



RESEARCH ARTICLE

INFLUENCE OF TEACHER CHARACTERISTICS ON QUALITY OF SECONDARY SCHOOL EDUCATION
IN KENYA: A CASE STUDY OF MIGORI COUNTY

¹Fredrick Aloo Ndege and ^{2,*}Enose M.W. Simatwa

¹Department of Educational Management and Foundations, Maseno University, Kenya

²Department of Education Policy and Management, Tom Mboya University College,
(A Constituent College of Maseno University) Kenya

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ABSTRACT

Educational inputs are resources invested in the school system with an aim of enhancing quality of education. In Kenya quality secondary education is measured primarily by performance in examination, access; and availability, adequacy and utilization of resources. In Kenya there are differences in the quality of education provided by schools as some schools perform better than others. The overall mean score in Kenya Certificate of Secondary Education Examination between 2011 to 2017 in Migori County was 4.530. The national mean score in Kenya Certificate of Secondary school Education examination from 2011 to 2017 was 4.617. The objective of this study was to establish the influence of teacher characteristics on quality of secondary school education in Migori County, Kenya. The study established that teacher characteristics accounted for 71.4% of the variation in the quality of secondary school education in Migori County as signified by Adjusted R square of 0.714. This means that teacher characteristics had a strong positive influence on the quality of secondary school education. The study concluded that teacher characteristics play a key role in enhancing the quality of secondary school education.

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INTRODUCTION

Provision of quality education is a key ingredient in achieving Kenya's Vision 2030 which aims at making Kenya a middle income country by the year 2050. Republic of Kenya (2014) defines quality education as adequate and equitable education provided by schools and programmes characterized by core requirements of safety; environmentally, friendly and easily accessible facilities; well motivated and professionally competent teachers, books, other learning materials and technologies that are context specific, cost effective and available to all learners. This definition is reinforced by Orodho (2002) who defines quality of education as the development of student's potential measured by indicators of quality comprising availability, adequacy and state of inputs namely teaching force in terms of student/teacher ratio, physical facilities, instructional materials as well as the curriculum and hours taught and also addresses indicators like performance in the Kenya Certificate of Primary Education

*Corresponding author: Fredrick Aloo Ndege

Department of Education Policy and Management, Tom Mboya University College, (A Constituent College of Maseno University) Kenya.

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and Kenya Certificate of Secondary Education; transition rates from primary to secondary schools and the overall survival rate from primary standard one level up to the university. There are institutional inputs that affect quality of secondary school education. The African Union (2006) has identified institutional inputs of physical and infrastructural resourcing for learning environment, learner characteristics, teacher qualification, competence and motivation, relevance of subject matter and of teaching and learning material, professional support for teachers, good governance both at the system and institutional levels. There are also other variables inform of retention rates and the legal framework which impact on the quality of secondary school education. Teacher characteristics was chosen as an institutional input because other studies like that of Chacha and Zani (2015) in Kuria East focused on pupil teacher ratio in primary school. This study investigated the influence of teacher characteristics on the quality of secondary school education in Migori County. Getange (2013) in a study on financing of public day secondary schools education and its impact on the quality of learning in Kisii Central District, established that the correlation coefficient was 0.447 at the 0.05 level of significance. Getange established that revenue to Free Secondary Education was inadequate and parents also owed the school fees arrears due to poor home background

