INFLUENCE OF INSTITUTIONAL INPUTS ON THE QUALITY OF SECONDARY SCHOOL EDUCATION IN MIGORI COUNTY, KENYA

BY

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DECLARATION

DECLARATION BY THE CANDIDATE

This thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

I dedicate this work to my wife Emma Aloo and two sons Derrick and Mark for patience, encouragement and support. I also dedicate this work to my brother Prof. George O. Ndege for his moral support and lastly to my departed parents Lawrence and Mary Ndege for their great love.

ABSTRACT

Institutional inputs are resources invested in the school system to enhance quality. In Kenya quality is measured primarily by performance in education but it can also be measured by availability, adequacy and utilization of resources. There are several ways of measuring performance including achievement in national examinations. The extent to which institutional inputs influence performance in Kenya Certificate of Secondary Education (KCSE) is at variance. In Kenya there are differences in the quality of education as some perform better than the others as due to certain factors. The study was based in Migori County, Kenya. Migori County was chosen among 5 counties surveyed because it had the lowest average mean score of 4.530 (D+) and between 2011 to 2017 it varied from C- in 2011 to D in 2017 exhibiting poor quality education. The average national KCSE mean score from 2011 to 2017 varied from 5.207 (C-) in 2011 and 5.173 (C-) in 2012 and declined to mean score of D+ between 2013 to 2015. The national KCSE mean score dropped to a mean score of 3.980 (D) in 2016 and declined to 3.734 in 2017 resulting in an average national mean score of 4.617 (D+) over a seven year period which indicates declining quality education. The purpose of the study was to establish the influence of institutional inputs on the quality of secondary school education in Migori County, Kenya. The objectives were to determine the influence of institutional inputs of entry-behaviour, examine the influence of physical facilities, determine the influence of teaching /learning resources, assess the influence of teacher characteristics and establish the influence of Income Generating Activities (IGAs) on quality of secondary school education. The study was anchored on Psacharopolous production function theory in education which relates inputs in education like teaching /learning resources to outputs in form of achievement measured by performance. The study used 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 (QASOs). Cochrans formula was used to select 384 students which was the target population from which the sample was taken for various sub-groups. Fisher's formula was used to select 331 teachers, 148 principals and 148 schools. Saturated sampling was used to select 7 QASOs resulting in total respondents of 870. The data was collected using questionnaires, interview schedule, observation guide, focus group discussion and document analysis. Validity of the instruments were ascertained by experts from School of Education, Foundations and Management at Maseno. Reliability of the instruments was determined by test re-test method through a pilot study of 15 schools and a Pearson coefficient of 0.76 and 0.82 was established for the principals and teachers questionnaire at a set p-value of 0.05 where a p-value of greater than 0.05 is significant and p-value of less than 0.05 is not. Qualitative data from open ended questions, interviews, focus group discussions were transcribed, coded, analysed and discussed in emergent themes and sub themes. Inferential statistics was used to determine the influence of institutional inputs on the quality of secondary school education. Each institutional input was regressed against the mean scores to establish the magnitude of the influence at the 0.05 level of significance. The study established that entry behaviour had an adjusted R square of 0.510, physical facilities had an adjusted R square of 0.349, teaching/learning resources had an adjusted R of 0.618, and IGAs had an adjusted R of 0.501 while teacher characteristics had an adjusted R square of 0.714 on quality of secondary education. Multivariate analysis compared the contribution of all independent variables when combined on quality of education. The multivariate analysis indicated that teacher characteristics and teaching and learning resources had the highest contribution of a B value of 0.611 and 0.540 respectively on quality of secondary education. Entry behaviour, IGAs and physical facilities had a B value of 0.434, 0.342 and 0.252 on quality secondary school education. The findings of the study are significant as they indicate that to improve quality of secondary school education increased investment in teacher training, recruitment and welfare are enhanced, additional financing and provision of teaching /learning resources undertaken and strengthening of early childhood and primary education improved to uplift entry behaviour and upgrading of infrastructure and promoting IGAs in schools to be strengthened.

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LIST OF ABBREVIATIONS ACRONYMS

FDSE	-	Free Day Secondary Education
GDP	-	Gross Domestic Product
ICT	-	Information Communication Technology
IGAs	-	Income Generating Activities
JSCE	-	Junior Secondary Certificate Examination
KCPE	-	Kenya Certificate of Primary Education
KCSE	-	Kenya Certificate of Secondary Education
KIPPRA	-	Kenya Institute of Public Policy Research and Analysis
MOE	-	Ministry of Education
NGOs	-	Non- Governmental Organization
NCEE	-	National Common Entrance Examination
OECD	-	Economic Corporation and Development
QASO	-	Quality Assurance and Standards Officers
TSC	-	Teachers Service Commission
TIMSS	-	Trends in International and Science Study
UNDP	-	United Nations Development Programme
UNESCO	-	United Nations Educational Scientific and Cultural Organization
UNICEF	-	United Nations Children's Emergency Fund
UPE	-	Universal Primary Education
USAID	-	United States Agency for Investment and Development

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Provision of quality education is a key ingredient in achieving Kenya's Vision 2030 and making her a middle income country by the year 2050. Republic of Kenya (2014) describes quality education as adequately and equitably resourcing education institutions and programmes with core requirements of safe, environmentally, friendly and easily accessible facilities, motivated and professionally competent teachers and books, other learning materials and technologies that are content specific, cost effective and available to all learners. The challenge is that quality must be continuously sustained at a specified standard through adequate resourcing.

Orodho (2002) complements discussion on quality of education as comprising the development of a 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 KCPE and KCSE; transition rates from primary and secondary schools and the overall survival rate from primary standard one level upto the university.

Quality of secondary school education refers to the desired knowledge and skills acquired at secondary school education as measured by students academic achievement or performance. Quality secondary school education is measured by attaining high standards as a mean score

of C+ and above in KCSE. Quality also refers to the availability, adequacy and state of inputs and requires continuous improvement.

Investments in secondary school education can be justified on grounds of provision of knowledge and skills that build the human resource to contribute social, cultural and economic development. Investment in the secondary education subsector improves human capital which results in greater returns to the individual and the society (Psacharopolous & Patrinos, 2002). Investments in the secondary sub-sector fans access which if not matched by additional resourcing results in deterioration in quality of secondary school education.

The World Bank (2005) supports the human capital development perspective as it observes that it brings about benefits on democracy, better citizenship, crime reduction and improvement of living conditions. Human capital development improves productivity, enhances competences, stimulates economic development, raises standards of living, reduces poverty and uplifts quality of secondary education.

There are many factors that influence quality of secondary school education. These factors include entry behaviour, physical facilities, teaching/learning resources, teacher characteristics, income generating activities, home background, free secondary school education policy, teacher attitude, student attitude, learning environment, location of schools, security, school community, principals leadership styles, school culture, legal framework and retention rates.

Literature has shown that the first five factors of entry behaviour, physical facilities, teaching/learning resources, teacher characteristics and Income Generating Activities are the factors that greatly influence quality secondary school education. The African Union (2006) has identified institutional inputs of physical and infrastructural resourcing for learning environment, learner characteristics teacher qualification, competence, motivation, relevance of subject matter and of teaching and learning material and professional support for teachers.

The choice of institutional inputs for the study finds justification on many grounds. Entry behaviour which refers to the academic ability of the students who is admitted to secondary school on attaining a particular KCPE score was chosen as an institutional input because it is a resource the institution uses just like physical facilities, teaching and learning resources, teacher characteristics and IGAs. Most studies have often focused on effect of home background or socio-economic factors on performance in KCSE. Oghuvbu (2007) in a study on family history in Nigeria as a tool for adequate management of pupils and students in schools found out that home background influenced students academic achievement. Donkor (2010) in Ghana found out that family's structures influenced achievement, Ogalo, Simatwa and Okwach (2013) in a study in Nyando and Muhoroni districts on socio-economic challenges faced by principals on providing quality education found out that parental sickness like HIV and AIDs affected the students performance.

Other studies like Jagero (2013) and Ondima et al (2013) focused on influence of KCPE scores on KCSE performance but did not link this to other institutional inputs influence on quality of secondary school education. The methodology and analysis of Jagero and Ondima

studies were limited to linear regression and did not use multivariate analysis to show the contribution of entry behaviour to quality of education when compared to contribution of other institutional inputs like physical facilities, teaching/learning resources, teacher characteristics and IGAs which the Migori study showed. Neither have other studies integrated qualitative and quantitative analysis to breathe greater insight into the relationship between institutional inputs and quality of secondary school education in Migori.

Physical facilities refers to resources that enable learning to take place. They comprise land, dormitories, classrooms, furniture, playgrounds, dining hall, health bay, toilets, water and electricity. Physical facilities was chosen as an institutional input because most studies on influence of physical facilities on school attainment have limited themselves to a few limited physical facilities. Studies by Lee, Zuze and Rose (2005), Lee and Zuze (2011) and Akinyi, Nyanzia and Orodho (2015) on influence of physical facilities on school performance chose only a few physical facilities like buildings, water and electricity.

Teaching and learning resources refers to the inputs used to facilitate the learning process. These are textbooks, stationery, computers, library, laboratory, workshop and equipment. Teaching and learning resources was chosen because most studies have focused on limited teaching and learning resources. Mingaine (2013) focused on ICT implementation in secondary school in Kenya but did not tackle the influence of other teaching and learning resources. These studies have also not focused on the contribution of each teaching /learning resource to the quality of secondary school education which the Migori study on institutional inputs did.

Teacher characteristics refers to the teachers gender, teacher's qualifications, experience, integrity, efficiency, competence and terms of employment. Teacher characteristic was chosen because most studies have focused on only one characteristic or limited characteristics. Adeyemo (2008) in Ondo State of Nigeria on teachers reaching experience and student outcomes did not explore other teacher characteristics. The study on institutional in Migori investigated many teacher characteristics. Teacher characteristics was also chosen because other studies do not bring out the contribution of each teacher characteristics on the influence of quality secondary school education which the Migori study did.

