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Influence Of Students Social Attributions On Performance In Mathematics in Secondary School In Nyahururu And Laikipia North Sub-Counties, Laikipia County, Kenya

By

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Abstract

Performance in Mathematics is valued in all societies due to its strong foundation for a country's scientific development. Therefore, performance in Mathematics has become a major issue of concern at secondary level of education globally. Further, Mathematics performance in Kenyan secondary schools has not been outstanding and especially in Nyahururu and Laikipia North Sub-Counties. Hence, the study examined the influence of school culture, school resources endowment, school type and students' social attributions on students' performance in Mathematics. The study employed *ex post facto* research design. Data was collected from a sample of 393 respondents from Nyahururu and Laikipia North Sub-Counties. The Central Limit Theorem was used to select 16 secondary schools. The study applied stratified random sampling technique in order to distribute respondents proportionately. Data was collected from both students and their Mathematics teachers' using questionnaires while personal interviews were used to collect data from school principals. Students' Focus Group Discussions were also used for the purpose of triangulation of data. Research instruments' reliability was estimated using test-retest while validity was determined by piloting the research instruments. The nominal data was analyzed using frequencies and percentages and ordinal data was analyzed using Linear regression analysis using Statistical Package for Social Sciences (SPSS). The study revealed that a statistical relationship existed between students' social attributions and students' performance in Mathematics with an overall Linear Regression analysis at ($r^2=0.668$; $p>0.04339$) which was at 0.05 level of significance. These study findings led to lesson that educational stake-holders should identify and provide social and personal factors that create conducive environment for success in Mathematics. The recommendation therefore is that there is a need for secondary school administrators and teachers to create awareness and implement policies that are associated with students' social attributions that influence students' performance in Mathematics.

Keywords: Social Attributions; Performance in Mathematics, Religious Values; learning materials; parents' occupation

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Introduction

The need for better performance students' performance in Mathematics among secondary school students has been emphasized globally. This may be due to the role of Mathematical skills in the advancement of technological disciplines (Shabalala & Ncube, 2016). According to Orodho (2014) success in Mathematics equips students with capacity to tackle a variety of day life challenges. This may explain why many governments seek for solutions towards improving students' learning environment in Mathematics and sciences (UNESCO, 2012). Hence, educationists in modern society have suggested that there is a strong interplay between educational school socialization and outcomes. (Ravi, 2015).

According to Ballentine et al (2017), and Hooks (2016) societal factors contribute the largest role to the learning process and its outcome. Sociologists in the discipline of education have attempted to explore and document determinants of students' academic performance. According to Cronin (2020), Young & Muller (2016) a society's covert cultural aspects such as its national character, aspirations and attitudes are key determinants of academic performance of its members. This line of investigation has revolved around the link between students' personal and environmental factors that influences their scsdemic performance (Ravi, 2015 & Okita, 2012).

In Japan, OECD (2012); Wei & Dzung (2014) observed that performance in Mathematics among High School students in Japan was much better than in most of the developed countries. This performance was associated with the availability of better quality of school factors such as Mathematics text books, scientific calculators, Mathematics learning models and comfortable classrooms for all students specializing in Mathematics (Malemya, 2018 & OECD, 2013).

According to Gachahi et al. (2014) and Kiumi et al. (2013) there has been a serious concern among educational stakeholders in Kenya on small number of students studying Mathematics, science and technological courses. This is in spite of the observation that the government has been allocating 30% of the Ministry of education budget to cater for secondary education, towards improved academic performance and particularly in Mathematics subject (Kenya Institute of Curriculum development, 2021). The Kenya National Examinations Council (2021) observed that in the years 2018, 2019, 2020 forty per cent (40%) recorded grade (E) in Mathematics. The same report noted that only fifteen per cent (15%) of the students attained A to B- grade in Mathematics. This means that only a few students qualified to pursue Science and Mathematics related courses at university level.