which affected the ability of parents to pay fees required by the schools. The report further states that with the introduction of Free Secondary Education, parents sources of financing day secondary education were still inadequate to meet the financial demands of learning to enhance quality and recommended the harnessing and strengthening of various sources of school Income Generating Activities like crop and animal production, intensive gardening and hiring school activities. The study used survey design which was suitable as it enabled investigation of the state of affairs as it existed. The study used a target population of 102 public day secondary schools. A sample of 36 schools were chosen and purposive sampling was used to select 36 principals, 36 bursars, 36 Board of Management, 36 Parents Teachers Association and 4 District Quality Assurance Officers. Questionnaires, interview schedule and observation checklists were the instruments used. The variety of instruments enhanced the reliability of the results. Descriptive and inferential statistics were used to analyze the data. This was strength as the direction and magnitude of the relationship could be established. The use of two instruments enhanced data capture. The study in Migori County will focus on the influence of the institutional input on quality of secondary education unlike the Getange study that focused on the influence of finance. The World Bank (2008) in a Trends in International and Science Study to find out about performance in mathematics and sciences in secondary school in 46 countries worldwide, found out that 90% of students in Ghana and South Africa did not reach the low international benchmark while Botswana was better but below the international average and Morocco, Tunisia and Egypt fared better but got below the average of 400 marks out of 700 marks in mathematics and science out of the average marks of 467 in mathematics and 474 in science. This shows that the majority of secondary students in Africa do not have a good mastery of knowledge of mathematics and depict a poor understanding of science. This study did not investigate influence of institutional inputs on quality of secondary school education and only concentrated on performances in mathematics and sciences. The current study investigated performance in all Kenya Certificate of Secondary Education subjects. A study by Chacha and Zani (2015) on the impact of Free Primary Education on pupil teacher ratio in Kuria East sub-county established that the pupil teacher ratio increased from 53.1 in 2003 to 60:1 in 2006 which brought a shortfall in staffing of teachers and the teachers also resorted to teacher centred methods of teaching rather than student centred. The reviewed studies did not focus on influence of teacher characteristics on the quality of secondary school education, the knowledge gap this study sought to fill using Migori County as the site for the study.

Research Objective

The research objective was to determine the influence of teacher characteristics on quality of secondary school education.

Synthesis of literature on influence of teacher characteristics on quality of secondary school education

Educational research in several related fields has pointed out the importance of the teacher acquiring pedagogical content knowledge which is specific and specialized knowledge about teaching and learning in a particular discipline and promotes better student results, productive and inclusive secondary

schools (Morine-Dershinner and Todd, 2003). The Morine-Dershinner and Todd (2003) study is reinforced by a World Bank study (2013) that observed that secondary school education and training system must also enhance students ability to promote innovation, entrepreneurship and knowledge and Parents Teachers Association and application to enable countries to move up the value added ladder from low to high productivity sectors. The World Bank (2005) survey on expanding opportunities and building competencies for young people has articulated that the shortage of teachers will continue to be the main challenge for teacher policies worldwide in the near future due to reasons like demography, labour market trends, the impact of HIV and AIDs. Low salaries, poor motivation and increased enrolment fans teacher shortages. The above reviewed studies have not dealt with influence of teacher characteristics on the quality of secondary school education, which this study did. Developed countries like Netherlands have developed imaginative and innovative solutions to deal with teacher shortage as the unqualified Teaching Interim Act makes it possible for professionals with a higher education degree to choose a career in education but undertake two year training program (World Bank, 2005). Although the evidence is scarce on teacher incentive programs in developing countries results from Israel suggest that teacher incentives, positively and significantly affect student education outcomes and mainly for weaker students (Jimenez and Patrinos, 2008). An analysis of Chinese education concluded that teacher characteristics explained a large proportion of the variance in achievement in different subjects (Park and Hammum, 2001). This finding is reinforced by several studies with direct measures of teacher competency which reported strong relationships between teacher's subject matter, knowledge and their students achievement (Lee, Zuze and Rose, 2005). Teacher training and continuous professional teacher in-service can go a long way in enhancing teacher competency and performance.

The World Bank (2004) reported that 47 countries in the low income brackets with respect to achieving Universal Primary Education by 2015 showed a wide variation in average annual salaries ranging from 0.6 to 9.6 times per capita, gross domestic product. This illustrates that a key feature that affects quality of secondary school education is the poor remuneration given to the teachers. It also reflects the inequitable distribution of salaries which also reflects the inequitable geographical distribution of teachers. While sub Saharan teachers are well paid when calculated as a multiple of the respective Gross Domestic Product they are among the worst paid in the world in absolute terms (Gavender, 2004). This pay disparity demonstrates that there are poorly paid teachers undermines their performance. In a study carried out by Hanushek, Lavy and Hitomi (2008) in Egypt on quality of consistent estimates of dropout behaviour in developing countries, it was found out that the correlation of coefficient between teacher characteristics and school attainment was 0.79 at the 0.05 level of confidence. This depicts a strong positive relationship between teacher characteristics and school achievement. This is inconsistent with some similar studies that show a weak relationship between teacher characteristics and the quality of secondary school education. The research in Migori County established the influence of teacher characteristics on the quality of secondary school education. Adeyemi (2008) in a study in Ondo State of Nigeria on teachers teaching experience and students learning outcomes found out that teacher experience and competence were the

