



(RESEARCH ARTICLE)



Socio-cultural factors affecting academic performance in Busia County, Kenya

Imo Imunyo Eric ¹, Simon Kipkenei ², Paul Obino ³ and Protas Fwamba Khaemba ^{4,*}

¹ Department of Education Planning and Management, Kibabii University, Kenya.

² Department of Science and Mathematics Education, Kibabii University, Kenya.

³ Department Science and Mathematics Education, Kibabii University, Kenya.

⁴ Department of Geography, Oginga Odinga University, Kenya.

International Journal of Science and Research Archive, 2024, 13(02), 2554–2562

Publication history: Received on 27 October 2024; revised on 04 December 2024; accepted on 06 December 2024

Article DOI: <https://doi.org/10.30574/ijrsra.2024.13.2.2364>

Abstract

Parental characteristics play an important role in students' academic performance. These factors are usually measured by education, employment-status and the income of an individual to determine an individual's livelihood. The study objective was to establish parental socio-cultural practices that influence students' academic performance in Public Day Secondary schools in Teso North Sub- County. A cross-sectional survey was carried out in Teso North Sub-County, Busia County, Kenya. Both primary and secondary data was collected. The tools for primary data included questionnaire, interview schedules and Focus Group Discussions while secondary data was collected using document analysis guide. The target population was 4,238 who included students, parent representatives, principals, form four class teachers and Sub-County director of education; with a sample size of 351. Purposive, proportionate and simple random sampling techniques were employed. Validity was checked through consultation with experts and reliability coefficient of 0.788 was established. Piloting was done in the neighboring Teso South Sub-County because it possessed similar characteristics as Teso North Sub- County. Both descriptive and inferential statistics were employed to analyze data using SPSS version 25 and presented in tables, charts and graphs. The study identified initiation rites, property rights, wife inheritance and polygamy as having negative influence on academic performance. These socio-cultural practices contributed to about 82.5% of student achievements in Busia County. The study recommends stake holders in education to create awareness to parents on the negative effects of socio-cultural practices that affect academic performance and find interventions to reverse the declining trends in students' performance in National Examinations.

Keywords: Cultural practices; Parental characteristics; Property inheritance; Socio-cultural factors; Bus County

1. Introduction

The importance of education is evidenced in budgetary commitments from families and governments worldwide. The critical role of education in social economic development was made at the Convention of the United Nations on December 10th 1948, where access to education was declared a human right (UDHR-UN, 1948). Education elevates functional and logical ability of individuals. This universal declaration has enhanced individuals' ability to penetrate opportunities on both economic and societal development. Singh and Mahajan (2021) define education as having ability to stimulate and liberate humanity from illiteracy and advancing them to situational control and commands of society. It creates in man ability to enhance the development of desired skills, attitudes and rational patterns, making it critical base for family and societal advancement. These skills augment personality competitiveness on labour productivity and societal innovations. Mgalula, (2017) recognizes the role of education for its ability to improve functional and analytical ability of individuals. He sees education as providing access to labour market, personal earnings and contributes to social and economic development of a nation. Aizer and Currie, (2014) and Akintoye, (2020) perceive Socio-Economic Status (SES), overall social status or prestige in society in terms of the level of education one has.

* Corresponding author: Protas Fwamba Khaemba <https://orcid.org/0000-0002-4811-0626>.

The relationship between family SES and students' academic achievement (SAA) in schools has been well documented across different socio-cultural contexts. Liu *et al.* (2019) study in China revealed that academic achievement was greatly influenced by the family SES. Family economic hardship negatively affects parent emotion, relationship, and parenting behavior, which affect performance of children at school (Liu *et al.*, 2019 and Akintoye, & Saliu, 2020). Likewise, the investments of resources (financial, social, and human capital) by families promote the development and achievement of their children (Mgalula, 2017). Individuals' family characteristics influence their social and economic status. The positive parental characteristics reduce exposure to family pressure in the family and decrease likelihood of parenting problems. Additionally, it improves child well-being and academic performance in class (Mgalula, 2017).

The type of parental support influences self-concept of children, which influences their aspirations and achievement in school (Xiao and Liu, 2017). Some studies have shown a positive relation between academic achievement and the praise and respect children receive as a result of family SES (Goyer *et al.*, 2017).

