

Influence of School Culture on Secondary School Students' Performance in Mathematics in Nyahururu and Laikipia North Sub-Counties, Laikipia County, Kenya

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ABSTRACT

Success in Mathematics is valued in all societies in view of the fact that it forms a strong foundation for a country's advancement in science, technology, financial and human capital development. This has made educational stakeholders to consider performance in Mathematics to be a major issue of concern in secondary schools. Nevertheless, the desired Mathematics learning outcomes amongst secondary school students in Kenya and especially in Nyahururu and Laikipia North Sub-Counties has not been outstanding. Hence, this study examined the influence of school culture on secondary school students' performance in Mathematics in Nyahururu and Laikipia North Sub-Counties of Laikipia County in Kenya. Specifically, the study examined the influence of school culture in terms of assessment strategies, school schedule for classes and school motivation strategies on students' performance in Mathematics. This study was based on conflict theory. By using *ex post facto* research design, data was collected from a sample of 393 respondents in both Sub-Counties. The Central Limit Theorem of selecting 30% of the population as the sample size was used to select 16 secondary schools which were classified as single sexed boys' schools, single sexed girls' schools, mixed day schools and mixed boarding secondary schools. The study applied stratified random sampling technique in order to distribute respondents proportionately to the four-school type stratus. Data collection was done using both students' and their Mathematics teachers' questionnaires as well as personal interviews for their principals. Students' Focus Group Discussions were also used for the purpose of triangulation of data. Research instruments' reliability was estimated using test-retest and was at an average of $r=0.8$ (80%) while validity was determined by piloting the research instruments in four schools that were in the study area and the changes that emanated and were found to be ideal were integrated. The nominal data was analyzed using frequencies and percentages and ordinal data was analyzed using regression analysis at 0.05 level of significance using Statistical Package for Social Sciences (SPSS). The study revealed that a statistical relationship exists between school culture and students' performance in Mathematics with Linear Regression analysis at ($r^2=0.629$; $p>0.0404$). These study findings led to lessons and implications on heightening students' performance in Mathematics which comprise the need for school managers to formulate policies that address issues that affects their school's cultural factors as these factors influence students' performance in Mathematics directly. There is a need for educational stakeholders to realize the need for adequate resources to all schools regardless of their gender composition as their availability enhances students' performance in Mathematics. Finally, there is a need for Mathematics teachers to create or identify social and personal factors that create an ideal believe about the source of academic success as it

influences students' performance in Mathematics.

Keywords: School culture, academic performance, assessment strategies, school schedule for classes, school motivation strategies.

BACKGROUND OF THE STUDY

The need for heightened performance in Mathematics among students has been emphasized globally. This may be due to the role of Mathematical skills in the advancement of scientific and technological disciplines as well as solving other complex societal demands (Pandey, 2017 and Shabalala & Ncube, 2016). Akuro & Ngozi (2014) and Orodho (2014) are in agreement that performance in Mathematics equips students with capacity to tackle a variety of everyday challenges. This may explain why many governments seek for solutions towards improving students' learning environment (Sneider, 2018 and (UNESCO, 2012). Indeed, the educationists in the modern society have suggested that there is a strong interplay between educational outcomes and school socialization (Healey et al. 2019 & Ravi, 2015).

Performance in Mathematics has been a major concern in developed countries. This is attributed to the desire by the same governments to be self-sufficient in scientific and technological fields (Orodho et al, 2014; Malemya (2018) and UNESO, 2012). According to OECD (2016), high school students in USA underperformed in 2012 and 2015 in an international Mathematics contests. This was mainly attributed to the state of public schools such as school cultural factors which formed the basis of their interactions and their attribution to success in Mathematics (Hansen & Reich, 2015 and OECD, 2013c). It is in this view the government of USA increased financial allocation in order to solve barriers to students' performance in Mathematics (Cheema & Sheridan, 2015 and Young et al. 2018).