Likewise, students' performance in Mathematics in Laikipia County has been wanting. According to Laikipia County Director of Education office (2021), the County mean-scores in Mathematics for 2018, 2019 and 2020 were: 3.734, 3.75, and 3.796, respectively. The mean scores for the targeted Laikipia Sub-Counties namely: Nyahururu and Laikipia North

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respectively were the poorest and highest in Mathematics in the County in 2018, 2019 and 2020 at national examinations. However, both counties performed below the national mean of slightly below 4.0.

In light of consistent poor performance in Mathematics over the years, it was critical to investigate the extent to which influence students' social attributions towards performance in Mathematics was assessed. The resulting data might assist in establishing the degree to which students' social attributions influence students' performance in Mathematics in Nyahururu and Laikipia North Sub-Counties.

Purpose of the Study

The main purpose of this study was to establish the influence of students' social attributions on secondary school students' performance in Mathematics in Nyahururu and Laikipia North Sub-Counties of Laikipia County in Kenya.

Objectives of the Study

To achieve the main purpose of this study, which was to establish the influence of students' social attributions on performance in Mathematics among secondary school students in Nyahururu and Laikipia North Sub-Counties, Laikipia County, Kenya, three specific objectives were formulated. These sought to:

1. evaluate the influence of students' religion on their performance in Mathematics.
2. examine the influence of parental level of education on students' performance in Mathematics.
3. determine the influence of parental occupation on students' performance in Mathematics

Research Hypothesis

1. There is no statistically significant relationship between students' religion and their performance in Mathematics
2. There is no statistically significant relationship between parental level of education and students' performance in Mathematics
3. There is no statistically significant relationship between parental occupation and students' performance in Mathematics.

Statement of the Problem

Mathematical knowledge is critical to all societies because it forms a strong foundation for a country's advancement in science, technology, financial and human capital development. In addition, most learning institutions consider mathematical skills as a precondition to one's success in most of the arts and science courses. This has thus made educational stakeholders including governments to consider performance in Mathematics as a major issue of concern in learning institutions. It is therefore not a surprise that, the government of Kenya has been emphasizing the importance of good performance in Mathematics among its students in secondary schools. This has been demonstrated by the government's involvement in the provision of tuition and national examination fees to all students in public secondary school in

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order to alleviate absenteeism that would be occasioned by lack of school fees. It has also been supplying school learning resources and in-servicing Mathematics teachers through the Ministry of Education. Surprisingly, despite these efforts by the government towards provision of teaching resources, students' performance in Mathematics has remained wanting; making it difficult for students to pursue science and Mathematics' related disciplines at post-secondary school level of education. This scenario is worse in Laikipia County when compared to the national performance (Laikipia County Education Office, 2021) and particularly in Nyahururu Sub- County compared to Laikipia North Sub-County where secondary school students have been performing slightly better in Mathematics. It is in this regard, that the researcher decided to investigate the degree to which students' social attributions in both Nyahururu and Laikipia North Sub-Counties respectively, influenced performance in Mathematics.

Significance of the Study

The results of this study have generated useful insights that are likely to help the Ministry of Education to formulate policies and to address issues related to students' social attributions that influence performance in Mathematics. Furthermore, the current study has added new data to the body of knowledge by providing new information concerning the link between students' social attributions and their performance in Mathematics. The research findings have also provided understanding to different stakeholders at different levels, including students, their parents and school administrators of the role played by students' social attributions on their performance in Mathematics subject.

Limitations of the Study

The study limitations refer to problems that the researcher may have little or no control (Bryman, 2012 and Creswell, 2013). This study was conducted under certain conditions that in one way or another would weaken or limit the generalizability of its findings. This study was limited by the shortage of time to fill the questionnaires by the respondents while they were in school it was required by the researcher. To solve this problem the researcher decided to collect them later. Also some school principals had a busy schedule either in or out of their schools. To overcome this limitation, the researcher decided to book an appointment with the school principals so that they would agree on the appropriate time for the personal interview. Some of the respondents might not have provided accurate information due to personal nature, sensitivity and confidentiality associated with socio-economic status, religion and gender issues among others due to their socialization. To overcome this, the respondents were assured of their anonymity and confidentiality of their responses during data collection and even afterwards. To this end, the respondents were not expected to indicate their names in the questionnaires.