Income Generating Activities (IGAs) refers to the money received from investment activities carried out by the school to argument other sources of income. They include planting of maize, keeping bees, poultry keeping, dairy farming, horticulture, brick making and hiring of school bus. Income Generating Activities was chosen because most studies have focused on ways of financing secondary school education. Getange (2013) on financing public day secondary schools in Kisii central district and its implications on the quality of learning focused on various sources of financing. The study on institutional inputs in Migori not only focused on IGAs but also stated the contribution of various IGAs on the quality of secondary school education. A multivariate analysis also showed the contribution of IGAs compared to other institutional inputs on quality of secondary school education which other studies have not shown.

Korinek and Punpuing (2012) in a study in Thailand on the effect of household and community on school attainment of Thailand youth established that the risk of dropping out of school was lower among girls than boys. The study observed that in an array of contexts

including relatively economically disadvantaged households and in local communities that had diversified beyond agriculture into services and manufacturing rewarded girls human capital at par with or even beyond the boys. The study was a longitudinal design with a sample population of 3,202 students between ages 11-14 out of which 2739 (86%) of the 3202 youths enumerated in the data were respondents. The response rate was high.

Koviner and Punpling (2012) use of a longitudinal research design was a good choice as it gave trend analysis and perspective and clarified relationships between student outcomes and their family and community data collection. Discrete time hazard rate was used because it measured a single group of participants over multiple time period. This method is more flexible and robust than the other tools of analysis. The instruments used for data collection were observation, interviews, questionnaires and census. The variety of instruments used enriched the information obtained thus enhancing its validity and reliability.

Afolabi, Lijoka and Awolowo (2005) on the relationship between National Common Entrance Examination (NCEE) and Federal Junior Secondary Certificate Examination (JSCE) in Nigeria found out that performance of students in the NCEE compared favourably with subsequent performance at the Junior secondary school level. The correlation of coefficient between NCEE and JCSE of r is 0.50 at the 0.05 level of significance. This study shows that entry behaviour inform of academic ability had some influence on quality of education. The study comprised 120,000 students from 3 states in South Western Nigeria. Saturated sampling was used which enhanced the reliability of the results. The instrument of data collection was documentary records obtained from computer records which were also reliable. The method of data analysis using inferential statistics gave an in-depth analysis

that showed the magnitude of the influence. The study should have used other instruments to support the documentary instrument.

The Migori study filled the knowledge gap by not only investigating entry behaviour in terms of scores in KCPE but also on the basis of gender at KCPE on quality education. A study done by Amburo (2011) in Kenya found a coefficient of correlation of 0.452 between KCPE and KCSE at the 0.05 level of confidence. This variation in the performance between KCPE and the KCSE and WCEE and JCSE due to varying levels of difficulty in the two types of examinations. However Mensch and Llyod (1997) in Kenya found a correlation coefficient between the entry examinations and the final exit examinations of 0.538 for boys and 0.647 for girls when similar inputs were used.

Jagero (2013) on a study on how performance of primary education can predict their performance in KCSE in Western Kenya established that there was a correlation of 0.559 between performance in KCPE and the correlation was mildly at 0.05 level of significance. The girls also performed better than the boys though the girls were admitted with lower marks in KCPE. The research was ex post facto and correlational research design. The use of ex post facto was appropriate as the independent variable had already occurred. Correlation design was appropriate in evaluating associations of students' performance in KCPE and KCSE. The population involved 110 students as it involved a stratification of 82 boys and 28 girls. Saturated sampling was used since the population was small in size. Jagero found some influence between KCPE and KCSE of 0.599. the study on influence of institutional inputs on the quality of education in Migori differs with the Jagero (2013) and Ambicho (2011) studies because the two studies were limited to effect of KCPE on public examination but the

study on inputs compared contribution of entry behaviour to other inputs of physical facilities, teaching /learning resources, teacher characteristics and IGAs on quality of education through a multivariate analysis. The Migori study on inputs is thus more robust.

In data analysis descriptive statistics comprising mean and standard deviation was used and inferential statistics that used Pearson correlation and linear regression analysis were used and it gave the magnitude of the relationship. The study reviewed correlated KCPE and KCSE scores in western Kenya. The study on influence of institutional inputs on the quality of secondary school education also explained.

Molochi (2008) in a study on survey of education in Kuria West established that most parents could not pay fees for their children and many of the parents forced their young girls out of school into early marriages. Parents also had a negative attitude towards education and child labour was also rampant. The population comprised 89 primary schools with a population of 38,048 pupils and 21 secondary schools with a population of 5487 students. The instruments of data collection comprised interviews and observation. The use of more than one instrument enhances the reliability and the validity of the data collected because of contribution. Descriptive statistics using means, percentages and frequencies were used to analyse data. However inferential statistics using regression analysis was not used to give the magnitude of the relationship between entry behaviour and student's academic achievement in secondary school.

The studies strength lay in the use of a large sample and at least two instruments were used in data collection. The weaknesses of the study lay in the use of only descriptive statistics. The study investigated the socio-economic background of the students and its relationship with

performance. The study on influence of institutional inputs on the quality of secondary school education filled this gap by investigating the influence of entry behaviour but not socio-economic background.

Physical facilities refers to the entire tangible infrastructure in secondary schools comprising land, buildings, furniture, electricity and water. In a study by Nandamuri (2012) in India on the status of secondary education in Andhra, physical facilities had an influence of 0.026 on the quality of education at the 0.05 level of significance. This shows there is a weak relationship between physical facilities and performance of secondary schools. This finding is inconsistent with other outcomes where physical facilities have an impact on performance. The Nandamuri's study established that in an overall school infrastructure based on eight vital parameters, only 60% of the schools operate with spacious premises and 68% felt the furniture was inadequate and only 41% had spacious playgrounds and gender specific toilet facilities had a need of 25% in the government schools and 34% in the local boarding schools. It established that 44% of the schools had insufficient accommodation as the buildings were fewer. However all the government and private aided and private unaided schools have sufficient furniture available for both students and staff. These challenges make India to lag behind in the provision of quality secondary education.

The study used a descriptive survey which was appropriate in determining the status of existing physical facilities. The study used a sample of 188 secondary schools out of the population of 557 secondary schools in Krishna district of Ardhra Pradesh in India which was selected through stratified sampling to take care of the various clusters in the population. The primary responses were collected through a structured questionnaire administered to the

respective school heads. The use of only one instrument to collect information may compromise the validity and reliability of the results. The data was analysed using chi-square and simple descriptive statistics to determine the influence of physical facilities on performance. The strength of the study lay in the fact that the study used an appropriate sampling technique and an in-depth data analysis. The reviewed study did not investigate the influence of institutional inputs on the quality of secondary school education which the study in Migori County did.

However another study by Rogers, Suryadarma, Sunyahadi and Sumanto (2005) in Indonesia on improving student performance in public primary schools showed that the relationship between physical facilities in form of toilets and performance in primary schools was a coefficient of correlation of 0.324 for boys and 0.310 for girls which depicted a weak relationship. The study was a survey of 8 Provinces out of 10 in Indonesia. The sample in the study comprised 110 public schools which yielded a sample of 1,089 students. The instruments of data collection were the questionnaire and the interview schedule to collect data from the students. Quantitative data analysis using regression was used to analyse influence between physical facilities and performance. The strength lay in the use of a variety of instruments. To determine the influence of physical facilities and student performance. The study however did not specifically tackle the influence of institutional inputs of entry behaviour, teaching /learning resources, teacher characteristics and IGAs on the quality of secondary school education as it focused on primary school education. The study in Migori County on institutional inputs filled this gap.

Lee, Zuze and Ross (2005) on school effectiveness in 14 sub-Saharan African countries reported that the availability of physical resources like electricity, water, library, buildings and equipment improved the achievement levels of the students and the schools and the quality of education in all the countries. The 14 countries had different historical, social and economic set-ups but in all cases where physical infrastructure were available it made a change to attainment levels.

Lee, Zuze and Ross (2005) used a correlational design which focused on school effects. The sample in the study was 41686 students in 2305 schools spread in 14 countries. The instrument of data collection was the questionnaire for students to establish the relationship between physical facilities and performance. Quantitative data analysis using regression analysis was used. However the study in ignoring the use of longitudinal studies cannot provide a reliable trend perspective over the impact of physical resources. The study on institutional inputs on entry behaviour, physical facilities, teaching/learning resources, teacher characteristics and income generating activities in Migori County.

Chavundika (2006) in Zimbambwe where students could be 10 in a class did not necessarily result in superior performance. This means low class size of less than 40 students does not necessarily guarantee better teaching but in Africa with limited resources it results in ineffective use of existing capacities especially when classes are overcrowded due to poor mobilization of physical resources. Quality of education is affected.

The World Bank (2008) on physical resources in sub Saharan countries found out disparities in physical facilities such as of classrooms, toilets, laboratories in the region with

dramatic inadequacies in rural areas and concluded that lack of basic physical structures hinders teaching and implementation efforts and impedes achievement of quality secondary education .

Yeya (2002) on performance in KCSE in Kwale District reinforces the findings that schools with adequate facilities perform better in national examinations especially in mathematics. Competent teachers and adequate textbooks improve optimum utilization of physical resources. The study on influence of institutional inputs in Migori County not only tackled the effects of physical facilities but also other inputs like entry behaviour, physical facilities, teaching/learning resources, teacher characteristics, income generating activities and focused on quality of secondary school education.

Molochi (2008) on Kuria West on a survey on education established lack of desks and libraries. Koech (2013) in Kuria East on head teachers strategies in curbing dropout in public primary schools established that 47.7% of the parents did not buy supplementary learning materials for the pupils. The study on institutional inputs in Migori County not only tackled physical and learning resources but also inputs of entry behaviour, teacher characteristics and income generating activities and focused on quality of secondary school education.

The World Bank (2005) observes that in Denmark and Spain a third of the students and in Canada and Greece, Iceland, New Zealand and Poland over a quarter appear to miss school or skip classes regularly and in Japan and Korea by contrast the low attendance category account for lower than 1 in 10. Regular attendance of classes such as in Japan and Korea results in higher quality education while poor class attendance like in Denmark, Spain,

Poland and Canada undermines the quality of secondary school education because regular attendance of students have more learning time and irregular attendance have less time for learning.

World Bank (2005) and UNESCO (2005) on developed countries reveal disparities between intended instruction time in the curriculum, actual time allocated in schools, the time the learner spends learning (time on task) and the time they spent in situations when students and learning material are matched and learning occurs in a conducive environment. The amount of time decreases from the first to the fourth of these categories especially schools in poor communities. The implication is that time management influences quality of secondary school education with effective time management enhancing quality of education and ineffective time management undermining quality of education.