Academic performance has been poor in many public secondary schools in Teso North Sub-County, Busia County as per the KCSE school mean scores for the years running 2017 and 2023 compared to other sub-counties. The Government's efforts to improve quality of education by introducing Free Day Secondary Education had not helped to improve the academic situation in Busia County. The academic performance of the County remained wanting. Many stakeholders tried to attribute the wanting academic performance to the socio-economic factors. For instance, performance in many schools in KCSE has remained poor for a long time. According to analysis reports from the County Education Office, 85% of public day secondary schools have been registering a mean of 4.00 (D+) and below between 2019 to 2023.

There has been a public outcry, accusations and counter accusations from various stake holders and members of the public on whom to blame for mass failure in national examinations in the County. Intervention measures instituted by school principals such as remedial programs yielded very little results in KCSE. Very little has been done to look into these problems. It is for this reason that the paper was prompted to investigate influence of parental socio-cultural practices on academic performance of students in public day secondary schools from the study area. It was hoped that the findings from the study would help parents to come up with retrospective cultural practices that would enhance learners' academic performance in public day secondary schools in the sub county.

This paper envisioned parental characteristics as major contributors to the poor performance in Busia County. However, the relationships between the family characteristics and school achievement remained unclear. Therefore, the paper investigated the relationships between family socio-cultural practices and school academic achievement in public day secondary school students in Busia County. The family socio-cultural characteristics were measured through socio-cultural practices and family marital status.

2. Material and methods

The paper was guided by the Education Production Function theory (EPF). EPF is an application of the economic concept of production function to the field of education as propounded by Coleman Report (1966), which demonstrates the effect of various school inputs on student's achievements.

The paper was anchored on the premise that students' academic achievement is a function of various parental socio-cultural practices. For instance, Aemero and Lakshmi (2013) study assessed the correlation between children academic achievement and parents' marital status among the junior high school students in Ethiopia. The result indicated significant differences in academic achievement in favour of students from intact families. Children from divorced families and/ or remarried families showed no significance difference. Academic achievement as a function of sex differences were obtained for children from all parents' marital status.

A study done in Malawi by Milne *et al.*, (2006) on effects of single parents on educational achievement of school children found that parental expectations and income impacted greatly on the academic achievement of single parent children. For instance, large family size tends have no adequate concentration on the child by their parents as regards to provision of basic materials. This affects learning, proper monitoring of school work and prompt payment of school fees. Family plays a critical role in academic achievement for students. Students who perform well in school are better able to achieve career and economic success and make a positive contribution to society. There is a paucity of research on the relationship between family size and high school student academic performance.

The study by Blake (2022) and Adanna *et al.*, (2020) investigated the influence of family size characteristics on the academic performance of high school students. The social survey technique was used in a quantitative approach. The findings indicate that a small family influences academic performance more than a large family. The findings reveal that

a small family's basic needs are met with a smaller portion of the family's income than a large family's basic needs. Olagundoye and Adebile, (2019) study aimed at finding out the family size influence on students' attitude and performance. Large families stand the risk of inadequate care in terms of provision of essential academic materials and adequate monitoring which could have influence on the attitude and performance of secondary school students (Balasico & Tan, 2020).

Lee & Cho (2007) investigated the effects of gender and parental involvement on academic achievement of adolescents in single-parent families. The results indicated that gender interact with parent involvement to affect adolescents' academic achievement differentially. For instance, daughters with single-fathers performed better academically. Darko & Gyasi, (2019) assessed the influence of parenting styles and gender on the academic performance of senior high school students in Ghana. The results showed that male students perform better than the females. It also revealed that there is no significance difference between females and males with authoritarian parents.

3. Methodology

This study embraced mixed research design due to its ability to enrich collection of homogeneous data from large numbers of respondents aimed at generalizations (Briggs *et al.*, 2012). Since the study was concerned with exploring influence of socio-cultural practices on students' academic achievement based on evidence from public Secondary Schools of Teso North in Busia County, the design is deemed to be most appropriate.