Literature Review

Literature Review on Students' Attribution and their Performance in Mathematics

Social attribution can be defined as the ascription of an event or an outcome to personal characteristics, activities or environmental factors (Hurst et al., 2013 and Scneider, 2018). In Tanzania, Kitila and Amani (2012) did a study to examine the disparity in social attribution on academic performance between high and low achieving university students. This study used

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questionnaires, interviews and observations as tools for collecting data. The sample for this study was 260 students whose age was between 20 and 40 years. The findings of this study have concurrence with those of Ileri (2015) and Sarwat et al (2013) that students who did well in their examinations attributed their academic performance to their effort which is an internal factor. However, students who had achieved poorly in their examination attributed their performance to school factors such as poor learning environment, difficult examinations and uncooperative and biased teachers. This study targeted respondents from one institution whose respondents were recruited conveniently rather than random sample. The current study gathered data from different categories of secondary schools using simple random sampling and stratified random sampling framework from Mathematics teachers and their students. Simple random sampling was utilized in order to reduce bias in resulting data.

In another study, Ngunu et al (2019) sought to examine the link between social attributions and secondary school students' achievement. The results of this study revealed that majority of the students credited their academic results to external factors which were within their school environment. These factors included their teachers, school colleagues and school interactions. This finding was similar to an observation by (Kitila & Amani, 2012; Kosgei et al, 2013; Kaplan & Yahia, 2017). This study did an investigation using students as the only respondents in the study but the current study used teachers, their principals, and students in order to enhance triangulation of gathered information.

Methodology

Research Design

This research has used descriptive survey design. This is because it involved description of peoples' opinions and principles concerning a prevailing occurrence without necessarily influencing their behavior (Bryman, 2012; Gray, 2014 and Maxwell, 2012). This research design enhanced collection of data by the use of questionnaires, focus group discussions (FGD) and interviews without manipulating either students', teachers' or principals' behavior.

Sampling Procedures

Leavy (2014) observed that sampling is a procedure of choosing a subsection of the population to be studied. This study contains a sample of public secondary schools, Form Three Students, their Mathematics teachers as well as the principals of their schools from both Nyahururu and Laikipia North Sub-Counties. On the other hand, Creswel (2013) and Maxwell (2012), are in agreement that when the Central Limit Theorem (CLT) is used, the sample size should be 30% or more of the targeted population, which produces a sample mean that reflects a normal distribution. Hence, a third of the total population is the minimum number of observations required to carry out a research study. Consequently, 30% of secondary school sample was deemed to be adequate. This was achieved through a stratified sampling for purposes of inclusion of different types of schools in Kenya's secondary school system. Eligible schools for the sample were boarding schools for boys only, boarding schools for girls, mixed day schools, and mixed boarding schools. Thereafter, simple random sampling was carried out on every stratum of school type.

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The selection of a sample of Form Three students employed stratified sampling method. This assisted in the classification of schools into co-educational day as well as boarding schools, girls' only and boys' only schools. For the schools with multiple streams, simple random sampling method was used to select one of the Streams of Form Three class. Thereafter, simple random sampling was used in-order to choose a sample of Form Three students. In order to select a sample of Form Three Mathematics teachers, purposeful sampling was used while census method was used to select all the participating principals from the selected schools.

Sample Size

According to Bryman (2012), in-order for a researcher to get significant results, the Central Limit Theorem (CLM) affirms that a sample size of thirty percent or more of the total population is required. Thus, this study used thirty per cent (30%) or 16 secondary schools, out of the total population (44) secondary schools. The 16 schools comprised different categories of secondary schools. Out of only the three girl secondary schools, two of them were sampled while the only boy secondary school, was included in the sampled schools.