prime predictors of students' performance in all subjects in secondary schools. The World Bank (2005) has also stated that in any national educational system, teachers are considered the most important element when student academic achievement is considered. The World Bank further asserts that to enhance quality reform efforts in both developed and developing countries assume that the most direct and effective way of raising institutional quality is to introduce changes in teacher education and recruitment to improve the knowledge and pedagogical skills of in-service teachers and to ensure that the organizational conditions under which teachers work promote effective instructions and focus on student learning outcomes. The World Bank study does not deal with the influence of institutional inputs on the quality of secondary education. It is this knowledge gap which this study seeks to fill by the study in Migori County. Glewwe, Ilias and Kremer (2003) in a study on teacher incentives and poverty action suggest that there is increased teachers efforts on short-term outcomes like (test-scores) but not on stimulating long-term learning through changes in teacher attendance, student dropout rates or pedagogy. The teacher incentives have to be sustained to have long term positive impact on learning and teaching.

A study carried out by Yara (2011) on performance determinants of Kenya Certificate of Secondary Education in mathematics in Nyamaiya Division, Kenya found out that there is a positive relationship of 0.564 at the 0.05 level of significance between teachers qualification, teachers experience/ teachers/students attitude, school category and Kenya Certificate of Secondary Education performance. The study employed descriptive survey design of the ex-post facto type with a total student population of 151 and 12 teachers. Teacher /students attitude and school category could be used to predict students' academic performance in mathematics. Teachers' experience and teachers attitude had the highest correlation to performance. Teacher qualification also had an effect on performance. Descriptive survey design was suitable for the events had already taken place. The research instruments used were mathematics achievement test and questionnaires were used. The variety of instruments enhanced the range of data collected. The data was analyzed using multiple regression analysis which brought a clear correlation between the independent and independent variables. The strength of the study lay in its use of a variety of instruments but the student population was too small for a whole division. The reviewed study however did not deal with influence of institutional inputs on quality of secondary school education. The Ministry of Education (2008) in Kuria West observes that the pupil population in Kuria West in primary was 38,048 and the teacher population was 544 teachers resulting in a pupil /teacher ratio of 70:1 while in secondary the population was 5,487 and there were only 174 teachers resulting in a student /teacher ratio of 32:1. This shows that there is a serious lack of qualified teachers. This lack of qualified teachers compromises the quality of education as many teachers employed under board of management do not have the required qualifications nor the experience to provide quality education. Koech (2013) in a research in Kuria East on head teachers strategies in curbing dropout rate in public primary schools established that due to lack of female teachers the students lacked role models and this resulted in dropout rate from 0.43% in 2007 to 9.57% in 2013 which in quantitative terms was 30 students in 2007 to 502 students in 2013. This shows that lack of qualified teachers affects completion rates of students and this compromises the quality of education. The studies reviewed

did not deal with the impact of teacher characteristics on the quality of secondary school education but focused on teacher on teacher shortages. The study on the influence of institutional inputs on the quality of secondary school will not only investigate teacher shortages but will also tackle the competence and delivery ability and integrity of the teachers.

Theoretical framework

This study on the influence of teacher characteristics on quality of secondary school education was informed by the Production Function Model. The model postulates that educational outcomes are a function of teacher characteristics. The model also assumes that teacher characteristics are not inter-correlated (Psacharopoulos and Woodhall, 1985). The formula of production function model is: $A = f(T, B, E, \dots)$

Where;

“A” is the dependent variable and TBEindependent variables when applied to education and in this study “Y” = $f(X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 + X_{10} + X_{11})$ where
 Y = quality of secondary school education
 X₁ = Number of male teachers
 X₂ = Number of female teachers
 X₃ = Teachers with Diploma /SI certificate
 X₄ = Teachers with B.ED degrees
 X₅ = Teacher Syllabus coverage
 X₆ = Teachers with Masters Degree
 X₇ = Time management by teachers
 X₈ = Board of Management teachers
 X₉ = Teachers ensuring students attend lessons regularly
 X₁₀ = Teacher absenteeism
 X₁₁ = Student teacher ratio

Bergman and Feser (1996) give further insights into the Education Production Function model as it identifies four elements of educational performance as being input performance which refers to the influence of entry behaviour, physical infrastructure, learning/teaching and level of financing resources, process quality which refers to the quality of teaching and learning; output process which refers to the effect of education inform of graduated product measured by rates of return to education. Other scholars have given specific insights into the quality of education like (Jung, Zuze and Ross, 2011) on resource inputs; (Paris and Hamilton, 2009) on resource processing process, (Satz, 2012) on output quality and (Lyenza and Bajaj, 2010) on product quality. Even though the Education production function model and the Bergman model relate education inputs to educational outputs through the process of teaching and learning the two models are not robust enough to include equity in education. This study investigated the influence of teacher characteristics on quality of secondary school education.