An OECD (2003)on Greece on student engagement and time spent on learning in secondary schools found there is evidence that teachers spend more time maintaining order and less time teaching than do primary school teachers as 50% of the students said that more than 5 minutes go by at the start of each class without anything being done, 44% said there is noise and commotion and 29% said that students do not listen to what the teachers say. This failure to manage time as a learning resource efficiently in class compromises syllabus coverage and results in poor performance thus undermining the quality of education.

Lee and Zuze (2011) in Sub Saharan Africa on school resources and academic performance in sub Saharan Africa established that teacher quality had an influence on student performance of a coefficient correlation of 0.17 at the 0.05 level of confidence which shows

a weak positive correlation. Learning resources are logically and empirically associated with school achievement. It reported that access to textbooks is strongly linked to achievement and observed that when parents are expected to purchase textbooks and writing materials achievement gaps between rich and poor students expand.

Lee and Zuze (2011) research design was a cross –sectional design which implied various groups of population were sampled and data collected at a single moment in time. The research population sample comprised 4 countries of Botswana, Malawi, Namibia and Uganda and the sampled students were 12,609 and the schools were 707 establish relationship between resources and academic achievement. Data analysis was quantitative and multi level methods were used to establish relationship between resources and academic attainment. Structured questionnaire was used to collect data on relationship between resources and achievement. The studies strength lay in its large size but the limitation lay in the use of only one instrument as it was difficult to corroborate responses. The study did not explore the influence of institutional inputs on the quality of secondary school education which the Migori study on institutional inputs filled.

Glewwe, Kuemer and Moulin (2006) on textbooks and test scores in Kenya shows evidence that the only effect of textbooks on performance was among the best students. The report further states that the textbooks were not easy to understand because of inappropriate content, high language level, lack of illustrations, inappropriate style of questions, lack of activities and lack of precise summaries. Other factors that could have dampened the influence of textbooks on scores could be that the textbooks neither accessible affordable and poorly utilised by the teachers and the students. Glewwe, Kuemer and Marlin (2006) did not

investigate the influence of learning resources particularly their availability, usage and influence on the quality of secondary education. The study on influence of institutional inputs on secondary school education in Migori County investigated this knowledge gap.

Koech (2013) in Kuria East on head teachers curbing of dropouts found out that 53.3% of the head teachers indicated that parents bought supplementary textbooks but 66.7% of the teachers stated that parents did not buy textbooks for their schools. The study adopted a descriptive survey design which is appropriate as it concerns current state of phenomena of the variables. The target population consisted of 4770 pupils, 57 head teachers and 278 teachers from which simple random sampling was used to select 35 head teachers, 70 teachers and 500 pupils. The use of simple random sampling did not take care of the strata in the education system. The researcher used questionnaires for the headteachers and teachers and focus group discussions with 7 pupils per group. The use of two different instruments enabled corroboration of information. Data was analysed quantitatively and qualitatively. The strength of the study is that it used reliable instrumentation and sampling procedure but lack of inclusion of strata limited in-depth analysis. The study focused only on a few institutional inputs like textbooks but the study in Migori County on institutional inputs that influence quality of secondary school education investigated inputs of entry behaviour, physical facilities, teaching /learning resources, teacher characteristics and IGAs sought to find out.

Yara (2011) on performance determinants of KCSE in mathematics of secondary schools in Nyamaiya division, Kenya, found out a positive relationship of 0.564 at the 0.05 level of significance between learning resources and KCSE performance. The sampled population

comprised of 151 students and 12 teachers. The study employed a descriptive research design of the ex –post facto type. The instrument used to collect information was the questionnaire on performance determination of KCSE in Mathematics because there was no corroboration. The use of only one instrument to gather information did not enhance the reliability of the instruments. The data was analysed using multiple regression analysis which enabled the measurement of magnitude and direction of the relationship. The study on institutional inputs on quality secondary education in Migori explored other inputs like teacher characteristics and income generating activities that affect quality of education. It also explored the contribution of different learning resources to quality of secondary school education.

An analysis of Chinese education concluded that teacher characteristics explained a large proportion of the variance in achievement in different subjects (Park & Hammum, 2001). This finding is reinforced by several studies with direct measures of teacher competency which reported strong relationships between teachers subject matter, knowledge and their students achievement (Lee *et a*l, 2005). Teacher training and continuous professional teacher in-service enhances teacher competency and performance.

Daffo, Hanna and Ryan (2010) in Rajasttian, India on incentives to work; getting teachers to come back to school in nongovernmental school (NGO), reported that when teachers were effectively monitored and given financial incentives as salaries directly depending on their attendance for at least a day, they did better. The absenteeism dropped by half from 42% to 21%. The teachers measured effort did not decline so students benefited from about 30% more instructions time. The students had a higher exam scores by 0.17 standard deviation after one year and gained admittance in formal government schools. Teachers were

randomly selected in half of the schools where students photographed teachers at the beginning of the lesson and after the lesson for each school day. The random selection eliminated bias. The current study filled the knowledge gap by investigating the level of qualification, the teachers experience and integrity in form of attendance and its effect on quality of education in Migori County.

Hanushek, Lavy and Hitomi (2006) in Egypt on quality consistent estimates of dropout behaviour in developing countries, established that the correlation of coefficient between teacher characteristics and school attainment was 0.79 at the 0.05 level of confidence. This study depicts a strong positive relationship between teacher characteristics and school achievement. This is inconsistent with some similar studies that have shown a weak relationship between teacher characteristics and the quality of secondary education. The research on influence of institutional inputs on the quality of secondary school education on teacher characteristics will show the contribution of each teacher characteristics such as gender, experience, qualification in report competence and mode of employment on quality of secondary school education.

Obadana and Alaka (2010) in a study in Nigeria on the influence of resource allocation on secondary school performance found a correlation coefficient of 0.6 which is significant at 0.05 level. The study in Migori County sought to find if there is a relationship between the income generating activities on performance of KCSE.

Ogeta (2004) in South Nyanza on the contribution of parents to the cost of upper primary education established that parents had low financial abilities in meeting the costs of upper

primary. He reported that despite their low income and inability to meet the cost of upper primary their contribution was useful because the government was not able to meet all the primary financial needs of primary schools. He suggested that funds be solicited from community members, foundation bodies and Income Generating Activities (IGAs). The study used Expo facto design because the events had already taken place. The sample of the study comprised 496 parents and 124 head teachers.

Questionnaires and interview schedule were used as instruments of the study. The use of two instruments for data collection was commendable as it would capture a variety of data. Data analysis was done using both descriptive and inferential statistics which means the magnitude between the variables could be determined. The study however did not look at the influence of institutional inputs on the quality of secondary school education as it was on primary education. The study on influence of institutional inputs in Migori County explored the contribution of Income Generating Activity on the quality of secondary school education.

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 FSE was inadequate and parents owed the school fees arrears due to poor home background which affected the ability of parents to pay fees required by the schools. With the introduction of FSE, parents sources of financing day secondary education were inadequate to meet the financial demands of learning to enhance quality and recommended the harnessing and strengthening of various sources of school IGAs like crop and animal production, intensive gardening and hiring school activities. The study used survey design

which was suitable because it enabled investigation of the state of affairs. The target population was 102 public day secondary schools. A sample of 36 schools were chosen and purposive sampling was used to select 36 principals, 36 bursars, 36 BOM, 36 PTAs and 4 District Quality Assurance Officers. Questionnaires, interview schedule and observation checklists were the instruments used to collect data on impact of financing on quality of secondary school education. The variety of instruments enhanced the reliability of the results. Descriptive and inferential statistics were used to analyse 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 focused on the influence of institutional inputs on quality of secondary education unlike the Getange study that focused on the influence of finance on quality of learning. The study on institutional inputs also used robust instrumentation.

Omukoba, Simatwa and Ayodo (2011) in their study on contribution of income generating activities contributed significantly to financing secondary school education in Kenya and established that IGAs contributed significantly to financing of education by purchasing of inputs and payment of salaries which in turn enhance quality of secondary education. The study used a descriptive survey design. The study population consisted of 14 principals, 3 CQASOs, 12 District Education Officers. The study used a semi-structured questionnaire and an interview schedule. The study on influence of institutional inputs in Migori County used multivariate analysis and established the contribution of planting of maize, keeping bees, poultry, brick making and hiring of school van to the quality of secondary school education.

The World Bank (2008) in a Trends in International and Science Study (TIMSS) on performance in mathematics and sciences in secondary school in 46 countries worldwide, found out that 90% of the 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 maths and science out of the average marks of 467 in maths and 474 in science. This shows that most secondary students in Africa do not have a good mastery of knowledge of mathematics and depict a poor understanding of science. The World Bank study (2008) did not investigate influence of entry behaviour, physical facilities, teaching /learning resources, teacher characteristics and IGAs on quality of secondary school education and only concentrated on performances in mathematics and sciences which the study on inputs tackled.

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 resorted to teacher centred methods of teaching rather than student centred. This research did not focus on effect of institutional inputs on secondary school education. The research on influence of institutional inputs on quality of secondary school education in Migori County explored this by investigating institutional inputs like teacher characteristics and teacher adequacy on the quality of secondary school education.

A study by Akinyi, Nyanzia and Orodho (2015) on challenges facing implementation of inclusive education in public secondary schools in Rongo sub county, Migori County, found out that physical and critical teaching and learning resources such as teacher textbooks, library and laboratories were either inadequate or quite dilapidated and there were several economic and cultural variables that constrained teaching and learning. The study used a descriptive survey design and a sample of 34 secondary schools, 34 principals, 170 students with special needs, 102 teachers, 1 Sub County Quality Assurance and Standards Officer and questionnaires and interview schedule for principals. The studies strength lay in the use of more than one instrument which enhanced reliability of data capture. The study on influence of institutional inputs explored the contribution of inputs of entry behaviour, physical facilities, teaching /learning resources, teacher characteristics and IGAs on quality of secondary school education which the Aking et al (2015) did not do.

