohi Kingori^{1, 3}Department of Psychology, Counselling and Educational Foundation, Laikipia University-Kenya²Department of Curriculum and Educational Management, Laikipia University- Kenya

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Abstract: Education is an essential human activity as it enhances the capacity of any society to fashion and model individuals to function effectively in their environments. In this regard, it can be reasoned that education is one of the most effective medium through which a nation can achieve its aspirations in the socio-economic realms of human development. This observation underscores the need for schools to create conditions that will spark and sustain students' academic aspiration so as to achieve productive occupations after schooling life. Students' performance data in the Kenya Certificate of Secondary Examination (KCSE) exit examination demonstrates that, cumulatively nearly 65% of candidates did not attain the minimum requirement for university admission from 2009 to 2013. Although students' academic performance is dependent on many factors, the study focused on academic aspiration which was construed as a critical correlate of academic achievement. The study presumed that knowledge on academic aspiration may help to explain why students could be performing lowly in KCSE examination. To this end, the study sought to find out whether or not aspiration would differ across schools with different characteristics. Two schools characteristics were focused by the study: whether a school was single sex or coeducational on the one hand, and level of school's performance in KCSE examination. Using *ex post facto* research design, data were collected using personally delivered questionnaires from 375 secondary schools students in the study locale and subsequently analyzed using χ^2 test at .05 alpha level. The findings indicated that level of academic aspiration was higher in boys' only schools compared with girls' only and coeducational schools. The revealed differential levels of academic aspiration was statistically significant ($\chi^2= 5.620$; $df= 6$; $p < .05$) and relatively strong (Cramer's $V= 0.205$). The results also indicated that students' academic aspiration increased with increase in school's level of KCSE examination. The differential effect of school's KCSE examination performance status on academic aspiration was similarly statistically significant ($\chi^2= 12.78$; $df= 15$; $p < .05$) and very strong (Cramer's $V=0.811$).

Keywords: Students' academic aspiration, School Category and School examination performance status

Background Information

Education is a very important human activity in view of the fact that it enhances the capacity of any society to fashion and model individuals to function optimally in their environments. Moreover, education forms the foundation upon which nations build their future (World Bank Group, 2012). Indeed Psacharopoulos (2013) has observed that formal education is the most effective tool for enhancing the capacity of a nation to realize its aspirations in the socio-economic and political realms of development.

In view of the central role that education plays in the society, the government of Kenya has consistently increased public expenditure in the education sector since the country gained independence in 1963. For instance, total government expenditure on education (as a percentage of Gross Domestic Product) averaged at

18% from 2011 to 2015 out of which 43% was expended on secondary education (UNESCO, 2016). The relatively high expenditure on secondary education is predicated on the conviction that it is at this level of education that learners are prepared for higher level of training so as to make them productive citizens and agents of change in the society.

In spite of the perceived role that secondary education is expected to play in Kenya, returns accruing from the sector have not been promising if the students' performance in the Kenya Certificate of Secondary Education (KCSE) exit examination is anything to go by. For instance, the proportion of KCSE examination candidates who attained the minimum university admission from 2009 to 2013 averaged at 35%. The aforementioned data seems to imply that 65% of the candidates were unable to access post university

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careers. The percentage of KCSE examination candidates in Laikipia County where the study was carried out who were able to secure university admission during the same period stood at 27.80% (KNEC, 2015).

Documented literature (see for example, Haker, 2000; Lambert, 1998; Protheroes, 2009; Tsanwani, 2009; Jackson, 2010) seems to suggest that school characteristics have a bearing on students' academic aspiration and by implication academic achievement. Drawing from this observation, the study addressed itself to an investigation of whether or not students' academic aspiration in the study area was related to school category (single-sex vis-a-vis coeducational) and schools' KCSE examination performance status as determined in terms of students' average performance in the KCSE examination from 2009 to 2013.

In order to achieve the objective targeted by the study, two null hypotheses were developed and tested through χ^2 statistic at .05 alpha level.

HO₁: There is no statistically significant relationship between school category and students' academic aspiration in public secondary schools in Laikipia County- Kenya.