MATERIALS AND METHODS

This study is anchored on Psacharopolous production function model in education which relates inputs in education like learning resources to outputs in form of achievement measured by performances. The study adopted use descriptive and correlational research designs. The study population was 59,691 comprising of 245 principals, 2,439 teachers, 57,000 students and 7 Quality Assurance and Standards Officers.

Fisher's formula was used to select 384 students, 331 teachers and 148 principals. Saturated sampling was used to select 7 Quality Assurance and Standards Officers resulting in total respondents of 870. The data was collected using questionnaires, interview schedule, observation guide, focus group discussion and document analysis. Face and content validity of the instruments were ascertained by experts in Educational administration who evaluated the appropriateness of items in the instruments. Their input was therefore included in the final instruments. Reliability of the instruments was ascertained by piloting in 7 schools whereby a coefficient of 0.7 and above at a set p-value of 0.05 was considered reliable. Inferential statistics was used to determine the influence of teacher characteristics on the quality of secondary school education. The mean scores were regressed against teacher characteristic to establish the magnitude of the influence at the 0.05 level of significance.

RESULTS

Research Objective

The research objective was to determine the influence of teacher characteristics on quality of secondary school education. To achieve this objective a null hypothesis "Teacher characteristics do not significantly influence the quality of secondary school education." was generated. The study then sought to establish first the characteristics of teachers by gender, qualification and terms of employment (Table 1); and mean scores of 2016 (Form IV) cohort in Kenya Certificate of Secondary examinations (Table 2). From Table 1, the majority of teachers were employed by the Teachers Service Commission relative to teachers who were employed by the Boards of Management, in this case, 258(77.9%) out of 331 teachers were employed by the Teachers Service Commission while 73(22.1%) were employed by the Board of Management. Out of 148 school principals, 68(45.9%) agreed that there was proper time management by teachers in class. Even so, the majority of school principals 80 out of 148 representing 54.1% stated that there was no proper time management by teachers in class. In another case, 61(41.2%) school principals agreed while 87(58.8%) school principals denied to the fact that all students attended lessons regularly. Regarding teachers' lesson attendance, 79(53.4%) school principals agreed that teachers attended lessons regularly, but 46.6% of principals (69 out of 148) gave a contrary response. Teachers gave their views regarding the relationship between teacher characteristics and quality of education. The majority of teachers 287(86.7%) observed that the extent to which teacher characteristics influenced the quality of secondary school education was much. A few teachers 44(15.3%) stated that the influence of teacher characteristics on quality of education was not much. The students stated that 188(49%) of them felt coverage of the syllabus was satisfactory and 55(14.3%) of the students felt syllabus coverage was satisfactory while 61 (14.3%) of the students felt syllabus coverage was poor. The findings of the study showed that 180(46.9%) students said they were fairly given tests and assignments while 59(15.4%) were poorly given. The students observed that 159(41.4%) of them had teachers available for consultation outside class consultation. The study further found out that 124(33.3%) of the students stated that teachers managed time well. The students comprising 80(21.9%) stated that teachers gave clear, relevant and accurate delivery in all excellent way. However 58(18.1%) of the students stated that teachers presentation was poor as it

was not clear, accurate and not relevant in delivery. It was further revealed that 99(25.4%) of the students felt that the teachers were knowledgeable and the relevant examples whereas 74(20.5%) found out that the information may not have relevant examples. From Table 2, it can be noted that Kenya Certificate of Secondary Education level, 164(72.6%) of 226 boys and 73(46.2%) out of 158 girls scored less than 6.45-7.44 points, which was below the standards required for quality education in secondary schools. Students who scored grade C+ (6.45-7.44) and above for the boys' category were 83(36.7%) out of 226 while in the girls' category were 85(53.8%) out of 158. To determine the influence of teacher characteristics on quality of secondary school education the data in Tables 1 and 2 were used in the computation. (Tables 3, 4 and 5). From Table 3 it can be observed that teacher characteristics had a strong influence on the quality of secondary school education. The influence was positive and significant ($r = .865$, $N = 331$, $p < .05$). Therefore the null hypothesis "Teacher characteristics do not significantly influence quality of secondary school education" was rejected and the alternative hypothesis "teacher characteristics significantly influenced quality of secondary school education was accepted." Teacher characteristics viz student /teacher ratio, number of male teachers, female teachers; teachers with Diploma/SI, teachers with Bachelor of Education (B.ED) degrees, teacher syllabus coverage, teachers with masters degree, time management by teachers, Board of Management teachers, teachers ensuring students attend lessons regularly, teacher absenteeism accounted for 71.4% of the variance in quality secondary school education as denoted by Adjusted R square coefficient .714.