The Ministry of Education (2014) Migori County documents that there were 603 public primary and 203 public secondary schools with an enrolment of 262,941 in primary and 55,577 in secondary schools with 5,201 teachers in primary and 1224 teachers in secondary school resulting in a teacher shortage of 1,068 and 1,688 in both primary and secondary. The student teacher ratio for secondary schools was 23:1 as the number of students stood at 57,000 and the number of teachers stood at 2,439 (MOE, 2016).

Table 1.1 shows that the number of candidates in KCSE has increased from 357,488 in 2010 to 574,125 in 2016.

Table 1.1: KCSE Enrolment and performance for 2010 to 2016

Year	2010	2011	2012	2013	2014	2015	2016
Candidates	357,488	411,785	436,349	446,696	483,630	522,820	574,125
Score of Grade A	0.44	0.47	0.45	0.61	0.64	0.51	0.02
Score C+ & above	97,134	119,658	123,748	123,365	149,717	169,492	88,929
Percentage score C+ & above	27.2	29	28.36	27.36	30.8	32.23	15.41
Percentage score C & below	72.8	71	71.64	72.64	69.2	67.7	84.89

Source: KNEC

Scores of C+ and above which is the minimum university admission marks declined from 97,134 in 2010 to 88,929 in 2016 reflecting a declined from 27.2% decline in 2010 to 15.41% in 2016. However the scores of C and below remained at an average of 70% for the last 5 years except in 2016 when it rose to 84.9% which depicts and shows that most of secondary school students perform poorly in KCSE. Those who scored grade A had declined from 0.47% in 2011 to 0.02% in 2016.

Table 1.2

Trend in Performance in KCSE between 2011-2017 Nationally, Migori County and other counties

Year / County /National	Mean Scores (Grade)							Average
	2011	**2012**	**2013**	**2014**	**2015**	2016	2017	
Migori	**5.154**	**4.356**	**5.144**	**5.255**	**5.413**	**3.072**	**3.316**	**4.530**
Homa Bay	5.595	5.247	5.384	5.162	5.1912	3.7533	3.7301	4.865
Kisii	4.934	4.427	4.959	5.3842	5.669	3.95	3.420	4.678
Siaya	5.216	5.176	5.225	6.7262	6.841	4.050	4.750	5.426
Kisumu	5.751	5.637	5.814	5.634	5.546	4.340	4.025	5.250
National	5.267	5.173	4.581	4.776	4.805	3.980	3.734	4.617

Source: Kenya National Bureau of Statistics (2011, 2012, 2013, 2014, 2015, 2016, 2017); County Education Offices Migori, 2017 Homabay (2017) Kisii (2017) and Kisumu (2017)

Table 1.2 shows the trend of performance in KCSE in Kenya and Migori County from 2011 to 2017. This trend of performance is compared to four other counties of Homa Bay, Kisii, Kisumu, and Siaya from 2011 to 2017. It shows three counties of Migori, Homabay and Kisii, Siaya and Kisumu had a mean score of C- (5) which is below C+ (7). C plus is minimum or benchmark for admission to the university. This depicts that Migori county the four other counties and Kenya depict poor quality of education as 5 counties had a mean score lower than C+. Migori County had the lowest mean score of 4.530 followed by Kisii County with a mean score of 4.678 which was the second lowest. Siaya County had the highest mean score of 5.426 followed by Kisumu County with a mean score of 5.250.

Homabay had a mean score of 4.865. The average national mean score dropped to 3.980 in 2016 and further dropped to 3.734 in 2017. From 2011 to 2015 the national mean score remained low at 5.267, 5.173, 4.581, 4.776 and 4.805 respectively and had an average of 4.617 over the 7 years. This depicts poor quality of education.

1.2 Statement of the Problem

The extent to which institutional inputs of entry behaviour, physical facilities, teaching and learning resources, teacher characteristics and financing above free secondary school influence the quality of secondary school education is at variance. Studies in the world over have shown a positive, negative, and mixed results or inconsistencies. This is the knowledge gap that the investigation on influence of institutional inputs on quality secondary education explored.

There are many factors that influence the quality of secondary school education such as entry behaviour, physical facilities, teaching/learning resources, teacher characteristics, income generating activities, home background, free secondary school education, policy, teacher attitude, student attitude, learning environment, location of schools, security, school community, school governance structure, school culture, legal environment and retention rates.

Literature has shown that the first five factors of entry behaviour, physical facilities, teaching /learning resources, teacher characteristics and income generating activities are the factors that greatly influence quality of secondary school education. Studies on institutional inputs have shown that entry behaviour behaviour influences quality of secondary school education.

The study in Migori County tackled the contribution of entry behaviour compared to other inputs like physical facilities, teaching /learning resources and IGAs. The study showed that entry behaviour had a significant contribution to quality of secondary school education. Most studies on physical facilities have focused on only a few physical facilities. The study in Migori county on influence of institutional inputs dealt with an array of physical facilities. The contribution of each physical facility to quality of education was also tackled.

Literature has shown that teaching /learning resources which comprise textbooks, stationery, laboratories, workshops, computers, equipment, library impact on quality of education. The study in Migori County tackled an array of resources. The contribution of each teaching /learning resource to quality of education was established. Literature on teacher characteristics on limited teacher characteristics like teacher motivation. The study on teacher characteristics in Migori had a wide spectrum of gender, qualifications, competency, integrity, efficiency and terms of employment. The study explored the contribution of each characteristics to quality of secondary school education.

Literature on financing has always focused on sources of financing, free secondary school education but not on IGAs. Income generating activities in form of planting maize, bee keeping, dairy farming, horticulture, hiring of school bus and doing farming were tackled in the Migori study. The contribution of each IGAs to quality secondary school education was established.

Quality of secondary school education is measured by students academic achievement where the benchmark of C+ and above depicts quality education. Quality can also be measured by determining availability, adequacy, utility and state of the inputs. In Kenya the quality of

education has declined greatly as shown by a mean score of C- in 2011 and 2012 in KCSE and dropping to KCSE mean score of D+ in 2013 to 2015 but in 2016 the national KCSE mean score was 3.980 (D) and in 2017 it dropped further to 3.734 (D). This is occurring when there is an acute shortage of teachers, insufficient physical facilities and inadequate teaching /learning resources in an environment of limited finances.

Among the 5 counties surveyed Migori County had the lowest average mean score of 4.530 (D+). However from 2011 to 2017 it varied from C- in 2011 to D in 2017. This is the main reason why Migori County was chosen for the study as it exhibited declining quality of education compared to the other counties which had a higher mean score of 5.426 of C- and 5.250 (C-) for Siaya and Kisumu respectively compared to a national average mean score of 4.617 (D+). This decline has happened in spite of the government's increased budgetary allocation being channelled to education to provide infrastructure, teaching and learning resources and financial support. This was the justification for undertaking the study on institutional inputs in Migori County.

1.3 Purpose of the Study

The purpose of this study therefore was to determine the influence of institutional inputs on the quality of secondary school education in Migori County.

1.4 Objectives of the Study

The objectives of this study relating to Migori County were to:

i) Determine the influence of entry behaviour of the students on quality of secondary school education.

ii) Examine the influence of physical facilities on quality of secondary school education.

iii) Determine the influence of teaching / learning resources on quality of secondary school education.

iv) Assess the influence of teacher characteristics on quality of secondary school education.

v) Establish the influence of income generating activities on quality of secondary school education.

1.5 Hypotheses

The following hypotheses guided the study.

H_{01} Entry behaviour of students does not have statistically significant influence on quality of secondary school education.

H_{02} Physical facilities do not have statistically significant influence on quality of secondary school education.

H_{03} Teaching /learning resource does not have statistically significant influence on quality of secondary school education.

H_{04} Teacher characteristics do not have statistically significant influence on quality of secondary school education.

H_{05} Income Generating Activities has no influence on quality of secondary school education.

1.6 Significance of the Study

The study was necessary and provides data on the influence of institutional inputs on quality secondary school education.

i) The study provides useful information on the influence of entry behaviour on quality of secondary school education to principals and BOM of schools.

ii) The investigation sheds light on influence of physical facilities on quality of secondary school education to QASO and financiers of secondary school education like parents, MOE, donors and non-governmental organizations.

iii) The investigation on institutional inputs focusing on the influence of teaching and learning resources on quality of secondary school education assists stakeholders like parents, MOE and BOM on decisions of access and improvement of quality of learning and teaching resources.

iv) The study provides fresh insights on the influence of teacher characteristics on the quality of secondary school education to the TSC and the BOM.

v) The research focusing on institutional inputs on the influence of income generating activities on quality of secondary school education builds a body of knowledge that may be of use to academicians, educational planners and financiers of secondary school education.

1.7 Assumptions of the Study

In this study it was assumed that:

i) The scores that students obtain in KCSE is an indicator of student performance in secondary education.

ii) All secondary schools are subjected to frequent inspection and assessment by quality assurance personnel.

iii) All secondary schools have the same basic facilities such as workshops, classrooms, libraries, laboratories, dining halls, water and electricity, infrastructure.

1.8 Theoretical Framework

The study of how institutional inputs influence the quality of secondary school education is informed by the production theory in education. This theory postulates that educational outcomes are a function of various inputs employed in the education process comprising entry behaviour, physical facilities, teaching/learning resources, teacher characteristics, and income generating activities. The theory also assumes that the independent variables are not correlated. Psacharopoulos (1985) gives an illustration of a simple education production function thus;

$A = f(T, B, E.....)$ (I)

Where;

A -is Achievement

T- is Teacher pupil ratio

B -is books and other materials

E- is Equipment

In the study the education production function model will be expressed as

A = f (E, P, L, T, F.....) (I)

Where;

A = Achievement

E = Entry behaviour

P = Physical facilities

L = Learning /teaching resources

T = Teacher characteristics

F = Income generating activities

When KCSE mean score and quality of resource outputs are taken as dependent variable (A) and entry behaviour, physical facilities, teaching and learning resources and teacher characteristics and income generating activities are taken as independent variables

$$A = F(X_{1,}X_{2,}X_{3,}.....X_n).....(2)$$

The Education Production Function Model can be re-written as a regression model thus

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4.B_5X_5.....B_nX_n + \varepsilon.....(3)$$

Where Y is the dependent variable represented by KCSE scores of secondary education.

B_0 is the constant or intercept.