Similarly in Kenya, despite the emphasis on secondary school performance in Mathematics, students have been facing diverse school-based challenges (KNEC, 2021). Specifically, there are challenges associated with school factors such as in-adequate classrooms, students' desks and chairs, negative attitude towards Mathematics, inadequate text books, and poor day secondary school culture (Mutai, 2016 & Orodho, 2014). Mensa et al. (2013) in Ghana; Sarwat et al. (2013) in Ethiopia and Ngaruiya (2018) in Kenya are in agreement that school factors with regard to assessment and motivational strategies are major contributors for disparity in Mathematics achievement among boys and girls from schools with differential material endowment.

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 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.

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 selected school factors in both Nyahururu and Laikipia North Sub-Counties respectively, with respect to school culture, school resources endowment, school type and students' social attributions influenced performance in Mathematics.

THE PURPOSE OF THE STUDY

The main objective of this study, was to determine the influence of selected school factors on students' performance in Mathematics among secondary school students in Nyahururu and Laikipia North Sub-Counties, Laikipia County, Kenya.

Objective of the Study

In order to achieve the main objective of this study, which was to examine the influence of school culture on students' performance in Mathematics among secondary school students in Nyahururu and Laikipia North Sub- Counties, Laikipia County, Kenya, the following specific objective was formulated: to examine the influence of school culture on students' performance in Mathematics.

Research Hypothesis

On the basis of the research objective, the following null hypothesis was formulated. This was:

There is no statistical significant influence between school culture and students performance in Mathematics.

Review of Related Literature on School Culture and Students' Performance in Mathematics

School culture has been said to play a significant role on students' academic performance (Roohi, 2012 and Okita, 2012). Hamida (2018) in Mombasa County- Kenya, examined the relationship between school culture and students' performance in public secondary schools. The findings of this study established that there was a positive relationship between school assessment strategies, school schedule and school motivation strategies as they were directly proportional to academic performance. These findings concur with those of Northey et al, (2018), Ronen & Ina (2020) and Asterhan & Rosenberg (2015). A significant feature about this study is the use of a questionnaire as the only tool of data collection. Hence, the current study will in addition to using questionnaires will utilize focus group discussions and personal interviews so as to collect in-depth data about influence of school culture on students' performance in Mathematics.

In another study, Mutua (2014) investigated the effect of school culture on students' academic achievement among secondary school students in Mutungulu district. This study used a sample of 333 respondents from one district. The major findings from this study that had a sample of 333 respondents established that school culture which includes students' motivation strategies and assessment strategies had a significant relationship with both academic performance and social competence of secondary school students. These findings correspond to those of Wonglorsaichon et al (2014) and Zakaria et al (2012). The current study sought to replicate these findings or disconfirm them in a different geographical location and social cultural environment.

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.

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 & 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.

Further, 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 objective of this study was to examine the influence of school culture or assessment strategies on students' performance in Mathematics. To achieve this objective, students were requested to provide data on assessment strategies, schedule for classes and motivational strategies. A Likert rating scale was used to tap students' attitudes and opinions on the relationship between school culture and performance in Mathematics. The pertinent information is presented in Table 1, Table 2 and Table 3. Form Three Mathematics teachers were requested to provide data about the objective by Likert scale concerning school schedule for classes.

Since the study was based on two sub-counties of Laikipia County, analysis was also done to establish the extent to which assessment strategies were employed by Laikipia North Sub-County and Nyahururu Sub-County respectively. The analysis on the usage of different assessment strategies in both Sub-Counties is summarized in Table 1

Table 1: Students' responses on Assessment strategies as used Mathematics teachers by sub-county

Items	Sub-county	N	V	F	F	M	S	N		
Assessment strategy	Sub-county	N	%	%	%	%	%	%	Mn	SD
Class assignment	Laikipia North	077	57	38	03	02	00	00	3.56	1.01
	Nyahururu	246	48	43	04	05	00	00	3.40	1.11
Homework	Laikipia North	077	69	24	07	00	00	00	4.21	0.90