HO₂: There is no statistically significant relationship between school's KCSE examination performance status and students' academic aspiration in public secondary schools in Laikipia County- Kenya.

Theoretical Framework

The study was informed by McClelland's (1961) theory of achievement motivation. The theory advances the view that regardless of our gender, age or culture, we have the inherent need to achieve which is acquired and shaped through life experiences. The acquisition of socially acceptable behaviour, values and so on. That being the case, it follows that students need to be motivated to achieve as they progress through the schooling system.

The theory of achievement motivation, therefore has a lot of implications on the dynamics of students' academic aspiration. First, students have an inherent need to achieve. Second, in order to be preoccupied with activities that will lead to the attainment of positive learning outcomes, students need to be motivated and consequently inspired to achieve. Third,

the extent to which students will sustain their inspiration to achieve is dependent on whether or not their effort towards their goals will be reinforced.

The theory further postulates that the need to achieve is dependent on the extent to which individuals receive positive feedback on their performance. This implies that the degree to which individuals will be occupied with activities that have the potential to enable them to reach their goals is contingent upon the extent to which they will receive favourable feedback from significant others.

Okumbe (1998) has observed that education is a highly result-oriented or achievement-oriented activity. This observation is predicated on the fact that students are expected to achieve not only in the academics but also in other measures of schooling success such as reinforced by significant others, namely teachers and parents (Munavi, 1987). This can be achieved by encouraging students to set challenging goals, giving them timely feedback on their performance, and offering them guidance on how to minimize the tendency to engage in off-task behaviour in course of pursuing their goals.

Drawing from the foregoing observations, it can be argued that students are less likely to achieve in a school environment where they are not properly guided (and inspired) in relation to setting challenging goals and striving to achieve them. The converse is highly likely to be the case in a scenario where teachers are committed to their students with a view to enhancing their capacity to achieve.

Conceptual Framework

The study presumed that school characteristics (in terms of whether the school is single-sex or coeducational, including its national examination performance status) have the potential to impact on students' academic aspiration. The study also postulated that the effect of the two school characteristics focused by the study (independent variables) and students' academic aspiration (dependent variable) may be moderated by students' home background characteristics which were taken to be the extraneous variables in this study. The conceptualized interrelationship between the independent, dependent and extraneous variables subsumed in this study is presented in figure 1.

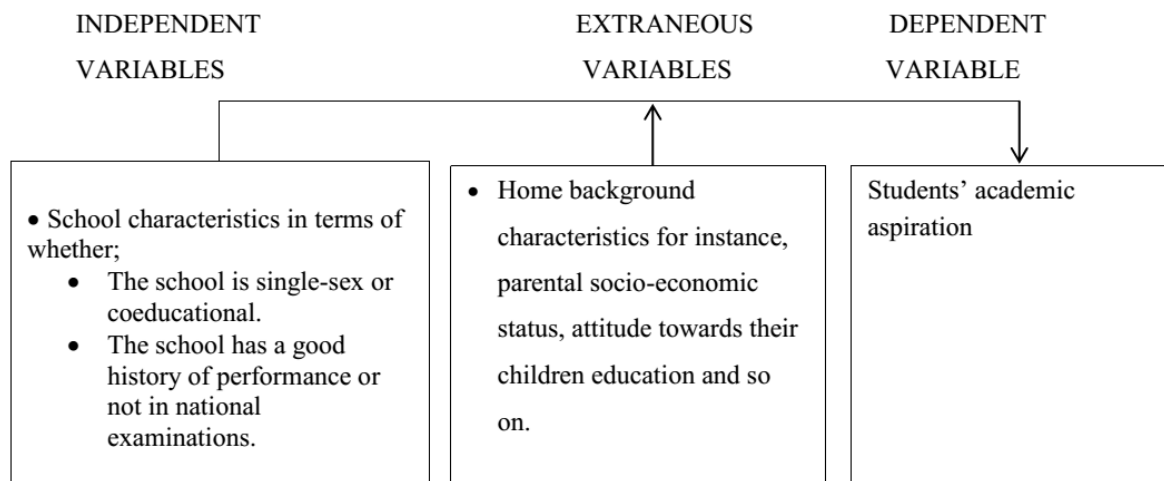


Figure 1: Hypothesized interrelationship between variables subsumed in the study.