B_1 is the slope or change in y given one unit change in X_1.

X_1 is Entry behaviour.

X_2 is Physical Facilities.

X_3 is Learning /Teaching resources

X_4 is Teacher characteristics

X_5 is income generating activities

ε is the Error term.

The Bergman model of (1996) gives 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 on education. Other scholars have given specific insights into the quality of education like (Jung, 2011) on resource inputs; (Paris & Hamilton, 2009) on resource processing process, (Satz, 2012) on output quality and (Lyenza & Bajaj, 2011) 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 will investigate the influence of institutional inputs comprising entry behaviour, physical facilities, learning and teaching resources, teacher characteristics and level of financing and their impact on quality of secondary school education.

1.9 Scope of the Study

The study focused on the influence of institutional inputs in quality of secondary school education in Kenya for the years 2013 to 2016 whereby the average national score for the period was a mean score of 4.617 which is a grade of D+ that is below C+ (7) which is the minimum university requirement. Migori was chosen as a site for the study because it had the lowest mean score of 4.530 (D+) compared to the other countries chosen. Migori had also the same characteristics as the other counties and represented other counties in Kenya.

1.10 Limitations of the Study

Two (1.4%) did not duly fill in the qualitative sections of the questionnaire. This meant some information was not captured. However since the percentage (1.4%) was low, the findings were not significantly affected. Hence analysis proceeded. The instruments were originally ambiguous and not focused. However with piloting and with examination by experts from Maseno University the instruments became clear, focused and precise. The study used descriptive and correlational design which describes relationships among variables. The limitation of this design is that other variables not necessarily in the study can explain the relationship. This was dealt with by making the theoretical framework robust by including as many independent variables as possible and thus minimising the standard error to near zero.

In the qualitative study the findings are subject to other interpretations other than the ones given. This was minimised by being as objective as possible in the interpretation.

The resources were scarce in relation to the many activities that were undertaken to complete the research. This was overcome by using the resources prudently.

1.11 Operational Definitions of Terms

Access is the enrolled secondary school student population as a proportion of the total secondary age population.

Educational output are learners who drop out of school having acquired some skill and the ones who graduate.

Educational resources refers to investments in the education system. They comprise institutional inputs, human material and non-material audio-visual school environment, community materials resources available in an academic environment to facilitate quality education.

Entry behaviour refers to the ability of the student who is admitted to secondary school on attaining a particular KCPE score.

Equipment Refers to a teaching and learning resource that enhances learning and comprises duplicating machine, computers, microscope, test-tube, overhead projectors, meter rule, protractors, mathematical sets, weighing machines, calibrators, stop watches, wall clocks, music equipment and sports equipment.

Equity refers to an equal opportunity by every secondary school age child to participate in secondary education.

Human Development Index refers to an index measuring national socio-economic development based on combining measures of education, health, and adjusted real income per capita.

Influence refers to the effect of institutional inputs on quality secondary education.

Income Generating Activities refers to money received from investments activities carried out by the school to supplement other sources of income. They comprise planting of maize, keeping bees, poultry keeping, dairy farming, horticulture, brick making and hiring school bus.

Institutional Input refers to the factors and abilities that are invested in the school system that influence quality of secondary school education. It exists inform of entry behaviour of students, the physical, the learning and teaching resources, teacher characteristics and Income Generating activities.

Performance is the achievement, result or outcome in an examination like KCSE.

Physical facilities refers to resources that enable learning to take place. They are classrooms, laboratories, dormitories and land.

Quality Education refers to desired knowledge and skills acquired at secondary school education level as measured by students' academic achievement or performance. It also refers to the availability, adequacy and state of input.

Student academic achievement refers to the level of performance in KCSE examination determined by the mean score.

Student /Teacher Ratio is the ratio of the number of students in a school divided by the total number of teachers teaching them.

Teacher characteristics refers to teachers qualifications, gender, experience, integrity, efficiency, competency and terms of employment.

Teaching and Learning resources refers to the inputs used to facilitate the learning process. These are books, teachers, time and ICT.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature related to the influence of institutional inputs on quality of secondary school education in Migori County. Kenya is reviewed in this section to provide a clear understanding of the problem. The first part reviews literature on the influence of institutional inputs on the quality of secondary education on a global basis. The second part reviews literature on a regional and continental basis. The third part reviews literature in Kenya and the final part reviews literature on Migori County on the influence of institutional factors on the quality of secondary school education.

2.2. Influence of Entry Behaviour on Quality Secondary School Education

The global focus is on high and low income countries. The high income countries had a National income per capita of $11,907 or more in 2008 with very low debts (World Bank, 2010). High income countries have a social rate of return on investment in education of 13.4%, 10.3% and 9.5% for primary, secondary and Higher education and a private rate of return on investment in education of 25.6%, 12.2% and 12.4% for primary, secondary and higher education respectively (World Bank, 2002). High income countries had a development index ranging from 0.843, 0863 and 0.878 for Saudi Arabia, Cuba and Chile respectively to 0.947, 0.956, 0.966 and 0.971 for the United Kingdom, United States, Canada and Norway respectively (UNDP, 2009).

Middle income countries had a Gross National income per capita between $976 and $ 11906 in 2008 and have moderate debts (World Bank, 2010). Middle income countries had the

social rate of return on education of 18.8%, 12.9% and 11.3% for primary, secondary and higher education respectively and private rates of return of 2.7.4%, 18% and 19.3% for primary, secondary and higher education (World Bank, 2002). Middle income countries had a development index ranging 0.543, 0.572, 0.612 and 0.683 for Bangladesh, Pakistan, India and South Africa respectively and for upper middle income countries the range is 0.699, 0.772, 0.782 and 0.783 for Nicaragua, China, Iran and Thailand respectively. The human development index measures national socio-economic development based on measures of education, health and adjusted real income per capita (UNDP, 2009). The World Bank report (2010) and the UNDP (2009) report reinforce each other on very large samples as many countries were used but measures of Human Development Index are based on weighted average of the three component measures of education, health and adjusted real income per capita which reflects value judgement and are measured in very different units.

Korinek and Punpuing (2012) in a study in Thailand on the effect of household and community on school attainment of Thailand youth established that the risk of dropping out was lower among girls than boys in an array of contexts including relatively economically disadvantaged households and in local communities that have diversified beyond agriculture into services and manufacturing reward the girls human capital at par with or even beyond the boys. The study was a longitudinal design with a sample population of 3,202 children between ages 11-14 taken in 2001 out of which 2739 (86%) of the 3202 youths enumerated in the data were respondents. The response rate was high and this enhanced the reliability of the outcomes.

A longitudinal research design was a good choice as it gave trend analysis and perspective and clarified relationships between student outcomes and their family and community data collection. Discrete time hazard rate was used. This method is more flexible and robust than the other tools of analysis. The instruments used were observation, interviews, questionnaires and census. The variety of instruments used enriched the information obtained thus enhancing its validity and reliability.

Regional and Continental Survey relates to low income countries in Asia, Africa and Latin America. Regional and Continental Survey comprised low income countries with a Gross National Income per capita of less than $976 in 2008 and were severely indebted (World Bank, 2010). The social rate of return on education was 21.3%; 15.7% and 11.2% for primary, secondary and higher education (World Bank, 2002). Low income countries have a development index ranging from Ghana 0.556; Afghanistan 0.358; Democratic Republic of Congo, 0.390, Ethiopia 0.357; Cote devoir 0.420, Haiti 0.493, and Kenya 0.541. The development index as a measuring instrument captures the broad nature of human development and brings out disparities in health and education. Nevertheless the Human Development Index has a weakness as it overstates the amount of schooling in a given country and only looks at enrolment without taking into account dropouts.

Adetunde and Akensina (2008) with a study on entry behaviour in Ghana on factors affecting the standards of female education established that the daughters' workloads, distance from home to school, the parents level of education and socio-economic status had an impact on the student's academic achievement in secondary school.

A study by Barthes, Nair and Malpede (2000) in Africa which investigated the relationship between girls primary performance in scientific, technical and vocational subjects to their secondary school performance established that primary performance was a predictor of performance in secondary school for both boys and girls but the performance of the girls was inferior to that of the boys. The study took a sample of 21 countries in Africa which gave it abroad database. This contradicts the findings on the influence on institutional inputs in Migori County where the girls did better than boys although their entry behaviour was lower.

Kenya is among the low income countries with a Gross National income per capita of less than $976 in 2008 and was fairly indebted (World Bank, 2010). The social rate of return for secondary education was 10.0% and the private rate of return for secondary education was 16.0% (World Bank, 2002). These rates of return were higher compared to those of middle and high income countries because of the latent human resource base in low income countries. Moreover, the use of rates of return estimates that are based on samples that include civil servants poses problems because public sector wages usually do not reflect market wages. Kenya has a Human development index of 0.539 compared to other low income countries like Rwanda with a Human Development Index of 0.460 and Malawi of 0.493 (UNDP, 2009). Although the Human Development index takes into account life expectancy, per capita income, school enrolment, infant mortality and disease incidence it does not take into account gender disparities, fertility, reduced social discrimination or fluctuations in extreme poverty.

In a study by Ogalo, Simatwa and Okwach (2013) on socio-economic challenges faced by principals in the provision of quality secondary education in Nyando and Muhoroni districts of Kenya it was found out that parental sickness like HIV and AIDs and related factors not only stressed the students but also hindered their involvement in economic activities to pay for their children's education or monitor their academic performance. The study established that parents with low education did not monitor or encourage their children in academic work. The study used descriptive survey design and simple random sampling was used to choose 631 students, 32 principals, 82 heads of departments, 2 Quality Assurance Officers and 32 PTA members. This sample was adequate and representative. The instruments used in the study comprised questionnaires, interview schedules and focus group discussions. The instruments used were varied and this enhanced the validity and the reliability of the results. Quantitative data was analysed using descriptive statistics in form of percentages, frequencies and means and qualitative data was analysed using on-going processes as themes and sub themes emerged from the data. Both qualitative and quantitative data was used.