The other 28.6% was due to other factors that were not subject of this study. This means that teacher characteristics explained 71.4% of quality secondary school education. Teacher characteristics are key to quality education because teachers are the ones who control other factors of production, namely physical resources, students, infrastructure and teaching /learning resources. In the absence of teachers very little learning takes place. These findings were supported by interviewees who noted that teacher factor is the central factor that influence the quality of secondary school education. Committed and competent teachers really enhance quality of secondary school education because they really know and have what it takes to deliver quality secondary education. These findings concurred with those of World Bank (2005) study on expanding opportunities and building competencies for young people, that established that teacher shortage influenced quality of education, and teacher shortage was noted as a challenge. Park and Hamm (2001) in a study titled "Do teachers affect learning in developing countries" Evidence from China revealed that teacher competency to a large extent account for a large proportion of variance in different subjects. Lee, Zuze and Ross (2005) findings also concurred with these findings. Thus, they found a strong relationship between teachers' competence in terms of subject matter, knowledge and students achievement. Adeyemi (2008) also concurred with these findings in a study in Ondo State of Nigeria on teachers' teaching experience and students learning outcomes found out that teacher experience and competence were prime predictors of students' performance in all subjects in secondary schools. A study by Yara on performance determinants of Kenya Certificate of Secondary Education in Mathematics in Nyamaiya division, Kenya found out that there was a positive relationship of 0.564 at 0.05 level of significance between

Table 1. Teachers Characteristics by Gender, Qualification, and Terms of Employment

Gender		Qualification						Terms of Employment					
Male		Female		Diploma/SI		Bachelor		Master		Teachers Service Commission		Board of Management	
F	%	F	%	F	%	F	%	F	%	F	%	F	%
76	14.2	47	14.2	147	5.4	84	19.6	103	12.2	90	35.0	40	54.8
101	30.4	16	4.7	73	2.7	98	23	80	9.5	86	33.3	24	32.9
65	19.6	11	3.4	37	1.4	61	14.2	63	7.4	66	25.6	9	12.3
16	4.7	0	0	0	0	14	3.4	11	1.4	15	6.0	0	0
257	77.7	74	22.3	257	9.5	257	60.1	257	30.4	258	100.0	73	100.0

Table 2. Migori County Kenya Certificate of Secondary Education examination mean scores for 2016 form IV cohort

Mean Scores of Kenya Certificate of Secondary Education						
Mean Scores	Boys		Girls		Total	
	F	%	F	%	F	%
5.00-5.44	91	23.8	34	8.8	125	32.4
5.45-6.44	73	18.9	39	10.1	112	29.1
6.45-7.44	29	7.4	23	6.1	52	13.5
7.45-8.44	18	4.7	18	4.7	36	9.5
8.45-9.44	10	2.7	18	4.7	28	7.4
9.45-10.44	5	1.4	13	3.4	18	4.7
10.45-11.44	0	0.0	8	2.0	8	2.0
11.45-12.00	0	0.0	5	1.3	5	1.3
Total	226	58.9	158	41.1	384	100.0

Table 3. Regression analysis for Teacher Characteristics and Quality of Secondary School Education

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.865 ^a	.749	.714	.291	.749	4.652	9	321	.000

a. Predictors: (Constant), Teacher Characteristics

Table 4. Analysis of Variance for Teacher Characteristics and Quality of Secondary Education

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	74.951	9	6.814	4.652	.000 ^a
	Residual	544.838	321	1.465		
	Total	619.789	330			

a. Predictors: (Constant) Teacher Characteristics

Table 5. Multiple Linear Regression between Teacher Characteristics and Quality of Secondary Education