The mixed day secondary schools were 28; hence, 9 schools were sampled. Mixed boarding schools were 12; and so 4 schools were to be sampled. Hence 13 mixed secondary schools were selected. In order to get a sample of Form Three students from the selected secondary schools, Krejcie and Morgan (1970) formula was used. When this formula was applied to a population of 3,363 Form Three students 345 students were selected of the population stratum in terms of school type. Therefore, mixed day schools were represented by 171 students, that is 91 boys and 80 girls whereas mixed boarding schools were represented by 124 (66 boys and 58 girls) respondents. Further, respondents from girls' boarding schools were represented by 33 students while boys' school contributed 17 respondents. Finally, using simple random sampling technique 16 Form Three teachers of Mathematics were selected from the participating secondary schools while all principals of selected schools participated in the study.

Data Analysis, Findings and Discussion of Results

The main objective of this study was to examine the influence of students' social attributions on performance in Mathematics. In order to achieve this objective, students were requested to indicate their opinions on a five-point Likert scale between social attributions and their performance in Mathematics. School Principals were also interviewed concerning the influence of students' social attributions and their perceived influence on performance in Mathematics. The pertinent results are depicted in Table 1.

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Table 1: Students’ Social Attribution and Performance in Mathematics

Items	N	SA	A	N	D	SD		
Statements on students’ social attribution towards performance in Mathematics.	N	%	%	%	%	%	Mean	SD₁
I score well in Mathematics because of my religious values.	318	6	70	0	16	8	4.16	1.45
I score poorly in Mathematics because I’m always sent home for school fees.	318	17	58	0	19	6	3.58	1.03
I score well in Mathematics because my parents are educated hence, they are a motivation to me	318	7	9	0	74	10	2.02	1.86
I score low grades because I don’t have all the necessary Mathematics learning materials.	318	36	51	0	11	2	3.14	1.11
I attribute my performance in Mathematics to my parent’s occupation.	318	22	64	0	14	0	3.25	0.97

Source: Field Data, 2023

Key: SA-Strongly agree, A- Agree, N- Neutral, D-Disagree, SD-Strongly disagree, SD₁-Standard deviation

The data in Table 1 has indicated that majority (70%) and (6%) of the students agreed and strongly agreed that religious values influenced their performance in Mathematics positively. However, 16% of the students did not see any relationship between religious values and performance in Mathematics. Regarding the mean, it was high (4.16) which demonstrated that majority of the respondents agreed with the statement that they scored well in Mathematics because of their religious values. The standard deviation was also high (1.45), which indicated a high variation of responses. Batool et al (2010), argued that religious values such as success and hard work are held in high regard and therefore, they are easily acceptable and internalized by the members of society. A study by Githui and Njoka (2022), observed that when students perform poorly in their examinations, the teachers’ role should be to nurture intrinsic motivation among their learners by assuring them that they possess the ability to perform academically if they put extra effort in their study.

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Further, students were requested to state whether their ability to pay school fees affected their performance. Some 58% of students and another agreed strongly 17% strongly agreed that lack of schools imparted negatively on their performance in Mathematics. Lack of school fees forced them to be absent from school. On the other hand, 19% disagreed and 6% strongly disagreed that their poor performance was attributed to their being sent home due to lack school fees. It is likely that these students had come from financially stable family backgrounds. These findings seem to imply that most of the students felt that whenever they were sent home due to lack of school fees, they ended up performing poorly in Mathematics. This is in line with an observation by Augoustnos (2005) that learners tend to attribute their poor academic performance to external variables such as missing classes.

On the item which assessed whether the cause for students' good performance in Mathematics based on their parents' level of education, the majority (74%) and 10% disagreed strongly disagreed respectively. However, 9% agreed and 7% disagreed that they scored well in Mathematics due to their parents' level education. This finding seems to suggest that majority (84%) of the students targeted by this study were not inspired to perform well in Mathematics by their parents' level of education. This is not surprising because majority of parents did not have post- secondary education. With regard to the mean, it was low (2.02) as it implied that majority of the students' responses did not agree with the statement. This observation concurred with that of Mkumbo & Amani (2012) that good academic performance was not associated with external factors but with innate personal characteristics such as a learner's personal ability and effort.