Regression analysis was not used and this limited the reliability of the analysis. Studies by Afila and Ohitula (2007), Marzano (2003), Donker (2010) and Mwita (2010) reinforces the above findings as they established that parents' socio-economic status had an impact on the student's academic performance. Behar-Horestein, Simon and Akinsolu (2010) on teachers and students academic performance established that although home background contributes to academic performance teachers play a crucial role in promoting academic performance. The above reviewed studies dealt with entry behaviour with focus on family background and the socio-economic factors that affect the quality of secondary education but did not

investigate entry behaviour based on the pupils' academic ability as determined by KCPE scores. This is the knowledge gap that the study on Migori County filled.

A study by Amburo (2011) in Kenya found a coefficient of correlation of 0.452 between KCPE and KCSE at the 0.05 level of confidence. This depicts a weak relationship between the two examinations. This could be due to the varying levels of difficulty between the two examinations. However a study by Mensch and Llyod (1997) in Kenya found a correlation of coefficient between the entry examinations and the final exit examinations of 0.538 for boys and 0.647 for girls when similar resources were used. These findings raise questions as to whether KCPE is a reliable predictor of KCSE results for boys and girls. This was the knowledge gap that the study in Migori County filled. It also explored the contribution of entry behaviour as compared to other inputs like physical facilities, teaching /learning resources, teacher characteristics and IGAs on quality of secondary education.

Jagero (2013) on a study on how performance of primary education can predict their performance in KCSE in Western Kenya established that there was a correlation of 0.559 between performance in KCPE and the correlation was significant at 0.05 level of significance. The girls also performed better than the boys though they were admitted with lower marks in KCPE. The research design used for this study was ex post facto and correlational research design. The use of ex post facto was appropriate as the independent variable had already occurred. Correlation design was appropriate as it assisted in evaluating associations of students' performance in KCPE and KCSE. The study population involved 110 students and it involved a stratification of 82 boys and 28 girls. Saturated sampling was used since the population was small in size.

In data analysis descriptive statistics comprising mean and standard deviation was used and inferential statistics that used Pearson correlation and linear regression analysis was used and it gave the magnitude of the relationship. The study reviewed correlated KCPE and KCSE scores in western Kenya but did not explore the influence of entry behaviour and age on the student's academic achievement in KCSE. The study was done in primary schools but the Migori study was done in secondary school.

The above findings are reinforced by a study by Ondima, Nyamasege, Moguambo and Ochoti (2013) on regression analysis of KCPE and final performance in KCSE in Nyamira sub County of Nyamira County which established a significant positive linear relation between KCPE and KCSE of 0.6614. This was an insightful study as it established that entry behaviour has an effect on KCSE performance for both boys and girls and this can help stakeholders to improve quality secondary school education by improving performance. The study used a sample of 16 schools out of 48 schools and sampled 572 students while the Migori study will use a larger sample of 148 schools and 384 students which will enhance the reliability of the study.

Ondima's study used simple random sampling but there is a likelihood that schools were not of the same size thus raising questions of misrepresentation of some schools. The research in Migori County used stratified random sampling to ensure fair representation. The purpose of the Nyamira study was to evaluate regression analysis of KCPE entry scores and final performance in KCSE scores in Nyamira sub county while the purpose of the study in Migori county was to establish the influence of institutional inputs on quality of secondary education. Ondima's study used a survey research design. The study of Migori County used

both descriptive and correlational research design to provide greater insights into the study. The Nyamira study only used regression method in data analysis. The current study used both qualitative and quantitative analysis. The Nyamira study only regressed KCPE results on KCSE scores and had limited variables but the Migori study was robust with many variables as it regressed entry behaviour, physical resources, learning and teaching resources, teachers' characteristics and contribution of IGAs in secondary education on KCSE performance. This established the extent to which each of the variables influences quality secondary school education.

The Ondima study used only document search as an instrument of data collection, the Migori County used questionnaire, interview, observation, focus group discussion and document analysis search to capture information. The Ondima study did not effectively tackle the influence of entry behaviour on quality of secondary school education as it did not compare its contribution to other inputs like teacher characteristics and IGAs that affect the quality of education, the study on institutional inputs in Migori did.

Molochi (2008) in a study on survey of education in Kuria West established that most parents could not pay fees for their children and many of the parents forced their young girls out of school into early marriages and parents also had a negative attitude towards education and child labour was also rampant. The study population comprised 89 primary schools with a population of 38,048 pupils and 21 secondary schools with a population of 5487 students. This provided a large base from which to get adequate respondents. The instruments of data collection comprised interviews and observation. The use of more than one instrument enhances the reliability and the validity of the data collected. Descriptive statistics using

means, percentages and frequencies were used. However inferential statistics using regression analysis would have assisted to give the magnitude of the relationship between entry behaviour and student's academic achievement in secondary school, was not used.

The studies strength lay in the use of a large sample and at least two instruments were used in data collection. The weaknesses of the study lay in the use of only descriptive statistics. The study investigated the socio-economic background of the students and its relationship with performance. The study in Migori County will focused on the influence of institutional inputs on quality of secondary school education.

2.3 Influence of Physical Facilities on Quality of Secondary School Education

Physical facilities refers to the entire tangible infrastructure in secondary schools comprising land, buildings, furniture, electricity and water. In a study by Nandamuri (2012) in India on the status of secondary education in Andhra it was established that physical facilities had an influence of 0.026 on the quality of education at the 0.05 level of significance. This shows there is a weak relationship between physical facilities and performance of secondary schools. The study showed that an overall school infrastructure based on eight vital parameters only 60% of the schools operated with spacious premises and 68% felt the furniture was inadequate and only 41% had spacious playgrounds and gender specific toilet facilities had a need of 25% in the government schools and 34% in the local boarding schools. The study also established that 44% of the schools had insufficient accommodation as the buildings were fewer but all the government private aided and private unaided had sufficient furniture available for both students and staff. These challenges make India to lag behind in the provision of quality secondary school education.

The study used a descriptive survey which was appropriate in determining the status of existing physical facilities. The study used a sample of 188 secondary schools out of the population of 557 secondary schools in Krishna district of Ardhra Pradesh in India which was selected through stratified sampling to take care of the various clusters in the population. The primary responses were collected through a structured questionnaire administered to the respective school heads. The use of only one instrument to collect information may compromise the validity and reliability of the results. The data was analysed using chi-square and simple descriptive statistics. The strength of the study lay in the fact that the study used an appropriate sampling technique and an in-depth data analysis. The reviewed study did not investigate the influence of institutional inputs on quality of secondary school education. The study on institutional inputs on quality of secondary education in Migori County explained the contribution of each physical facilities like dormitories, toilets, water, electricity, classrooms and furniture to quality secondary education.

However another study by Rogers, Suryadama, Sunyahadi and Sumanto (2005) in Indonesia on improving student performance in public primary schools in developing countries showed that the relationship between physical facilities in form of toilets and performance in primary schools was a coefficient of correlation of 0.324 for boys and 0.310 for girls which depicts a weak relationship. The study was a survey of 8 provinces out of 10 in Indonesia. The sample in the study comprised 110 public schools which yielded a sample of 1089 students, the questionnaire and the interview schedule. Quantitative data analysis using regression was used. The studies strength lay in the use a variety of instruments and on reliable and sensitive multivariate analysis to determine this relationship between physical facilities and student

performance. The study however did not specifically tackle the influence of institutional inputs on the quality of secondary school education as it focused on primary school education. It is this knowledge gap that the study in Migori County filled.

In a comparative study on student's academic achievement comprising India, Russia, China, Brazil, Mexico, South Africa and Indonesia; India scored minimum points (second last position) in primary, secondary, tertiary and demographic parameters because of poor framework for planning in school management, academic infrastructure, community participation and financial aspects while Russia, and Brazil had maximum points (AssoCHAM, 2008). The methodology used in the study was robust enough to include many variables but the statistical tools used for comparing the quality of the physical facilities were not specific.

In industrialized countries variation in basic school facilities are only weakly linked to student achievement as basic resources are typically available even in what are considered poor communities (Lee & Zuze, 2011). The high quality of the facilities and the relatively efficient management of student numbers reduces the recurrent and development costs of the facilities. The reviewed studies dealt with the existence of physical facilities in secondary school education but did not deal with the adequacy and the utilization of physical facilities on quality secondary education. The study on institutional inputs on quality of secondary school education filled knowledge gap.

In a research by Lee, Zuze and Ross (2005) on school effectiveness in 14 sub-Saharan African countries it was found out that the availability of physical resources like electricity,

water, library, buildings and equipment improved the achievement levels of the students and the schools and the quality of education in all the countries investigated. The 14 countries had different historical, social and economic set-ups but all cases where physical facilities was available it made changes to attainment levels.

The study used a correlational design which focused on school effects. The sample in the study was 41686 students in 2305 schools spread in 14 countries. The instrument of data collection was the questionnaire. Quantitative data analysis using multivariate data analysis was used. The studies strength lay in the use of large database. However the study in ignoring the use of longitudinal studies cannot provide a reliable trend perspective over the impact of physical resources. Moreover the study only tackled availability of physical resources but not the adequacy and utilization of these physical facilities. The study on influence of institutional inputs in Migori County explored many physical facilities comprising dormitories, classrooms, furniture, water, electricity, dining hall, playground and health bay unlike the Lee, Zuze and Ross study. The study in Migori on institutional inputs also explored the contribution of each physical facility on the quality secondary education.

Chavundika (2006) in Zimbabwe established that class size for some subjects like physics students were 10 but this did not necessarily result in superior performance which means low class size does not necessarily guarantee better teaching. The schools make ineffective use of existing capacities where classes are overcrowded due to poor mobilization of physical facilities. Performance deteriorates and the quality of education declines.

The World Bank (2008) articulates that the scarcity of buildings has resulted in overcrowded classrooms is the reality for many schools in sub Saharan Africa and there is a close relation between instructional quality, class size and teacher capacity as those teaching 40 or more students have a demanding task even for the best teacher and although reduction in class size do not per se guarantee better instruction but manageable class size are strong factors for improvement of instructional quality. The World Bank study did not investigate influence of institutional inputs that affect the quality of secondary education since it focused on classrooms. The study on influence of institutional inputs was robust as it tackled a wide parameter of physical facilities. The Migori study also compared the contribution of physical facilities to the other institutional inputs of entry behaviour, teaching /learning resources, teacher characteristics and IGAs.