	Nyahururu	246	63	22	15	00	00	3.62	1.12
Continuous Assignment Test	Laikipia North	077	97	03	00	00	00	4.50	0.48
	Nyahururu	246	89	07	04	00	00	4.32	0.76
End of term examination	Laikipia North	077	99	01	00	00	00	4.91	0.61
	Nyahururu	246	97	03	00	00	00	4.67	0.67
Random Assessment Test (RAT)	Laikipia North	077	26	19	31	15	09	2.31	1.29
	Nyahururu	246	17	12	28	32	11	2.07	1.33
Group assignment	Laikipia North	077	46	21	16	07	10	2.75	1.42
	Nyahururu	246	28	20	41	03	08	2.57	1.48

Source: Field Data, 2023

Key: VF-Very Frequently; F-Frequently; M-Moderately; S-Seldomly; N-Never; n- Respondents; Mn=Mean Score; SD=Standard Deviation

A look at the data in Table 1 reveals that more than half (57%) and slightly less than half (48%) of the respondents in both Laikipia North and Nyahururu Sub-Counties respectively, reported that they had been assessed by using class assignment very frequently while 38% in Laikipia North Sub-county and 43% of the respondents in Nyahururu Sub-county reported that they had been assessed using class assignment. However in both Sub-counties (Laikipia North and Nyahururu), less than 10% of the respondents in either of the sub-counties (5% in Laikipia North and 9% in Nyahururu) reported that they were evaluated by using class assignment moderately and seldomly respectively. Regarding the mean for “class assignment” as an assessment strategy in both sub-counties, Laikipia North sub- county had a mean of 3.56 while Nyahururu sub-county recorded a mean of 3.40. This demonstrated that class assignment strategy was slightly more used to assess students in Laikipia North than in Nyahururu sub-county. In connection with standard deviation, Nyahururu sub-county recorded 1.11 and Laikipia North sub-county had 1.01. This showed that the responses from the respondents in Nyahururu sub-county were varied than the responses from Laikipia North sub-county respondents.

Regarding assessment by using homework strategy, majority of the students’ in Laikipia North were most frequently (69%) assessed and also frequently (24%) assessed while in Nyahururu sub- county 62% were most frequently assessed and a few (22%) were frequently assessed. The mean for the responses in both Laikipia North and Nyahururu were 4.21 and 3.62 respectively. This showed that students in Laikipia North were provided with more homework assignment than students in Nyahururu sub-county. As regards standard deviation of the responses, Laikipia North sub-county had 0.90 and Nyahururu sub-county had 1.12. This demonstrated a higher variation of responses in Nyahururu sub-county than in Laikipia North sub-county.

In spite of Laikipia North having fewer respondents in this study, majority (97%) of the student respondents in Laikipia North Sub- County reported that continuous assessment test was used on them and a few (3%) reported that it was used frequently to assess them. In Nyahururu Sub-county 89% respondents reported that continuous assessment test evaluation strategy was used while 7% students reported that it was used frequently and 4% respondents reported that it was used moderately. As for the mean of the responses, Laikipia North had a mean of 4.50 and Nyahururu sub-county had a mean of 4.32. This shows that a higher number of teachers in Laikipia North than in Nyahururu sub-county preferred continuous assessment test (CAT) as an evaluation strategy in Mathematics.

Concerning the end of term examination strategy, 99% of the respondents in Laikipia North and 97% in Nyahururu sub-county reported that it was frequently used and only 1% and 3% of the respondents in both

Laikipia North and Nyahururu sub-county respectively had been tested using end of term examination. On the subject of mean for the responses, Laikipia North had a mean of 4.91 and Nyahururu sub-county had a mean of 4.67. These findings seem to demonstrate that, unlike in Nyahururu Sub-county almost all secondary schools in Laikipia North (99%) preferred end of term examination strategy.

Regarding the item “Group assignment,” 46% of the respondents in Laikipia North said that they had been assessed using the strategy and 10% reported to have never been assessed using group assignment strategy. Respondents in Nyahururu sub-county reported that 28% of them had been assessed using group assignment strategy while a few (10%) reported to have been assessed using the same strategy. With respect to standard deviation, both sub-counties had almost the same deviation (1.42) and (1.48) for Laikipia North and Nyahururu sub-county respectively.