With respect to the influence of learning materials on performance in Mathematics, 51% of students agreed and 36% strongly agreed, while 11% disagreed and 2% strongly disagreed that they scored low grades because they did not have all the necessary learning materials in Mathematics. On the other-hand the mean was 3.14 which signified agreement with the statement. Teaching and learning materials in public schools are provided by the parents as well as the government (UNESCO, 2008). The scarcity of teaching and learning materials in public schools suggest that majority of the Form Three students did not have all the necessary Mathematics learning materials during the learning process. Laherand and Putnina (2007) observed that most of the learners tend to associate their academic failure to external variables that are beyond their control.

Finally, analysis in Table 1 has revealed that majority of students (64%) and strongly agreed (22%) agreed that their performance in Mathematics was influenced by their parents' type of occupation. However, a few (14%) of the respondents disagreed with the statement that their parents' occupation contributed to their performance in Mathematics. According to Kibera (1995) most of the parents from low class take their children to day schools and mixed secondary schools where cost of education is lower compared to single sexed schools. Unfortunately, low-cost schools lack where teaching and learning resources or are inadequate. Julius & Ronald (2021) argued that lack of school resources was one of the major causes of poor academic performance.

The school Principals in this study have also attributed poor performance in Mathematics to lack of finances to procure adequate learning materials. One of the principals (P4) captured the of inadequate in learning materials in some of the targeted schools as follows:

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Poor results among our Form Three students are caused by financial challenges affecting their parents. Most of the students stay for several days away from school whenever they are sent home due to school fees or other learning materials such as calculators and Four- Figure Tables.

The comment by some of the principals of schools has revealed that due to financial challenges, translate into insufficient or lack of critical learning resources, thus negatively impacting on performance in Mathematics. Githui and Njoka (2022) and Mburu (2013) were in agreement that most of the students in rural areas are from economically challenged families and as a result they attended low-cost mixed day as well as inadequate resourced secondary schools a combination of factors that by and large lead to poor academic performance.

In order to capture the influence of students' social attributions on performance in Mathematics from Nyahururu and Laikipia North Sub- counties respectively and analysis was carried out.

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Table 2: Students’ Social Attributions and Performance in Mathematics per Sub- County

Items	Sub-county	n	SA	A	N	D	SD	Mn	SD
Statement on students’ social attribution towards Mathematics performance	Sub-county	n	%	%	%	%	%	Mn	SD
I score well in Mathematics because of my religious values	Laikipia North	93	09	68	00	21	02	4.41	1.51
	Nyahururu	225	05	71	00	14	25	3.90	1.39
I score poorly in Mathematics because I’m always sent home for school fees.	Laikipia North	93	17	67	00	08	08	4.11	1.14
	Nyahururu	225	19	44	00	37	00	3.06	0.92
I score well in Mathematics because my parents are educated hence, they are a motivation to me	Laikipia North	93	06	07	00	74	13	2.13	1.90
	Nyahururu	225	10	14	00	72	04	1.91	1.82
I score low grades because I don’t have adequate necessary Mathematics learning materials	Laikipia North	93	41	50	00	09	00	4.02	1.34
	Nyahururu	225	16	54	00	08	03	3.78	1.23
I attribute my performance in Mathematics to my parent’s occupation.	Laikipia North	93	20	69	00	11	00	4.33	1.03
	Nyahururu	225	31	54	00	15	00	3.97	1.01

Source: Field Data 2023

Key: **n**= Sample size, **SA**= Standard deviation, **A**= Agree, **N**= Neutral, **D**= Disagree, **SD**= Strongly Disagree, **Mn**= Mean, **SD**=Strongly Disagree,

A close observation of the data in Table 2 shows that 68% respondents in Laikipia North sub-county agreed that they scored well in Mathematics due to their religious values, 9% strongly agreed whereas 21% disagreed and 2% strongly disagreed. In Nyahururu sub-county, 71% of the respondents were in agreement, 5% strongly agreed, 14% disagreed and 25% strongly disagreed. It can therefore be observed that the proportion of the respondents that were in agreement with the statement was high both in Laikipia North and Nyahururu sub-county. This implied that, majority of the high performing students associated their examination results with values that not only enhanced their good performance in Mathematics but also those that were revered in their religions. The mean for the responses of Laikipia North Sub- County was 4.41 and 3.90 for Nyahururu sub-county. This has demonstrated that a higher proportion of the respondents in Laikipia North than in Nyahururu Sub- County were in agreement that their religious values

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contributed positively to their academic results. According to Wang, (2020), ideals that are attributed to academic excellence includes good discipline, respect for other students, commitment to school rules and hard work.