In a study by Sifuna and Kaime (2007) on the effect of in-service education and training (INSET) programmes in mathematics and science on classroom interaction in primary and secondary schools in Kenya it was found out that challenges in the teaching of mathematics and science was due to lack of adequate spacious classrooms, lack of teaching facilities and equipment among other factors. The results of the research were that 56.2% of SMASSE respondents identified large overcrowded classes as a reason for poor performance and 54.4% of respondents identified lack of teaching facilities as a reason for poor performance and 54.8% of the respondents identified lack of equipment as being a challenge. The above study did not investigate the influence of physical facilities on the quality of secondary school education but confined itself to the impact of classroom and equipment in the teaching of mathematics and science.

The study design was a purposive case study survey. The study used a sample of 4 districts; Kiambu, Nairobi, Kajiado and Garissa; 14 primary schools and 22 secondary schools and 2 maths and 2 science teachers. The instruments used in data collection were interview schedule, focus group discussion and classroom discussion. Largely qualitative and some quantitative data analysis was used. The strength of the study was that a variety of the instruments were used which generated a wide range of data. The research adopted a case study survey which enabled a more in-depth and systematic evaluation of the study. The limitation of the study was the use of purposive sample for a SMASSE program that has a national focus. The reviewed study did not deal with influence of physical facilities factors on the quality of secondary school education. The study did not deal with adequacy and effective use of physical facilities. These are the knowledge gaps that the study in Migori County filled.

In a study carried out in Kenya by Mwiria (2002) on vocationalization of secondary education in Kenya it was established that the cost of setting up physical facilities in secondary schools like workshops of home science, agriculture, woodwork, building and construction, power mechanics, electrical and computer laboratories and maintenance costs were higher than those of setting up and maintaining science laboratories of chemistry, biology and physics. Some of the vocational subjects are now offered in technical secondary schools where financial allocation by the government is higher.

The study used a case study design which enabled a thorough analysis of the issue. The population sample that was used was 70 which was adequate at the time of the study. The instruments of data collection was an interview schedule which was not supported by other instruments. Data analysis used only descriptive statistics but not inferential statistics which

did not enable measurement of the magnitude of the variables. The research reviewed did not deal with impact of physical resources on quality of secondary school education and in particular it did not tackle the adequacy and utilization of physical facilities. The research on Migori County filled this knowledge gap.

In a study in Kuria East and Kuria West by Molochi (2008) on the state of education carried out both in primary and secondary schools it was found out that there were lack of physical facilities and the ones that existed were overstretched and in very poor state and ineffectively used. Some primary school in Masaba division had 536 pupils but only 8 classrooms whose carrying capacity should be 40 pupils per class. Desks were inadequate in primary schools as 4 pupils shared a desk. Most affected were secondary schools that lacked basic facilities such as libraries, laboratories computer laboratories and toilets. The above study concluded that lack of physical facilities affected the learning outcomes.

Chacha and Zani (2015) in a study on the impact of Free Primary Education on pupil teacher ratio in Kuria East constituency although conducted for the primary sector is relevant for secondary school education as it dealt with facilities. The study established that there was lack of classrooms which led to overcrowding and a pupil-teacher ratio of 60:1 thus lowering the student's academic achievement. Usually overcrowding in classrooms makes the students to develop fever, headaches, tiredness, to be inattentive and sleepy in class due to limited access to air. This poor learning environment lowers performance and results in declining quality of education. The teachers could not carry out their work effectively. This study sampled 68 schools, 68 head teachers and 637 teachers. The research design was a mixed method approach. Only questionnaires were used as an instrument of data collection which

limited data capture. Quantitative data analysis was fair which enabled determining the magnitude of the relationship among variables. The studies strength lay in the use of a large sample which enhanced reliability. The reviewed studies did not capture physical facilities as an institutional input that influences quality of secondary school education. This is the knowledge gap that this study sought to fill through the study on Migori County.

In a study by Akinyi, Nyanzia and Orodho (2015) on challenges facing implementation of inclusive education in public secondary schools in Rongo sub county, Migori County, it was found out that physical and critical teaching and learning resources were either inadequate or quite dilapidated and there were several economic and cultural variables that constrained teaching and learning. The study used a descriptive survey design. The use of descriptive statistics comprising means and percentages did not give the magnitude nor the direction of the relationship between independents and dependent variables. The study sample comprised 34 secondary schools, 34 principals, 170 students with special needs, 102 teachers and the sub county quality assurance and standards officer. The sample used questionnaires to collect information from students, and teachers and interview schedule for school principals and QASOs. The study used an observation checklist. The use of a wide range of instruments enabled the capture and corroboration of a variety of information. The study focused on challenges facing implementation of an inclusive education in public secondary schools but did not deal with institutional inputs that influence the quality of secondary school education, a gap which this study filled.

2.4 Influence of Teaching /Learning Resources on Quality of Secondary School Education

Learning resources can be defined in terms of materials which comprise textbooks and equipment and the human resources which comprise students, teachers and learning time. Glewwe (2002) in a study on schools and skills in developing countries had observed that textbooks are linked to achievement but the benefits depend on appropriate textbook choices and teachers ability to use them effectively. The relevance of the textbooks to the curriculum and how practical the textbook is to the teacher determined how effectively the textbook contributes to student achievement. The reviewed study however did not correlate influence of learning resources to student's academic achievement in secondary school. This is the knowledge gap that this study filled through the study of Migori County.

Chijioke (2007) in a study carried out in South Africa on collaborative partnerships and the transformation of secondary education through ICTs in South Africa established that collaborative partnerships integrated ICT in education policy for the benefit of quality secondary education. The study established that this was possible because of improvements in the policy framework. The study used two collaborative partnerships Mindset Network Organization and Khanya Education Technology project to understand how collaborative partnerships implement ICT in education policy. The study used a case study design. The study used a qualitative research approach interview instrument and personal observations were used as instruments of research. A large set information was got from the internet materials on mindset and Khanya websites. Qualitative inductive analysis was used to discover critical themes emerging from the data. The study used a multiple of instruments for collecting data which was a strength. The use of only qualitative deductive analysis but not

quantitative analysis denied the study the in-depth correlations that may emanate from such a study. The reviewed study did not deal with learning resources as an institutional input that influence quality of secondary school education. The study on institutional inputs in Migori County explored the contribution of a wide spectrum of teaching /learning resources such as textbooks, stationery, library equipment, workshops and laboratory on quality of secondary school education. The Chijioke (2007) study focused on ICT and its impact on secondary education student's academic achievement in secondary school. This is the knowledge gap that this study will seek to fill through the study on Migori County.

The World Bank (2005) observes that in Denmark and Spain a third of the students and in Canada and Greece, Iceland, New Zealand and Poland over a quarter appear to miss school or skip classes regularly and in Japan and Korea by contrast the low attendance category account for lower than 1 in 10. Regular attendance of classes such as in Japan and Korea results in higher quality education while poor class attendance like in Denmark, Spain, Poland and Canada undermines the student's academic achievement. Studies in developed countries reveal disparities between intended instruction time in the curriculum, actual time allocated in schools, the time the learner spends learning (time on task) and the time they spend in situations where students and learning material are properly matched and learning occurs in a conducive environment. The amount of time decreases from the first to the fourth of these categories especially schools in poor communities (World Bank, 2005 & UNESCO, 2005). Ineffective time management reduces time available for learning comprising syllabus completion and undermining the quality of education.

In a study by Lee and Zuze (2011) in Sub Saharan Africa on school resources and academic performance in sub Saharan Africa it was established that learning materials are logically and empirically associated with quality of secondary school. The study indicated that access to textbooks is strongly linked to achievement. The research further reported that when parents are expected to purchase textbooks and writing materials achievement gaps between rich and poor students expand. The research design was a cross –sectional design. The research population sample comprised 4 countries of Botswana, Malawi, Namibia and Uganda and the sampled students were 12,609 and the schools were 707. Data analysis was quantitative and multi level methods were used. Structured questionnaires were used to collect data. The studies strength lay in its large size but the limitation lay in the use of one instrument. The study on influence of institutional inputs in Migori had a broader focus unlike the Lee and Zuze (2011) study. The study in Migori also compared the contribution of teaching /learning resource to other inputs of entry behaviour, physical facilities, teacher characteristics and IGAs to determine the influence of each input compared to the ones in influencing quality of secondary education.

The World Bank (2002) on World Bank support for provision of textbooks in sub-Saharan Africa has articulated that African students lack adequate access to textbooks and where textbooks have been produced are not always available to students in sufficient numbers. Textbook availability and textbook access and usage does not work out easily and this undermines the quality of education. The above report focuses only on textbook availability but not on influence of teaching / learning resources on student's academic achievement which gap the study on influence of institutional inputs explored.

Lauglo (2004) has articulated that because of the importance of ICT in the global economy and because of the spread of computer applications as a tool for communication the question in Africa's education is not whether computing still need to be taught but how soon it will be affordable and practicable to teach such skills in secondary school and in what ways it should be introduced. Whereas the above articulation is on challenges of establishing and developing ICT infrastructure in secondary education, the study on influence of institutional inputs on the quality of secondary education in Migori County explored the influence of not only teaching /learning resources but of entry behaviour, physical facilities, teacher characteristics and IGAs.

The World Bank (2008) in a study on the use of ICT in schools in Africa established that ICT use had many varied challenges such as lack of policy, poor staffing, poor funding and lack of government support. The study used co-relation research design which would adequately bring out the relationship among the variable. A sample of 36 schools and a student population of 60,000 primary and secondary school students were sampled and 3000 teachers were also sampled and 36 head teachers and parents were sampled. This was a large sample and provided reliability. The instrument used for data collection was the structured questionnaire which limited capture of information. Data was analysed using quantitative and qualitative methods. The study only tackled the problem of ICT usage but did not focus on the influence of institutional inputs on the quality of secondary school education which gap the study on Migori County tackled.

DeFerranti (2003) in a study on education and technology gaps found that the bulk of the difference in computer penetration between Latin America and America and the East

Asian Tigers with their significantly wider computer coverage can be explained not only by differences in the share of trade with countries of the organization for Economic Corporation and Development (OECD) but also and most important by the proportion of the workforce with secondary schooling and states that this explains why the demand for skilled workers has not increased in Brazil which has much lower schooling levels than the other countries in Latin America.