Further, students from Laikipia North and Nyahururu sub-counties were requested to indicate their opinions on the schedule of Mathematics classes. The findings are summarized in Table 2

Table 2: The level at which students agree with the statements on the schedule of classes.

Items	Sub-county	N	SA	A	N	D	SD		
Statement on schedule of classes	Sub-county	N	%	%	%	%	%	Mn	SD1
There are enough lessons for Mathematics	Laikipia North	077	05	00	00	39	56	1.22	1.09
	Nyahururu	241	12	04	00	31	53	1.06	1.27
Time allocated for students’ preparation is enough	Laikipia North	077	02	10	05	26	57	1.15	1.14
	Nyahururu	241	07	08	07	25	53	1.03	1.38
Our school schedule for classes has a positive impact	Laikipia North	077	18	05	02	17	58	1.11	1.38
	Nyahururu	241	17	09	04	19	51	1.01	1.40
Our school should set a side specific time for Mathematics preparation	Laikipia North	077	51	27	03	05	14	4.25	1.38
	Nyahururu	241	46	28	09	06	11	4.09	1.04

Source: Field Data, 2023

Key: SA-Strongly Agree; A-Agree; N-Neutral; D-Disagree; SD- Strongly Disagree; Mn- Mean;

SD1-Standard deviation

Data in Table 2 has shown that majority (56%) of the students in Laikipia North strongly disagreed that Mathematics lessons were enough while 53% of the students in Nyahururu Sub-county strongly disagreed. Concerning the mean for the item’s responses, Laikipia North and Nyahururu sub-county recorded a mean of 1.22 and 1.06 respectively. Both of these means were below 2.5 which implies that the respondents disagreed with the statement. With regard to standard deviation (SD1), Laikipia North sub-county had 1.09 and Nyahururu sub-county had 1.27 which implied that the responses were varied. In addition, 57% of the students in Laikipia North strongly disagreed that time allocated for their preparation was enough and 53% of the students in Nyahururu sub-county also disagreed. Concerning whether school schedule for classes has a positive impact on students’ performance, it is noted that more than half (58%) respondents in Laikipia North and 51% respondents in Nyahururu sub-county disagreed with the statement. When the students were asked about whether their schools should set aside specific time for Mathematics preparation, 51% of the respondents in Laikipia North agreed while less than half of the respondents in Nyahururu sub-county agreed. The mean for the item in Laikipia North was 4.25 and in Nyahururu sub-county it was 4.09. Both of these means above 2.5 meaning that majority of the respondents agreed with the statement. The standard deviations for the responses in both sub-counties were 1.38 for Laikipia North and 1.04 for Nyahururu sub-

county. Given that Laikipia North and Nyahururu Sub- counties are the best and the worst performing sub-counties in Laikipia County respectively, it can be assumed that secondary school students need more time for studying Mathematics.

After analyzing the opinions of students on schedule of classes, information on their Mathematics’ teachers with regard to schedule of classes is captured in Table 3

Table 3: The level at which Mathematics teachers agree with the statements on schedule for classes by Form Three students for each Sub-county.

Items	Sub-county	N	SA	A	N	D	SD		
Statement on schedule for classes	Sub-county	N	%	%	%	%	%	MS	SD1
Time allocated for form three students’ preparation/revision is enough	Laikipia North	5	00	05	00	12	83	1.22	1.09
	Nyahururu	10	00	11	00	10	79	1.03	1.27
Our school schedule for classes has a positive impact on students’ performance	Laikipia North	5	04	10	00	19	67	1.81	1.13
	Nyahururu	10	08	14	00	22	56	1.67	1.51
Form three students require more Mathematics lessons	Laikipia North	5	94	06	00	00	00	4.74	0.72
	Nyahururu	10	93	07	00	00	00	4.38	0.76

Source: Field Data, 2023

Key: SA-Strongly Agree; A-Agree; N-Neutral; D-Disagree; SD- Strongly Disagree; n- Respondents

Relating to whether time allocated for Form Three preparation or revision work was enough, Table 3 has revealed that 83% of the respondents in Laikipia North strongly disagreed while 79% of the respondents in Nyahururu Sub- County felt that preparation time was not enough. With regard to whether Form Three students require more time for lessons for Mathematics, 94% of the respondents’ teachers in Laikipia North and 93% in Nyahururu Sub-counties strongly agreed that students required more Mathematics lessons.