The overriding theme in the conceptualized interrelationship between the variables subsumed in the study is that even in scenarios where the school characteristics may be favourable students' academic aspiration is likely to be compromised if students' home background factors are not propitious and vice versa.

It is instructive, however to mention that extraneous variables have the potential to generate rival or competing hypotheses which might explain the results of a study thereby confounding its external validity (Marczyk, DeMatteo & Festinger, 2005). For this reason, extraneous variables need to be controlled in any research undertaking in which the relationship between the independent and dependent variables is being investigated. The objective is to be certain that the noted status of dependent variable (for example, level of students' academic aspiration in the context of this study) is linked to the independent variables whose effect on the dependent variable is being investigated. A number of researchers (for instance, Cristensen, 2004; Street, 1995) have opined that the most potent strategy for controlling extraneous variables is randomization of subjects to be involved in the study. In this regard, the participating schools and students were selected through random sampling. This ensured that the extraneous variable (students' home background characteristics) was present equally in all the groups of students who took part in the study. This assisted in the minimization of error effect that could have been generated by students' contextual factors.

Literature Review

School Category and students' academic aspiration

In the context of this study, school categorization was in terms of whether the school was single-sex or coeducational. The question relating to whether school category has an effect on students' learning gains generates a lot of debate among researchers, educationalists, psychologists and policy

makers. On one side of the debate are those who argue that single sex schools are more likely to increase students' interest in learning and consequently the aspiration to achieve. On the other hand, there are individuals who believe that schooling in a mixed-sex school generates superior learning outcomes.

Proponents of single-sex school, support their claim by arguing that girls in co-educational classroom settings may be disadvantaged owing to a higher likelihood of teachers paying more attention to boys especially during mathematics and science lessons (Lee, Marks, & Byrd, 1994; Sunday, 2012). Other reasons cited in support of single-sex schools include the claim that they enhance self-confidence among girls, and that boys in mixed-sex schools tend to avoid stereotypically un-masculine classes like drama and music which is not likely to be the case in an all-boys school, (Hacker, 2000; ACER, 2015). Added to this is the argument that students in coeducational schools are likely to be distracted in the course of their studies by the opposite sex.

Individuals who endorse the view that co-educational schools provide more enriching educational experiences than their single-sex counterparts includes, Fabes, Pahlike, Martin and Hanish (2013) who have for instance, averred that coeducational schools breaks gender stereotypes in the sense that as students of the opposite sex interact, they tend to develop a healthy attitude towards each other. This in turn enhances sense of belonging and thus the motivation to achieve. Another popular view among proponents of coeducational schools is that it plays a critical role in the development of interpersonal communication since both sexes are offered an opportunity to understand each other whose additive effect on learning and motivation to excel in school cannot be overstated (Garcia, 1998; Abudullahi, 2010).

Research focusing on the likely differences in students' learning outcomes including the motivation to achieve in single-sex and co-educational schools has however generated conflicting findings. For instance, Harker (2000) carried out a study on gender difference in achievement and motivation among New Zealand secondary school students in both single-sex and coeducational schools. The study did not reveal any significant differences on the two measures of schooling success between students in single sex and co-educational schools. In another study carried out earlier in USA by Marsh (1991) and Brenton and Schagen (2004), no notable difference was noted in regard to students' aspiration to excel in mathematics, science and vocational courses take-up between single-sex and co-educational catholic schools. These findings echoes the findings by Ainley and Daly (2002) in Australia which similarly showed that students' aspiration to excel in physical sciences and biology was not dependent on whether they were being educated in single-sex or mixed-sex schools.

Willis, Kilpatrick and Hutton's (2006) study, however revealed that girls in girls' only schools had a higher level of self-confidence and aspiration to achieve compared with their counterparts in coeducational schools. This finding is consistent with the results of studies carried out by Protheroe (2009) and Githua and Mwangi (2003) in USA and Kenya respectively.