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.713	4.187		2.976	.001
	X ₁ Number of male teachers	.186	.192	.563	1.548	.005
	X ₂ Number of female teachers	.279	.347	.264	.818	.008
	X ₃ Teachers with Diploma /SI	.447	.369	.242	.554	.002
	X ₄ Teachers with B.ED degrees	.525	.381	.531	2.638	.009
	X ₅ Teacher Syllabus coverage	.418	.542	.428	2.271	.001
	X ₆ Teachers with Masters degree	.272	.320	.582	2.152	.009
	X ₇ Time management by teachers	.546	.396	.393	1.474	.007
	X ₈ Board of Management teachers	.219	.684	.380	.767	.003
	X ₉ Teachers ensuring students attend lessons regularly	.527	.472	.198	2.175	.031
	X ₁₀ Teacher absenteeism	-1.268	.692	-.572	-2.391	.121
	X ₁₁ Student teacher ratio	.425	.428	-.594	.276	.020

a. Dependent Variable: Quality of Secondary School Education

$$\text{Regression Equation: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \epsilon$$

teacher qualification, teacher experience, teacher attitude, and Kenya Certificate of Secondary Education performance in Mathematics when the variables, that is teacher characteristics were disaggregated. Teachers' experience and teachers attitude had the highest correlation to performance. Teacher qualification however had a lower relationship. Koech (2013) also concurred with these findings in a study conducted in Kuria East on head teachers' strategies in public primary schools, in which the study established that lack of qualified

teachers compromised quality education. With all these evidence it's empirically right to assert that teacher characteristics do influence quality of secondary school education. From Table 4 it can be observed that teacher characteristic was a significant predictor [F (9,321) = 4.652, p<0.05]. This means that teacher characteristics real influences quality secondary school education. It is not by chance and as such can relied upon with regard to enhancement of quality secondary education.

From Table 5 it can be noted that teacher characteristics when disaggregated reveal that each characteristic has different power of influence and therefore fit well in prediction model. Out of the eleven characteristics ten were found to be significant predictor while one was not. The regression equation is Quality Secondary schools Education = $11.713 + 0.186X_1 + 0.279X_2 + 0.447X_3 + 0.525X_4 + 0.418X_5 + 0.272X_6 + 0.546X_7 + 0.219X_8 + 0.527X_9 + 0.425X_{11}$. This means that for every one unit increase in teacher characteristics there was improvement in quality secondary schools education. That is, for every one increase in the number of male teachers' quality of secondary school education improved by 0.186 units, female teachers by 0.279 units, Diploma /SI certificate by 0.447 units, Bachelor of Education degree by 0.525 units, masters degree by 0.272 units, syllabus coverage by 0.418 units, time management by 0.546 units, Boards of management teachers by 0.219 units. Ensuring regular students attendance of lessons by 0.527 units and student /teacher ratio by 0.425 units. This model can be used in predicting influence of teacher characteristics on quality of secondary school education.

DISCUSSION

Teacher factor is the key variable that influences the quality education in secondary schools. This is because it is the teacher who coordinates other factors of production that is, infrastructure, physical facilities, teaching /learning resources, human resources and students. The teacher is an aggregation of many parts, that is, gender, qualification, inherit organizational abilities and time management traits. Each of these traits impact differently on the teachers' performance and consequently influences the quality of education, which is his/her core functions. Teacher characteristic significantly influence quality secondary school education. The theory accounted for 71.4% of the variance in the quality of secondary school education. The other factors accounted for a small percentage of 28.6%. It is important to note that these characteristics do not act in isolation but support one another. The inherent time management was the main predictor of quality secondary school education. This may be attributed to the fact that time is a resource that when prudently utilized guarantee desired results. This means that both the teachers and students must be in the right place at the right time performing the right activities proportionately so that there is no time wastage. This is evidenced in the old adage which states that "time is money and should not be wasted." In fact all activities are controlled by time as everything is time bound. Ensuring that students attend lessons regularly had also a strong influence on the quality of secondary school education. Regular lesson attendance ensures that teachers are fully engaged in learning activities. Teachers normally become frustrated when lesson attendance by students is irregular as student interaction is poor and lack impetus to constantly engage the teachers. Regular attendance itself is an indicator of quality education because student (customer) satisfaction is high. It is interesting to note that teachers with Masters degrees contributed less to quality secondary school education. Teachers with Bachelors' degree certificate and Diploma /SI certificates contributed more to quality secondary school education. This scenario may be attributed to the fact that holders of master's degrees are not keen on teaching in high schools, but rather in teaching at university level. In fact most teachers with Master's and Doctorate degree certificates undertake moonlighting at universities and hardly concentrate to their official places of work which are high schools.