A further observation of the data in Table 2 has indicated that a larger proportion of the respondents in Laikipia North and Nyahururu sub-counties agreed with the statement that their poor performance was related to lack of school fees. In Nyahururu sub-county 44% agreed and 19% strongly agreed. In Laikipia North sub-county, 67% agreed and 17% strongly agreed. This implied that more respondents in Laikipia North than in Nyahururu sub-county felt that their poor performance in Mathematics may have been caused by being away from school due to lack of school fees. According to Kiprop- Markis (2022), students' absence from school was a major contributor to poor academic results as it makes learners to lag behind in the coverage of syllabus. Matage & Begi (2017), added that students from Kenyan rural areas experienced economic challenges which resulted in lack of school fees and personal items that assist in the learning process such as pens, set books and geometrical sets.

With regard to parental education the findings established that, majority (72%) of the respondents in Laikipia North agreed that their excellent performance in Mathematics was as a result of motivation due to their parents' education. In Nyahururu sub-county, 64% agreed that they performed well in Mathematics because they identified themselves with their parents' level of education. With regard to the mean, Laikipia North sub-county had 2.91 and Nyahururu sub-county had 2.13. This implied that a larger proportion of students in Laikipia North than in Nyahururu sub-county felt that the level of their parents' education motivated them to perform well in Mathematics.

Therefore, it can be demonstrated from the current study that a students' level of performance in Mathematics is directly proportional to the level of education of their parents. This observation concurs with an observation by Epstein (2019), Goro et al (2019), Kilonzo (2020) and Suresh (2012) that parental level of education is statistically correlated with students' academic performance. Naite (2021) observed that parents influences their children by providing financial support, skills, motivation to learn and inspiration that are key elements in developing academic success. Nevertheless, Koskei & Ngeno, (2015) and Korir & Wambugu (2018) observed that parental level of education had no significant influence on students' academic performance.

An observation of the data outlined in Table 2 has further revealed that 50% of the respondents in Laikipia North and 54% respondents in Nyahururu sub-county agreed that their low grades were due to lack of adequate learning materials. Thus, 41% respondents in Laikipia North and 16% in Nyahururu sub-county strongly agreed that their poor performance was due to inadequate learning materials. This implied that a larger proportion (91%) of students in Laikipia North and 70% of the respondents in Nyahururu sub-county were of the opinion that their lack of enough learning resources was directly related to their poor performance in Mathematics. This observation concurs with an observation made by Okongo et al (2015), Likoko et al (2013), and Mbaria (2006) that in adequacy of learning resources was a major contributor of poor academic performance in sciences and Mathematics. Therefore, the government and parents need to cooperate in order to provide enough teaching and learning resources (Ambogo, 2012).

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Testing of the Hypotheses

In order to test hypotheses of this study the investigator utilized inferential statistics on data based on students’ social attributions against students’ performance in Mathematics. The results of regression analysis carried out are summarized in Table 3

Table 3: Linear regression of Students’ Social Attributions and Students’ Performance in Mathematics

Sub-County	Variables of Study	Students’ Religious Values	Parental level of Education	Parental Occupation	Sub-County	Overall Significance
Nyahururu	Student’s social attributions ;Students performance	$r^2= 0.60$	$r^2= 0.649$	$r^2= 0.681$	$r^2=0.650$	$r^2= 0.668$ $P>0.04339$
		$p= 0.041$	$p= 0.036$	$p= 0.035$	$p=0.0403$	
Laikipia North	Mathematics	$r^2= 0.62$	$r^2= 0.661$	$r^2=0.713$	$r^2=0.685$	
		$p=0.050$	$p=0.0452$	$p=0.042$	$P=0.0641$	

Note: Correlation (p) is significant at 0.05 confidence level.