School's Examination Performance Status and Students' Academic Aspiration

The effect of a school's examination performance status on students' academic aspiration is another aspect of schooling success that has attracted the interest of many researchers. Schools' academic status is judged in terms of statistics about their students' academic achievement, including the percentage of students who successfully graduate to the subsequent level or cycle of education (Carter, 2000). In Kenya for example, a secondary school is perceived as either high performing or low performing based on its average performance in the Kenya Certificate of Secondary Education (KCSE) examination. The question that is severally asked in regard to schooling is whether attending a high performing school is more likely to enhance higher learning gains to the learners than going through a low performing school. Amunga, Amadalo and Maiyo (2010) have however pointed out that much is unknown about the benefits or drawbacks to students of attending schools that have higher or lower overall achievement level respectively.

The debate surrounding the potential link between a school's examination performance status and students' learning outcomes is rooted in the social capital concept. Social capital in a school setting denotes the beneficial effects that accrue to students

through interaction with peers and teachers. For instance, there is a popular belief that students' level of aspiration to achieve is largely influenced by the characteristics of peers in relation to their attitude towards learning and educational aspiration (Dronkers & Roberts, 2003). This view is grounded in the reasoning that, students learn vicariously from their peers by watching and modelling or put differently by acting out their behaviour (Bandura, 1996). This implies that if a student interacts with peers with high achievement motivation there are high chances that the student will emulate this behaviour and consequently set high achievement goals. The contrary would be the case in a situation whereby a student is schooled with colleagues who do not convey positive attitude towards learning and the need to aspire for higher goals.

Research on the differential effect of high and low performing school on students' learning outcomes including the aspiration to achieve has nonetheless generated contradicting results. For instance, while March and Hau's (2003) study in USA revealed a negative effect of attending a high performing school on students' self concept (this is a critical correlate to aspiration), Tsawani's (2009) study concluded that attending a high performing school has a beneficial effect on students' academic performance and overall aspiration. This observation was also made by Ceylan and Akerson's (2014) study in America.

Research Methodology

The study utilized the *ex post facto* research design. This is a research design which is utilized in a situation whereby the independent and dependent variable (s) have already interacted. In this regard, the investigator cannot manipulate the independent variable (s) so as to determine its/their effects on the dependent variable (s). Consequently, the effect of interaction between the independent and dependent variables is determined retrospectively (Miles, Huberman & Saldana, 2014). The *ex post facto* research design was deemed ideal for this study owing to the fact that the study aimed at determining retrospectively the extent to which school category and school examination performance status could be influencing students' academic aspiration in the study locale.

Instrumentation

A self-delivered questionnaire was administered (with the assistance of class teachers) to 375 randomly selected students (N=11,580) from 84 (N=106) schools. The questionnaire had 21 five point Likert scale items which measured students' level of academic aspiration. The response options in the instrument ranged from strongly agree, agree, somewhat agree, disagree and strongly disagree which were allocated 5, 4, 3, 2, and 1 scores respectively. A high score represented a high level of academic

aspiration and a lower score indicated a low level of academic aspiration. The expected maximum and minimum scores accruing from responses to the items was expected to be 5 and 1 respectively. Based on the expected mean scores, students' Level of Academic Aspiration (LAA) index was formulated which was

expected to act as a guide for interpreting students' level of academic aspiration. This formulation grouped the expected means into four quotas representing very low, low, high and very high level of academic aspiration respectively as shown in Table 1.

Table 1
Expected Mean Score Ranges by LAA

Mean Score	LAA
1- 1.99	Very Low
2- 2.99	Low
3- 3.99	High
4- 5.00	Very High

Validity and Reliability of the Instruments

The instrument was validated by experts in the Department of Psychology, Counselling, and Educational Foundations in Laikipia University- Kenya. Their comments and suggestions were effected in the instrument prior to submitting it to the respondents. This phase of instrumentation helped to enhance its efficacy in generating the targeted data.