When the respondents were examined about motivational strategy, it was established that the most prevalent method was: encouraging statements or words as it was used by 75% of the teachers in Laikipia North and 49% of the teachers in Nyahururu sub-county. Concerning the mean, encouraging statement or words had a mean of 3.79 in Laikipia North sub-county and 3.37 in Nyahururu sub-county. Both of these means were above 2.0 which implies that the use of encouraging statement/words by Mathematics’ teachers was a strategy that was frequently used to motivate Form Three students. Regarding standard deviation, Laikipia North had 1.38 and Nyahururu Sub- County had 1.48. This infers that there was high variation of responses were varied. The motivational strategy: giving exercise books or pens to good performers was reported to have been used by 56% of the respondents in Laikipia North and 48% of the respondents in Nyahururu sub-county. On the other hand, the mean for the motivational strategy of giving exercise books or pens was 3.38 in Laikipia North and 3.16 in Nyahururu sub-county. Since these means were above 2.0, this implied that the respondents the strategy was frequently used. The most unpopular motivational approach in both sub-counties seemed to be giving monitory gifts or cash. This is due to reason that in Laikipia North, it was never used by 87% teachers as well as 89% teachers in Nyahururu sub-county. The mean for the item: Giving monitory gifts or cash, had a mean of 1.03 and 0.99 in Laikipia North and Nyahururu sub-counties respectively. This implies that most of the respondents reported to have not been using it. As regards standard deviation, Laikipia North had a standard deviation of 1.16 and Nyahururu sub-county had a standard deviation of 1.22. This suggests that there was a variation of responses to the item. These results are presented in Table 4

Table 4: Frequency of use of Motivational Strategies by Mathematics Teachers per Sub- County.

Items	Sub-County	N	VF	F	R	N		
Motivational Strategy	Sub-County	N	%	%	%	%	Mean	SD
Giving challenging Assignment	Laikipia North	077	53	24	20	03	3.25	0.96
	Nyahururu	241	38	31	22	09	3.17	1.10
Giving exercise books/pens to good Performers	Laikipia North	077	56	33	08	03	3.38	1.95
	Nyahururu	241	48	35	07	10	3.16	1.73
Giving monitory gifts/cash	Laikipia North	077	02	06	04	87	1.03	1.16
	Nyahururu	241	03	04	04	89	0.99	1.22
Encouraging statements/words	Laikipia North	077	75	19	04	02	3.79	1.38
	Nyahururu	241	49	17	18	16	3.37	1.48
Inclusion in a trip	Laikipia North	077	13	11	31	45	1.65	1.14
	Nyahururu	241	09	08	25	58	1.99	1.20

Source: Field Data, 2023

Key: VF-Very Frequently; F-Frequently; M-Moderately; S-Seldomly; N-Never; n- Respondents.

Testing of Hypothesis One

After analyzing the demographics of the respondents, attention is focused on testing of the hypothesis. The hypothesis stated that “There is no statistical significant relationship between school culture and students’ performance in Mathematics.” The results associated with hypothesis were arrived at after using regression analysis. The pertinent findings are illustrated in Table 5

Table 5: Linear Regression of School Culture and Students’ Performance in Mathematics in Nyahururu and Laikipia North Sub-counties.