Key: p = Level of confidence; r^2 = Correlation coefficient

Source: Field Data 2023

The data in Table 3 has presented the results of linear regression on social attributions in terms of students’ religious values and social economic status of presents, parental level of education and type of occupation on students’ performance in Mathematics by Nyahururu and Laikipia sub-counties. The relationship between students’ religious values and students’ performance in Mathematics revealed a strong relationship with ($r^2= 0.60$; $p> 0.041$) in Nyahururu Sub-County and ($r^2=0.62$; $p>0.044$) in Laikipia North Sub-County at 0.05 significance level. The results have indicated that there was a statistical significance relationship between students’ religious values and their performance in Mathematics in both Sub-Counties. Therefore the hypothesis “there is no statistical relationship between students’ religion and their performance in Mathematics,” was rejected. Further, data analysis has indicated that the influence of religious values among students’ performance in Mathematics in Laikipia North sub-county was slightly higher than among students in Nyahururu sub-county.

The linear regression of parental level of education and students’ performance in Mathematics demonstrated a strong relationship with ($r^2= 0.661$; $p>0.0452$) for Laikipia North Sub-County and ($r^2=0.649$; $p>0.036$) for Nyahururu North Sub-County which was significant at 0.05 confidence level for both Sub-Counties. Hence, there was a statistically significant relationship between parental level of education and students’ performance in Mathematics in the study area. As a result, the null hypothesis, “there is no statistically significant relationship

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between parental level of education and students' performance in Mathematics" was rejected. Further, it was observed that parental level of education had a stronger influence on students' performance in Mathematics in Laikipia North Sub-County than in Nyahururu Sub-County. Hence, performance in Mathematics was better in Laikipia North than in Nyahururu Sub-County.

The relationship between parental occupation and students' performance in Mathematics also showed a strong relationship with ($r^2=0.713$; $p>0.042$) in Laikipia North Sub-County while in Nyahururu Sub-County it was weaker at ($r^2=0.681$; $p>0.035$) which was significant at 0.05. Therefore, the data analysis suggested that the independent variable (parental level of education) had more influence on students' performance in Mathematics in Laikipia North Sub-County than in Nyahururu Sub-County. Hence, the null hypothesis "there is no statistically significant relationship between parental occupation and students' performance in Mathematics" was rejected. This observation concurs with an observation by Kyao & Onyango (2024) and Shah & Hussain (2021) that parental occupation is directly proportional to a child's academic performance.

The overall relationship between students' social attributions and their performance in Mathematics has indicated that ($r^2=0.668$; $p>0.04339$) which was less than 0.05 level of confidence. This finding has implied that students' social attributions is a reliable predictor of students' performance in Mathematics. This is in agreement with Kitila and Amani (2012) study results that had analyzed data using Chi-square test: $\{\chi(3, N=260) = 2.26, p=0.02, \phi=0.19\}$. The resultant analysis established that there was a statistically significant relationship between student's social attributions and academic performance. The relationship between student social attributions is further illustrated in Figure 1.