The study was done in Teso North Sub-County. Teso North is one of the eight Sub counties that make up Busia County. The region is made of six wards which include; Malaba South, Malaba Central, Ang'urai East, Ang'urai South and Ang'urai North. It has a population of 117,947 as per last census on a geographical surface of 236.8km²(KBS, 2019). Teso North is enriched with fertile soil thus enabling the residents to engage in subsistence farming with most focusing on growing cereals. Tourism is gaining prominence due to attraction of Kakapel monument besides having Malaba as the border point that enables movement of trucks between Kenya and Uganda. Malaba Border Point makes the region to be one of Kenya's economic hubs. The region has 36 public Secondary Schools (1 National, 4 Extra County and 31 Sub-County secondary schools).

Orodho (2004) poses that target population is a set of individual cases with some common observable characteristics. The Sub County has 31 public day secondary schools. The target population consisted of one Sub-County Director of Education, 31 principals heading those public day secondary schools, 45 parents' representative, 45 form 4 class teachers and 4,116 form four students from those public day secondary schools making a total population of 4,238. Some schools have more than one stream. Hence, this is why the 31 schools have 45 class teachers.

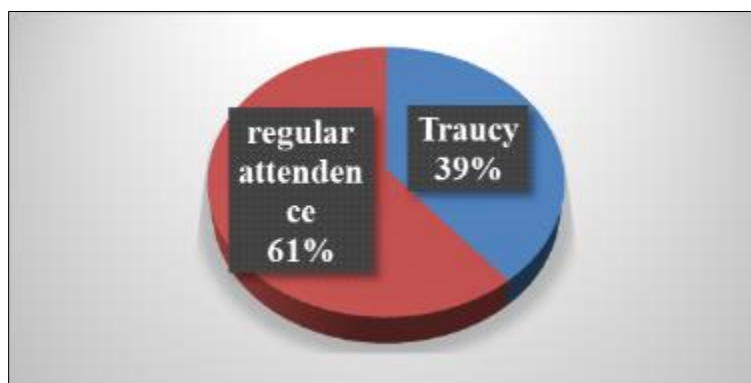
Head teachers were included in the study because they are responsible for management of day to day running of the schools. The form four teachers were included as they have stayed longer in secondary schools than any other class. They therefore could be relied on to give more accurate information required for this study.

Boarding schools were not included in the study as they draw catchment they have little touch to the local community and draw their catchment beyond the sub-county. The study therefore, focused on public day secondary schools as they draw their catchment from the community/Teso Sub- County and are the ones affected by the family SES. Simple random sampling was used to select sample schools which were 30% of the total number of schools in the sub-county. This gave 9.3 which were 9 sub-county schools. The names of schools were written on slips of papers and the slips put in a container, which was thoroughly mixed up. The researcher then dipped the hand into the container and picked out a slip. The name on the slip selected was recorded, the slip was then thrown away and the process continued until 9 pieces of paper were picked proportionately. Purposive sampling was used to pick its head and Form 4 parent representative.

The sample frame, sample size, margin of error, and precision level are all equal to Sample size. Sub-county director of education and school heads were chosen as key informants since they were in possession of crucial knowledge regarding performance of schools. The PA representatives were included in the study because of their socio-cultural practices that impact on their children academics. 9 class teachers were purposively picked, one from each of the sampled schools for interrogation.

4. Results and discussion

Out-dated socio-cultural practices lead to deterioration of students' academic performance (Balasico & Tan, 2020). Some household heads tend to pull girls out of school rather than boys due to cultural norms which purportedly perceive boys as home builders unlike girls that can be married off to bring wealth. Girls drop out of school because of early marriages for bride price. As such, there was a need to ascertain the effects of socio-cultural practices on school attendance in Busia County (Figure 1).



Source: Field Data July 2024

Figure 1 Effects of Cultural Practices on Respondents' schooling

The study results (Figure 1) reveal that 39% of those who were interrogated said they missed school to attend cultural ceremonies because some of them were done during school days. But a majority 61% of respondents said that those cultural ceremonies did not affect their school attendance. However, more than a quarter of a class missing lessons has serious effect on the overall class performance and to the individual students in particular. In collaborating the results from the FGDs, it was observed that many of their children missed attending schools more particularly the boys to participate in various traditional activities like circumcision and burial rites popularly known as 'Disco matanga'.

The study went further to identify and assess how students perceived socio-cultural norms/practices and their effects on academic performance (Table 1) on a 5-likert scale (1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree).