Another unique finding is that female teachers highly influenced the quality of secondary school education by .279 units for every addition of one female compared with male teachers' .186 units for every addition of one male teachers. This may be attributed to the fact that, female teachers are generally friendly and use almost democratic approach as opposed to male teachers who are generally autocratic in their approach and display more of don't care attitude. The holders of Bachelor of Education (B.ED) degrees highly improved the quality of secondary school education. Majorly, this is because this caliber of teachers is educated and trained and equipped with the desired skills to manage effectively and efficiently secondary school curriculum. Teacher syllabus coverage is another variable that was found to be a significant factor that influenced the quality of secondary school education. Thus when teachers comprehensively cover the syllabus, it means the desired knowledge, skills and attitudes are covered and passing examinations is merely a normal by product. In essence syllabus coverage is meant to ensure that the desired knowledge, skills and attitudes at that level are appropriately imparted and acquired by the learners. Thus it is a misnomer to equate passing of examinations with syllabus coverage, but rather be looked at as a byproduct.

Teachers with diploma and SI certificates were at one time famed for performing better than B.ED degree holders in 1970s and 1980s. Indeed in the present time they are, though they have been overtaken or surpassed by B.ED degree holders. This was majorly because they were being trained to manage the secondary school curriculum while the B.ED degree holders focus was and is not management of secondary school curriculum per secondary. The habit of teachers ensuring students attend lessons regularly significantly influences improvement on the quality of secondary school education because education is purely student-teacher – learning activities – interaction process. If one of the factors is not well integrated the quality of education will decline. This study as such revealed that the habit of teachers' ensuring students attend lessons regularly enhanced the quality of education by .527 units for every one unit increase in the practice of teachers ensuring that students are lessons bound. Student-teacher ratio is important in delivering quality education. This is anchored in the principle of span of control whereby a teacher can only handle a number of students at any one time, beyond which he cannot. This is because each student has unique requirements that need to be fulfilled by the teacher who is also in-loco-parent's besides being an instructor. In secondary schools in Kenya, the recommended class size was initially 35, it increased to 40, then 45 officially but now it is beyond, though it varies from school to school. Teacher shortage in Kenya is alarming more so with the introduction of free Primary Education policy and Free day Secondary education policy. Nevertheless, the current student-teacher ratio during the study had a prediction power of .425. This means that at the prediction power can only increase up to the optimal student- teacher ratio, beyond which it will start diminishing and below which the prediction power will increase. Teacher absenteeism had the highest coefficient (- 1.268) but it was not significant as the p-value was greater than the critical value of .05. Notwithstanding the findings of this study it is important to note that teacher absenteeism negates the effort put in the system to improve quality of education at all levels, be it at pre-school, primary, diploma or university level.

This is because as earlier noted herein the teacher is an entrepreneur and his/her absence inhibit acquisition of desired knowledge, skills and attitude.

Conclusion

Teacher characteristics, namely; number of male teachers, female teachers; teachers with Diploma/SI, teachers with Bachelor of education degrees, teacher syllabus coverage, teachers with masters degree, time management by teachers, Board of Management teachers, teachers ensuring students attend lessons regularly, teacher absenteeism and student teacher ratio highly influences promotion of quality secondary schools education. These characteristics are the prime predictors of quality secondary school education. These findings concur with those of studies conducted in Nigeria, and other countries worldwide. Nevertheless, there are other factors that are covariates of teacher characteristics that also influence the quality of secondary school education.

Recommendations

- The government of Kenya should continue training teachers at B.ED degree level almost exclusively to manage secondary school curriculum.
- The Diploma and SI certificate holders should only be engaged at secondary school level, only if they have unique experience and competencies that pertain to this level of education.
- Teacher absenteeism should be dealt with effectively so that the quality of education is promoted.
- Class attendance by student should be highly encouraged and those who do not meet the recommended threshold be not certified as having gone through the system.
- The Boards of Management be encouraged to provide quality governance to guarantee quality education.
- Time management and syllabus coverage by teaches should be highly encouraged to guarantee high quality of education.

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