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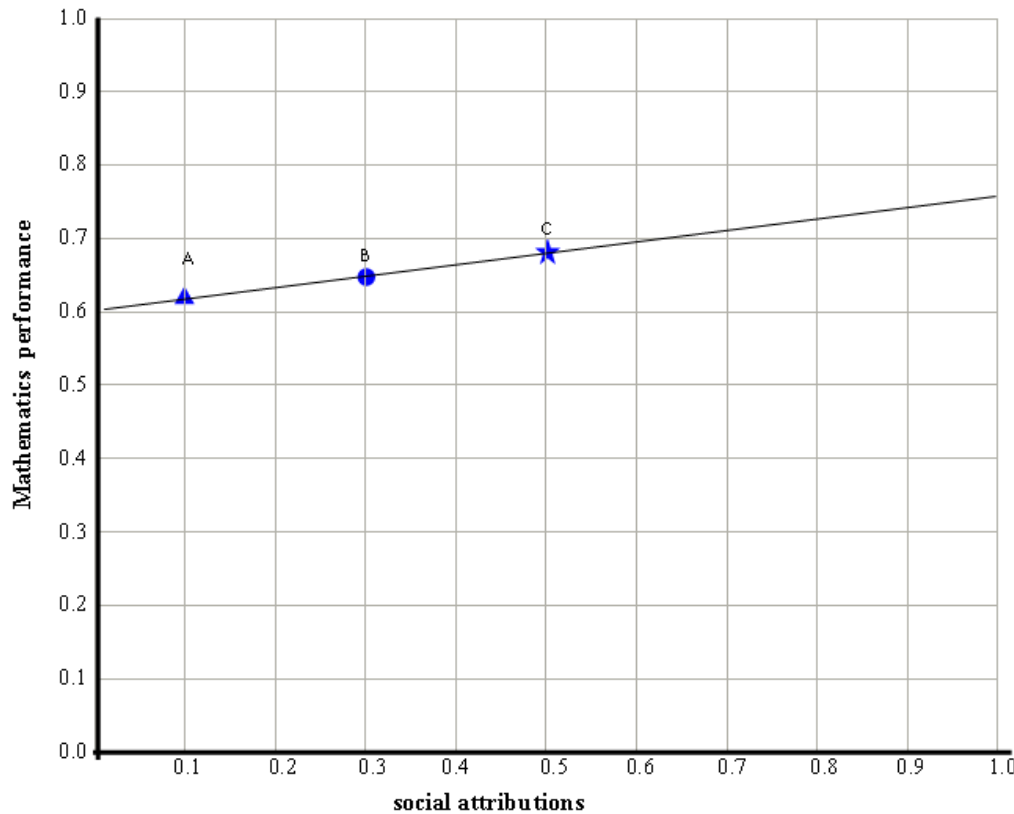


Figure 1: Linear Regression of Students' performance in Mathematics against students' social attributions

Key: A= Students' religion; B= Parental level of education; C= Parental occupation

Source: Field Data 2023

The illustration in Figure 1 has depicted the existence of a relationship between the dependent variable (student performance in Mathematics) and the independent variable (students' social attributions). The illustration further shows that for a positive increment in students' social attributions there was an increment on students' Mathematics performance. This implies that there is a positive relationship between students' performance in Mathematics and students social attributions in terms of students religion (A), Parental level of education (B) and Parental occupation (C). Figure 1 also demonstrates among the three indicators of students attributions, parental occupation (C) was the most influential on students' Mathematics performance at $r^2= 0.697$, followed by parental level of education at $r^2= 0.655$ and the least influential was students' religion at $r^2= 0.610$. Therefore if students are to perform better in their Mathematics examinations, educational stakeholders should emphasize on relationship between students' social attributions in terms of students' religion, parental level of education and parental occupation and students' performance in Mathematics.

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Conclusion

The main objective of this study was to examine the influence of students' social attributions on performance in Mathematics in Nyahururu and Laikipia North Sub-Counties of Laikipia County. The study has shown that students' social attributions constitute reliable predictors of students' performance in Mathematics. In particular, students seemed to associate their performance in Mathematics to societal characteristics such as religion, parental level of education and parental occupation. Further, the most influential variable was parental occupation with Linear regression at ($r^2 = 0.697$; $p > 0.0385$) followed by parental level of education at ($r^2 = 0.655$; $p > 0.406$). Therefore, it is apparent that social aspects related to a student's parent form key determinants of Mathematics performance of students at secondary level of education. This might be due to the direct role of parents in payment of school fees, creating a positive attitude towards learning, communicating a family's educational expectations and provision of personal school learning items.

Recommendations

In view of the observation that a students' social attributions are reliable predictor of students' performance in Mathematics, there is a need for school administrators and teachers of Mathematics to identify and implement policies that create awareness to all stakeholders in education about the influence of social and personal factors on academic success. This will definitely contribute towards enhancement of positive attitudes critical improved academic performance in Mathematics and other academic discipline.

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