Table 1 Socio-Cultural Practices

	Strongly Disagree	Disagree	Agree	Undecided	Strongly Agree
Polygamy	108 (30.7)	53(15.09)	45(12.8)	106(30.2)	25(7.1)
Witchcraft	108(30.8)	53(15.1)	29(8.3)	106(30.2)	45(12.8)
Circumcision	86(24.5)	34(9.1)	64(18.2)	98(27.9)	58(16.5)
Wife inheritance	143(30.7)	49(13.9)	24(6.8)	34(9.1)	92(26.2)
Burial rites	30(8.4)	32((9.1)	132(37.6)	39(11.1)	106(13.2)
Taboos	32(9.1)	54(15.3)	85(23.9)	96(27.3)	93(26.5)
Property inheritance	17(4.8)	27(7.7)	116(33.0)	50(14.2)	129(36.8)
Early marriages	19(5.4)	74(21.1)	101(28.8)	81(23.1)	76(21.7)
Early pregnancy	26(7.4)	70(19.9)	40(11.3)	116(33.0)	88(25.1)

Source: Field Data September 2024

Students were asked to identify cultural practices that took much time that would be spent in schooling. 19.9% of students agreed with polygamy, 30.2 were undecided while almost half (45.79) % of the students did not agree with it. A majority 45.9% disagreed that witchcraft affected their schooling, 30.2% were undecided while 21.1% agreed.

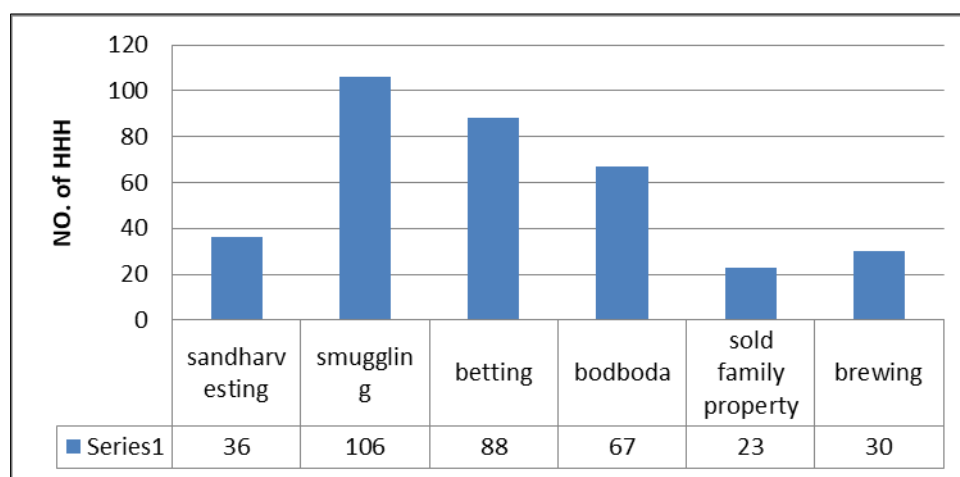
On examining circumcision rites, a majority 122 (34.9%) agreed that traditional methods of circumcision affected their schooling, 27.9% were undecided while 33.6% disagreed. On wife inheritance, the study results revealed that a majority, 44.6 % of the respondents disagreed that it affected their schooling, 33.0% agreed while 9.1% of those interrogated were undecided.

When the effect of burial rites was examined, a majority 50.8% of those interrogated agreed that it affected their schooling, 17.5% disagreed while 11.1% were undecided.

When the taboos were examined, a majority 50.4% of those interrogated agreed that it affected their schooling, 24.4% disagreed while 27.3% of the respondents were undecided. A majority, 50.5% of respondents agreed that early marriages affected their schooling, 23.1% were undecided while 26.5% disagreed. The field data from the key informants reveal that early marriages were as a consequence of teenage pregnancies and Teso cultural taboos where girls and boys when they reach a certain age, they are not allowed to sleep in their fathers' houses. The parents build separate houses for them. This provides unguided independence encouraging the boys and girls engage in fornication and unprotected sex. These have resulted in pregnancies, early marriages and high school dropout in the study area.

On examining effect of property inheritance, a majority 178(69.8%) of the respondents agreed that it effected their schooling, 14.5% were undecided while 12.5% disagreed with its effect on schooling. The field data from the FGDs alleged the property inheritance has resulted into insatiable apartheid for money particularly in the boy child. It has led young people including students to involve themselves in illegal ways to get money. This is so more especially if they fail to secure or after misuse of family inheritance like land. The key informant explained some of the illegal activities' students engage to get money which included smuggling goods across Kenya-Uganda border and game betting which had caused a serious chronic absenteeism in the school especially from the boys. Many of these boys smuggling goods across the border during school days.