Two aspects of the instrument's reliability were estimated: internal and external reliability. Internal reliability, which is the extent to which an instrument will measure a single idea (or construct for that matter, for instance, students' academic aspiration in this context) was estimated through Cronbach's alpha. The alpha obtained was .81 (or 81%) which implied that the 21 items were measuring students' academic aspiration 81% of the time and that error may have occurred only 19% of the time. External reliability - that the extent to which an instrument is capable of generating similar results when used more than once to gather data from a given sample under consistent conditions - was estimated through test- retest technique. This involved administration of the revised instrument to students (n= 37) in two schools in the neighbouring Nyandarua North Sub-County. The instrument was in turn administered to the same subjects after one week. Scores from the two instrument administration phases were correlated in which a correlation coefficient of r = .80 was realized. Since the two reliability indices were closer to +1, the instrument was deemed reliable in collecting the desired data (Marczk, DeMatteo & Festinger, 2005).

Data Analysis

The overriding objective of the study was to determine the extent to which students' academic aspiration could be related to the two aspects of school characteristics focused by the study. To achieve this objective, data was analysed by use of χ^2 statistic. The chi square statistic is applied when the researcher's intention is to compare responses of different sub-populations to each other on a given measure. This is accomplished by presenting the data in a tabular form (cross-tabulation) so as to determine whether there is a relationship between the variables. In order to ascertain whether a statistically significant relationship exists between the variables, a comparison is made between the actual distributed patterns of responses in the cells against the critical value which in our case was .05 alpha (p) level. If the compared p-value is less than 0.05, a conclusion is made that there is a statistically significant relationship between the variables and vice versa.

The objective of carrying out the χ^2 test was to compare the different sub-populations to each other with respect to the way they were distributed in the four mean score ranges (see table 1). The results of these analyses (including Cramer's V index to determine the strength of relationship if any) are presented in table 2 and table 3 with regard to single-sex and coeducational schools, and school's KCSE examination performance status respectively which were the independent variables of interest in this study.

School Category and Students' Academic Aspiration

The outcome of data analysis with respect to the link between school category and students' academic aspiration is captured in table 2.

Table 2
Respondents' Distribution by School Category and LAA Mean Scores

School Category	LAA				Total
	1.99	2.99	3.99	5	
Boys' only	2(10)	2(10)	5(25)	11(55)	20(6)
Girls' only	3(15)	3(15)	6(30)	8(40)	20(6)
Co-educational	61(20)	62(21)	132(42)	42(14)	297(88)
Total	66(19)	67(20)	143(43)	61(18)	337(100)

(Figures in parenthesis represent percentages) N=337
 $\chi^2 = 5.620$; $df = 6$; $p < .05$; Cramer's $V = .205$

Data presented in table 2 indicates that the proportion of respondents in the three categories of schools increased towards the upper range of LAA mean scores (3.00 to 5.00) though it tapered off in regard to co-educational schools at the 4- 5 class interval. It is also evident from the table that the proportion of respondents who scored a mean score of less than three in the co-educational schools was 41%. The corresponding proportion of respondents in girls' only and boys' only schools was 30% and 20% respectively. It is also notable that the highest proportion of respondents who scored above a mean score of 2.99 points was in boys' only schools (80%) followed by girls' only schools (70%) and lastly co-educational schools (56%).

The foregoing findings indicates that students in boys' only schools had the highest level of academic aspiration followed by their counterparts in girls only schools and lastly students in co-educational schools. The effect of school category on students' academic aspiration, the data in table 2 further reveals was not only relatively strong (Cramer's $V = .205$) but also statistically significant ($\chi^2 = 3.035$; $df = 3$; $p < .05$) which implies that school category may influence students' academic aspiration with single schools appearing to have a higher influence compared with coeducational schools. Based on these findings, H_{01} was rejected and

conclusion made that school category and students' academic aspiration were not statistically independent.

The noted differential effect of school category on students' academic aspiration reinforces earlier findings by Raana (2013) whose study showed that students in single-sex schools were not only self-assured and determined to excel in school but were equally enthusiastic, relaxed and less frustrated in school. These attributes, the study observed were generally absent among students in co-educational schools. The noted beneficial effect of gender separate education on students' desires to excel and by implication achievement in school also concurs with earlier findings (e.g., Dumont, 2013; Bigler & Liben, 2006). A differing finding was, however revealed by Hakers (2000) study in New Zealand which after controlling for students background (specifically, family's socio-economic status) did not establish any significant difference in the relative aspiration to achieve in mathematics, English and science among students in single-sex and coeducational schools.