Sub- County	Variables of Study	Assessment strategies	School Schedule for classes	School Motivation Strategies	Sub-County	Overall Significance
Nyahururu	Students performance In Mathematics	$r^2= 0.644$	$r^2= 0.627$	$r^2= 0.749$	$r^2= 0.673$	$r^2= 0.629$
		$p= 0.0366$	$p= 0.344$	$p= 0.0371$	$p= 0.036$	$p= 0.0404$
$r^2= 0.68$		$r^2= 0.715$	$r^2= 0.657$	$r^2= 0.684$		
$p= 0.047$		$p= 0.0413$	$p= 0.0426$	$p= 0.0436$		
Laikipia North						

Note: Correlation is significant at 0.05 confidence level;

Key: r^2 – Correlation coefficient; p – level of significance

Data in Table 5 shows the results of linear regression of the independent variable (school culture) and dependent variable (students’ performance in Mathematics). The results of the correlation between the variables were arrived by setting the level of significance at 0.05. The relationship between assessment strategy and students’ performance in Mathematics in both Nyahururu and Laikipia North Sub-Counties in Laikipia County has indicated a strong relationship with ($r^2 =0.644$; $p>0.0366$) and ($r^2=0.68$ and $p>0.047$) respectively at 0.05 level of confidence. This seems to suggest that there is a stronger significant

relationship between assessment strategies and students' performance in Mathematics in Laikipia North sub-county than in Nyahururu Sub- County. Hence, effective assessment strategies seem to enhance students' academic performance (Oigara, 2012 and Omwamba et al, 2016).

The relationship between school schedule for classes and students' performance in Mathematics indicates a relationship with ($r^2 = 0.627$; $p > 0.0344$) and ($r^2 = 0.715$; $p > 0.0413$) which was significant at 0.05 in both Nyahururu and Laikipia North Sub-Counties respectively. The results of the study indicated that there was a statistically significant relationship between school schedule for classes and students' performance in Mathematics in both sub-counties which was stronger in Laikipia North Sub-County than in Nyahururu Sub-County. This is in agreement with Razali et al (2017) whose null hypothesis of no relationship between time for lessons and academic achievement of students was rejected. Further, this led to the conclusion by the same study that the most significantly associated predictor with effective results is time planning with regard to schedule for classes by the school administration.

The linear regression of school motivation strategies shows a strong relationship with ($r^2 = 0.657$; $p > 0.0371$) in Nyahururu Sub-County and ($r^2 = 0.749$; $p > 0.0426$) in Laikipia North Sub-County which was significant at 0.05 in both Sub-Counties. The analysis indicated that the statistical relationship between school motivation strategies and students' performance in Mathematics in Laikipia North Sub-County was stronger than in Nyahururu Sub-County. These findings are consistent with the findings by Kariuki & Mbugua (2018) who found a strong positive statistical relationship between motivation in terms of rewards and academic performance of learners which led to a conclusion that motivation approaches should be increased by teachers during teaching and learning process as they improve students' academic performance.

The overall regression relationship shows a significant relationship where ($r^2 = 0.629$; $p > 0.0404$) which was less than 0.05 confidence level. Hence based on the above-mentioned observations, the null hypothesis (H_0) that there is no statistically significant relationship between school culture and students' performance in Mathematics was found to be false and therefore rejected.

Consequently, there was a relationship between independent variable "school culture" and dependent variable "students' performance in Mathematics". This infers that school culture is a strong predictor of students' performance in Mathematics. The relationship between students' performance in Mathematics and school culture using linear regression is further illustrated in figure 6. This is in agreement with Marzita et al (2014), Emmanuel et al (2014) and Corpus et al (2014) who observed that school culture in terms of students' academic motivation is strong component during teaching and learning process. Further, Adamma et al (2018), Kariuki & Mbugua (2018) and Ryan & Deci (1991) concurred by adding that students' academic achievement is directly proportional to the degree of students' motivation during teaching and learning process.

CONCLUSIONS AND RECOMMENDATIONS

The findings, based on the study objective revealed that school culture in terms assessment strategies, school schedule for classes and school motivation strategies had a positive influence on students' performance in Mathematics. Therefore it can be concluded that the emphasis and implementation of factors that are related to school culture would improve performance in Mathematics among students in secondary schools.

In light of the revelation that schools that emphasize school cultural factors improve their students' performance in Mathematics, there is a need for school managers to formulate school policies that would address and enhance school cultural factors in secondary schools for the purposes of improving academic performance. Specifically, issues that affect teaching and learning process such as students' assessment

strategies, schedule for classes as well as motivational strategies should therefore be enhanced.

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