The respondents, who indicated that they had inherited family property, were asked to identify other sources of income or of owning property and if those sources affected their schooling. The study results are shown in Figure 2.



Source: Field Data September 2024

Figure 2 Respondents' Livelihoods

The results revealed that the majority, (106)30.1 % of the respondents had involved in smuggling of good across the border, (88) 25.1% of the respondents did betting/gambling, 19.1% were engaged in boda boda, 10.3% were involved in sand harvesting along Komiriai river and river malakisi, while 6.7% had sold family land. However, there was this group accounting for 8.6% that did involve in brewing beer.

Field data from the FGDs revealed that activities especially border smuggling has had negative effects on their children behaviour. It has made some of them very rude to parents, other indulge in drinking and smoking and increase truancy. Others still, through smuggling or selling their inherited parcels of land, buy motor-cycles and become boda boda riders, which see them drop out of school or attend schools at will. The study findings revealed that *indiscipline cases are on the rise* among the boys included sneaking drugs and to bars at night. drink at night and in the morning, they are students in school. Parents are losing grip on their children. The indiscipline among the girls was found to be caused by cohabiting with boda boda riders. This had led to increased teenager pregnancies and dropout rates.

There was this group of respondents that involved themselves in brewing beer both as a cultural practice and an economic activity for the household (Figure 4.8). The field data from the FGDs reveal that elders drinking beer with their children is just normal and allowed. They cited occasions like circumcision and burial rites when beer was given to the candidates and the initiates during the ceremonies. The study confirmed occasions when boys came to school when drunk particularly during circumcision season especially in late July and August.

What came out most clearly was that the household heads seemed not to know the effects of alcohol on academic performance of their children. They only enjoyed the intrinsic cultural aspect of drinking. Brain is affected by alcohol especially those cells associated with memory, coordination, and judgment. Alcohol has psycho-physiological effect particularly young brains, inhibiting the child's academic performance (Westen, 1996). For example, it impairs memory by inhibiting the transfer of information in long-term memory, reducing the ability to remember what is learned. It also affects the attention span of a person.

With long-term use, alcohol results in the adulteration and even death of brain cells, particularly those that support, provide energy and nutrients to the brain (www.alcoholabuse.com). Alcohol cause damage to the nerve cells and can cause irreversible brain damage (memory loss and personality changes), and so not good to be taken by pupils/ students since it affects their academic performance.

The study objective sought to establish the influence of socio-cultural factors of household heads on students' academic performance in public day secondary schools in Teso North Sub County. The study findings reveal that there is a negative association between socio-cultural factors of household heads and students' academic performance with $r = -0.827$ in a two tailed test at 0.001 significance level (Table 2). This shows that socio-cultural norms of household heads negatively influence academic performance of students in the study area.

Table 2 Socio-Cultural Regression Analysis

	R	Adjusted R	R Square					
R	Square	Square	Estimate	Change	F Change	df1	df2	Sig. F Change
-0.827	0.832	0.817	0.32460	0.546	24.569	1	17	0.000

a. Dependent variable: Academic performance; b. Predictors: (Constant): Socio-cultural practices

An r value of -0.827 indicates a strong negative correlation between socio-cultural practices (initiation rites, property rights and polygamy) and students' academic performance. This suggests that as participation in those socio-cultural practices (initiation rites, property rights and polygamy) increase, there is a noticeable negative effect on students' performance, hence, a perfect correlation.

An r^2 value of 0.832 indicates that approximately 83.2% of the variance in students' academic performance can be explained by these parental demographic characteristics. This shows a substantial amount of influence from these parental socio-cultural practices though there remains about 16.8% of the variance in performance that is due to other factors not captured by these cultural practices.

Adjusted R^2 of 0.817 suggests that when adjusted for the number of predictors (socio-cultural practices) and sample size, the model explains around 87.1% of the variance in academic performance. This high value implies that, when accounting for any bias from adding multiple variables, parental cultural practices are very strong influence on students' performance in this model.