School's Examination Performance Status and Students' Academic Aspiration

The results of χ^2 test with respect to the relationship between students' academic aspiration and school's performance status in the KCSE examination is summarized in table 3.

Table 3
Respondents' Distribution by School Examination Performance Status

KCSE Examination Points	LAA		Score		Total
	1.99	2.99	3.99	5	
4	32(13)	42(18)	52(22)	110(47)	236(70)
7	6(9)	6(9)	14(21)	44(67)	66(20)
8- 10	1(3)	4(11)	7(20)	23(66)	35(10)
11- 12	-	-	-	-	-
Total	39(12)	52(15)	73(22)	173(51)	337(100)

(Figures in parenthesis are in percentages) N=337
 $\chi^2 = 12.78$; $df = 15$; $p < .05$; Cramer's $V = .811$

An examination of the data contained in table 3 shows that the proportion of respondents in schools that had posted an average KCSE examination mean score during the period covered by the study (2009-2013) of 1-4, 5-7, and 8-10 increased towards the upper range of LAA mean score. It is also evident that the highest proportion of respondents who scored less than a mean score of 3.00 was in schools that had registered a KCSE examination mean score of 1-4 (31%) followed by schools that had registered a KCSE examination mean score of 5-7 (18%), and lastly schools that had posted a KCSE examination mean score of 8-10 (14%). It can further be learnt from the table that the highest number of respondents who scored more than a mean score of 2.99 in regard to academic aspiration came from schools that had a cumulative score of between 8-10 in KCSE examination between 2009-2013 (86%) followed by respondents in schools with a cumulative mean score of 5-7 (88%), and lastly schools whose KCSE examination mean score ranged between 1-4 mean score (69%). It has also emerged from the table that none of the schools in the study area had registered an average of 11.00 and above in the KCSE examination over the same period.

The emerging picture in regard to respondents' distribution in the four LAA score ranges indicates that level of students' academic aspiration increased with increase in schools' level of KCSE examination performance status. This appears to demonstrate that students who are enrolled in schools whose examination performance status points are high are likely to have a higher desire for academic achievement than their counterparts in schools whose examination performance status points are low. The data additionally shows that the influence of a school's examination performance status on respondents' academic aspiration was not only very strong (Cramer's $V = .811$) but also statistically significant ($\chi^2 = 12.78$; $df = 15$; $p < .05$). This finding seems to indicate that a student's academic aspiration is more likely to be enhanced if the student is schooled in a high performing school. Drawing from this finding, HO2 was rejected and conclusion made that, students' academic aspiration and level of school's performance in the KCSE examination were not statistically independent.

This finding concurs with the findings of previous studies (for example, Kalil, 2014; Joan, 2009) which demonstrated that students who secure admission in high performing school display high levels of academic aspiration unlike their counterparts who join lowly performing schools. The two studies for instance observed that students in low performing schools displayed a dislike for schooling which tended to lower their rate of school attendance and motivation to learn.

Conclusions and Recommendations

The findings generated by this study have important implications and lessons with respect to enhancing students' academic aspiration. First, it emerged from the study that students in boys' only schools had a comparatively higher level of academic aspiration compared with their counterparts in girls' only and coeducational schools. In this regard, there is a need for managers, teachers and parents in girls' only schools and coeducational schools to teamwork with a view to enhancing students' aspiration to achieve. This may be accomplished through initiation of appropriate students' motivation programmes including continuous sensitization of students on the benefits that accrue from formal education accomplishments. The findings additionally indicated that students' level of aspiration increased with increase in the level of school's performance in the KCSE examination. In this regard, the stakeholders in low performing schools including school managers, teachers, parents and local leaders should work in tandem with a view to coming up with students' academic enhancement initiatives such as motivational talks to students. They (stakeholders) should also consider harnessing students' intrinsic motivation through the introduction of relevant incentives for good performance.

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