In summary, the cultural practices of the households (initiation rites, polygamy, property rights) collectively show a strong negative relationship with students' academic outcomes in this study. Adjusted R^2 being less than R^2 suggests that there are no multicollinearity issues. It also implies that the model is significantly predictive of the cultural practices' variables included, explaining a large proportion of academic performance variance when adjustments are made for sample size and predictor count. In conclusion, the model suggests that socio-cultural practices have a substantial predictive value for academic performance.

Table 3 Analysis of ANOVA on Socio-Cultural Practices

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	13.351	1	19.450	24.569	0.000b
Residual	11.083	15	0.183		
Total	24.434	15			10.818

c. Dependent Variable: Academic Performance; d. Predictors: (Constant): Socio-cultural practices

The regression in Table 3 (13.351) represents the variation explained by the model (i.e., the variation in students' academic performance due to the independent variable, which is parental socio-cultural practices, residual (11.083) represents the unexplained variation (i.e., the variation in academic performance that cannot be attributed to parental participation in cultural practices) and the total (24.434), is the total variation in the data (sum of regression and residual sums of squares).

The Degrees of Freedom (df) is 1, given that there is only one independent variable (parental socio-cultural practices) affecting the dependent variable (academic performance). The df for residual is 14, representing the observations of predictors (The total degrees of freedom are the sum of the regression and residual df = n - 1, where n is the number of observations i.e 15-1 = 14).

The Mean Square for Regression is obtained by dividing the regression sum of squares (19.450) by its df (1), which gives 19.450 and the Mean Square for Residual is obtained by dividing the residual sum of squares (11.083) by its df (14), which gives approximately 0.79164.

The F-statistic is the ratio of the Mean Square for Regression to the Mean Square for Residual:

$$F = \frac{MS_{Regression}}{MS_{Residual}} = \frac{19.450}{0.79164} = 24.569$$

The F-value (24.569) indicates a significant relationship between the parental cultural practices and academic performance. It explains a substantial amount of the variance in academic performance compared to what would be expected by chance. The p-value (0.000) indicates that the result is highly significant, as it is lower than the significance level of 0.05. A p-value of 0.000 means that there is strong evidence to reject the null hypothesis, suggesting that parental socio-cultural practices significantly affect the students' academic performance.

The ANOVA results imply that there is a significant relationship between parental socio-cultural practices and academic performance of students in the public day secondary schools in Busia County. Specifically: The model explains a significant portion of the variation in students' academic performance, as indicated by the F-statistic (24.569) and the p-value of 0.000. Parental socio-cultural practices are significant predictors of academic performance in the study area.

The standardized coefficient (Table 4), beta is 0.724 for the model. This implies that 72.4 percent decline in the student's academic performance in public day secondary schools in Teso North sub- County is influenced by the socio-cultural practices of their parents. A Negative sign on the constant (-0.231) indicate shows that with no change in parental socio-cultural practices, students will decrease by the margin indicated.

Table 4 Socio-Cultural Analys Regression Analysis

Coefficients	Unstandardized Coefficient		Standardized Coefficient	T	Sig.	95% confidence β	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-0.231	0.0831	0.164	1.193	0.237	-0.142	0.0662
Objective 2	0.7562560	0.112	-.724	610.818	0.000	0.810	1.161

Significance level, p<0.05e. Dependent Variable: Students' academic performance;f. Predictors: (Constant): Socio-cultural practices; Source: Field Data, September 2024

An analysis of the variance shows a significance value of 0.000 which is less than $p = 0.05$ and $F = 24.569$. This means that the model can significantly predict the influence of socio-cultural practices of household heads on the learners' academic performance in public day secondary schools of Teso North Sub County. This confirms the goodness of fit of the socio-cultural practices of household heads and the learners' academic performance in Teso North Sub- County. The adoption of the model to either accept or reject the hypothesis is therefore, justifiable.

The hypothesis **H₀₂** -There is no statistically significant influence of socio-cultural practices of the house hold head on Students' academic performance in public day schools of Teso North Sub-County”.

The study findings (Table 4): $p < .05$, $\beta = 0.724$, constant = -0.231

On the basis of the findings, the following model was developed:

$$Y = \beta_0 + \beta_2 K_2 + \varepsilon$$

$$Y = -0.231 + 0.724 K_2 + e \dots \dots \dots \text{Eq} \dots \dots \dots 3$$

Where Y = students' academic performance, K_2 = Socio-cultural practices of household heads. Based on the model, it means that if socio-cultural practices are manipulated by one unit, there would be a change in academic performance among students in Public Day Secondary Schools in Teso North sub-County by 0.724 units. Given the beta value of 0.724 and $p < 0.05$, the null hypothesis (H_{02}) is rejected.

5. Conclusion

The study concludes that there is a significant relationship between Socio-cultural practices of parents and student's academic performance in public day secondary schools in Teso North Sub- County. The findings are in agreement with the works of several researchers, among them Sheldon (2012), Castro *et al.*, (2015) and Darko & Gyas (2019).

Recommendation

On the basis of the study findings, the study recommends that both county and central governments create awareness among parents and members of the public on the effects of some outdated and backward cultural practices that undermine government efforts of education like matanga', wife inheritance by school going male students and its effects.

Compliance with ethical standards

Acknowledgments

The success of this study is attributed to the assistance from various individuals whom we wish to acknowledge. We fore mostly thank Dr. Simon Kipkeni and Dr. Paul Obino, Kibabii University for the constructive advice during the research work. We also thank Education office and principals of Teso North Sub- County for providing vital information needed.

Funding sources

The authors received no financial support for the research and authorship.

Disclosure of conflict of interest

The author(s) declares no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

- [1] Akintoye, H., & Saliu, J. (2020). Impact of Socio-Cultural Factors on Senior Secondary School Students' Academic Achievement in Physics. *International Journal of Research and Scientific Innovation (IJRSI)*, 7(8), 129-134.

- [2] Blake, J. (2022). Family size and achievement (Vol. 3). Univ of California Press.
- [3] Calabar, C. N. (2014). Socio-cultural factors affecting the teaching and learning of Social Studies in Nigeria. *Journal of Education and practice*, 5(24), 153-158.
- [4] Darko, R., & Gyasi, F. (2019) The influence of parenting styles and gender on academic performance of senior high school students in Effutu Municipality of Ghana.
- [5] Drukker, K., Chen, W., Gichoya, J., Gruszauskas, N., Kalpathy-Cramer, J., Koyejo, S., ... & Giger, M. (2023). Toward fairness in artificial intelligence for medical image analysis: identification and mitigation of potential biases in the roadmap from data collection to model deployment. *Journal of Medical Imaging*, 10(6), 061104-061104.
- [6] Gichuhi, A. W., Abaja, P. O., & Ochieng, I. (2013). Effect of performance appraisal on employee productivity: A case study of supermarkets in Nakuru Town, Kenya. *Asian Journal of Business and Management Sciences*, 2(11), 42-58.
- [7] Isanda, C. K. (2015). Influence of socio-cultural and school factors on retention and academic performance of students in mixed secondary schools in Rachuonyo south sub-county, Kenya (Doctoral dissertation, University of Nairobi).
- [8] Kering, J. K., Rop, N. K., & Ogola, F. O. (2019). Influence of Teacher Characteristics on Academic Performance of Learners with Hearing Impairment in KCPE in Special Primary Schools in Selected Counties, Kenya.
- [9] Kiptum, A., Kipkoech, A., Adano, W. R., Osano, O., Biryahwaho, B., & Agasha, A. (2011). Impacts of community activities on environmental resources: the potential for developing payment schemes for environmental services. *Cross Cutting Issues In Payment For Environmental Services*, 59, 290-300.
- [10] Kosgei, A., Mise, J. K., Odera, O., & Ayugi, M. E. (2013). Influence of teacher characteristics on students' academic achievement among secondary schools. *Journal of Education and practice*, 4(3), 76-82.
- [11] Kothari, S. P., Li, X., & Short, J. E. (2009). The effect of disclosures by management, analysts, and business press on cost of capital, return volatility, and analyst forecasts: A study using content analysis. *The Accounting Review*, 84(5), 1639-1670.
- [12] Lee, S. M., Kushner, J., & Cho, S. H. (2007). Effects of parent's gender, child's gender, and parental involvement on the academic achievement of adolescents in single parent families. *Sex roles*, 56, 149-157.
- [13] Mgalula, J. K. (2017). Socio-Cultural Factors Affecting Academic Performance of Girls in Public Secondary Schools in Nzega District, Tanzania (Doctoral dissertation, The Open University of Tanzania)