The World Bank (2005) on expanding opportunities and building competencies for young people states that in developing countries and especially in Africa shortages of teachers particularly in areas such as mathematics, science and technology pose a major threat to the goals of expanding and enhancing quality of education. The study on influence of institutional inputs showed that teaching and learning resources contributed greatly to the attainment of quality education.

A World Bank (2004) study shows that the range in student teacher ratio across the low income countries that usually have per capital income below 880 is wide as it varies from 13.1 to 79.1. This variation is a function of different resource bases that are exhibited in low income countries amplified by different staff needs and variations in enrolments across low income countries. The student teacher ratio is not perfectly correlated with average class size but it can be taken as a proxy on the target student teacher ratio value for the education for all successful countries is around 40.1 a figure supported by research studies on class size (Galabawa, 2003). When student teacher ratio is low, quality education can be attained as student /teacher contact is enhanced.

While the intended annual instructional time for sub Saharan Africa at the junior secondary level seems to be the highest in the world amounting to 965 hours the time on task seems to be significantly reduced for a number of different reasons like low allocation of teachers, working time, late coming of students or teachers, teacher and learner absenteeism for a variety of reasons, non-teaching, classroom shortage, lack of learning materials, lack of discipline, difficulty in maintaining learners attention or co–curricular activities (Benavot, 2004). Since time on task is significantly reduced it implies time is not efficiently used as a resource due to poor management of learning time and absence of learning materials. This lowers the quality of secondary education.

World Bank (2008) states that remedies to increase instructional time need to target the complexity of national policies, organization, better school management and accountability and enhancing the teaching and learning efficiency of instructional time and by increasing the length of the school days. The World Bank report gives a broad approach that can be used to enrich learning time in the long-term. The report is however silent on how to optimise learning time in secondary school using specific approaches that would focus on decongesting the curriculum overload, integrating assessment in the learning process, upgrading the environment for learning through provision of equipment, innovation, technology and resources and also through increasing time spent on task. When time spent on task increases the quality of secondary school education improves.

Experience gained from boarding schools in Sub-Saharan Africa and from other OECD countries like Chile indicate that, full day schooling benefit students learning although changes to a full school day require highly complex changes in the political and financial

sector (Leyendecker, 2002; Cox, 2004). Empirical studies on time to learn have focused on teacher and learner absenteeism by World Bank (2005), poor school management World Bank (2008) and lack of learning materials by Benavot (2004), but not on quality of secondary school education. The studies reviewed did not focus on institutional inputs that influence quality of secondary school education in Migori County. In particular they did not tackle influence of teaching and learning resources on quality of secondary school education. This is the knowledge gap that the study on influence of institutional inputs on quality of secondary school education in Migori County investigated.

Table 2.1 shows enrolment, schools, teachers and student teacher ratio in secondary schools from selected years for the period 1963 to 2013.

Table 2.1: Trends in Secondary Education in Kenya 1963-2013

Years	Schools	Enrolment	Teachers	Student /Teacher ration
1963	15	30,120	1,530	19.0:1
1973	954	174,767	7,388	23.0:1
1983	2,230	493,710	18,860	26:.0:1
1993	2,539	530,577	31,657	16.0:1
2003	2,999	879,956	47,035	18.0:1
2013	8,197	1914823	59,273	32.0:1

Source: Ministry of Education and Economic Surveys 1963-2013

The secondary school education sector has undergone massive expansion in the last 50 years as enrolment increased from 30,120 students in 1963 to 1,914,823 students in 2013. The number of teachers increased from 1530 teachers in 1963 to 59,273 teachers in 2013. In primary school it varied from 41.1:1 in 2013 to 43.1:1 in 2014 which shows the quality of

education worsened in both primary and secondary school. The student teacher ratio was 19:1 in 1963 and stood at 32:1 in 2013. Secondary schools have also increased from 15 schools in 1963 to 8197 schools in 2013. The quantitative increase in the number of schools and the increased number of students have overstretched teaching /learning resources and physical facilities and lowered the quality of secondary school education.

The increase in the number of schools from 15 to 8197 enabled enrolment to rise from 30,120 in 1963 to 1,914,823 students in 2013 in the number of school age children who are currently out of school and are not able to access quality basic education for all which is their constitutional right (Abagi, 2013). There is need to enhance access to secondary education and also to improve the retention capacities of secondary schools. Public secondary schools have limited infrastructure and there is also an acute shortage of teachers to attend to the students (Abagi, 2013). Secondary schools have resorted to the temporary employment of teachers who are paid by the board of management to fill the gap left by the TSC employment of teachers. Enrolment of students have risen without commensurate expansion of classrooms and other learning and teaching resources as empirical studies show that textbooks were being shared at the rate of one textbooks to five pupils (Aduda, 2012).

The World Bank (2005) underscores the centrality of investing in the quality of education through securing adequate textbook and supplies. However such textbooks to bring maximum benefits to the learning process must be relevant, simple to understand and be used effectively by teachers and students. The study on influence of institutional inputs in Migori showed how textbooks and other teaching and learning resources such as library equipment, laboratories, workshops and computers contributed to quality of secondary school education.

Cheesman (2015) articulated that Kenyan students still struggle for access to textbooks as only 17.8% of students had sole use of textbooks compared to 63.4% in Botswana and 87.7% in Mauritius. Thus access to sole use of textbooks is very low and compromised the quality of teaching and learning due to lower performance and compromise quality of education.

Miheso and O'Connor (2005) in Kenya on the relationship between interactive teaching and the acquisition of high order thinking skills in mathematics in classrooms found out that higher achievement was evident for students who shared a textbook between two students or had individual books than for those who shared a textbook between three or more students. Gender effect was found to favour girls and class size was found not to be significant. Classrooms where interactive teaching was practised performed better in higher order skills irrespective of gender and class size and interactive learning was found to be higher where two students shared a textbook than in classes where each student had their own textbook meaning sharing a book between two resulted in relatively better performance. The study used a sample of 10 public secondary schools in Nairobi chosen using random sampling. The sampled students were 570 and 20 teachers were also sampled. The major variables in the study included achievement dependent variables (cognitive development levels), classroom factor variables, class size, teaching methods and textbook availability and other opportunity to learner variables. Textbook availability and adequate influence student outcomes and the quality of secondary school education.

The instruments used were classroom observation and the administration of an achievement test. A multivariate analysis of variance was used to analyse the data. The design was descriptive survey design. However, to determine the magnitude of the relationships between

classroom factors and the respective cognitive levels as correlational design would have been appropriate. The instruments of data collection were few as the interviews would have expanded the range of information. The sample taken was adequate and reliable and the findings clear for policy information and implementation.

Mingaine (2013) in Kenya on challenges on level of adequacy and implementation of ICT in public secondary schools in Kenya found out that limited supply of qualified teachers and high cost of infrastructure were impediments to the implementation of ICT. A descriptive survey design was adopted in the research. However because the study also involved determining the magnitude of the relationships between dependent and independent variables correlation design should have also been adopted in the study. Out of 350 public secondary schools in Meru County, 105(30%) were sampled for the study. A total of 315 respondents were sampled through stratified and simple random sampling. Stratified random sampling was appropriate as it took care of the various strata of mixed day and boarding schools, girls' and boys' schools and also boarding schools.

Questionnaires were used as the instrument for data collection. Although questionnaire can effectively be used to gather data but if other instruments are not used to gather data then data variety is limited. Data analysis employed both inferential and descriptive statistical technique. The study did not deal with many variables which limited its depth but its strength lay in identifying key factors of trained personnel that hinder ICT implementation. The reviewed study did not deal with learning resources as an institutional impact that influences quality of secondary school education. This is the knowledge gap that this study on influence of institutional inputs on quality of secondary school education fulfilled.

Republic of Kenya (2012) asserts the centrality of ICT in teaching and learning so as to fulfil vision 2030 of providing quality education by creating conditions to ensure teaching of science, technology and that ICT establishment should take place in all schools by 2022 yet less than 4% of the public primary schools have access to computer studies and only 800 out of 4,000 public secondary schools had computers and only 2037 or 10% of the primary schools had electricity connections. This undermined the quality of secondary school education. The lack of computers is not confined to secondary schools but pre-primary and primary schools lacked computers. Begi (2002) in Kenya indicated that only a few pre-schools and primary schools were using computers in teaching as in Nairobi province out of 1708 pre-school and primary schools only 132 pre-schools and primary schools were using computers in instruction. This investigation revealed not only lack of resources to acquire computers but also lack of strategy to incorporate ICT in the learning and teaching process. The reviewed studies did not tackle the influence of institutional inputs on the quality of secondary school education. The research on institutional inputs filled the gap by focusing on more parameters.

UNESCO (2006) notes that the student teacher ratio in secondary education was 18:1 for Kenya while that for Ghana was 19:1 and for Senegal was 26:11. This shows that the quality of education was higher in Kenya followed by Ghana but in Senegal the quality of education was declining. The student teacher ration may vary with the type of school, the gender and even the region or it may vary depending on whether a school is day or boarding or whether a school is mixed or girls or boys (Republic of Kenya, 2012). There is need to redistribute teachers from schools with low student teacher ratio to those with high student teacher ratio.

Odhiambo (2006) on the shortage of teachers in Kenya reported that if the student teacher ratio in Kenya was reduced from 40:1 to 25:1 by employing more mathematics teachers then this would result in improved teaching of mathematics and improve performance. Teachers would give students more specialised attention. The reviewed studies have not dealt with the influence of institutional inputs on quality of secondary school education. The study to be undertaken in Migori County on influence of institutional inputs on quality secondary education filled this gap.

Orodho (2002) on enhancing access and participation in secondary school education established that time was greatly wasted in secondary school with time loss percentage of 17.5% nationally and 15.83% for Coast, 9.49% for Central, 14.69% for Eastern, 12.79% for Nairobi, 7.5% for Rift Valley and 13.76% for Western and 15.75% for Nyanza and 21.4% for North Eastern and the wastage was on travelling to school, time lost during the first week of opening on activities like staff meetings, developing timetables, cleaning the compound by students and rampant absenteeism by teachers and students on grounds of looking for funds. Teaching and learning resources consists of time which if wasted reduces learning time and undermines quality of education.

The study adopted an exploratory study using descriptive design of the cross-sectional type. The design was suitable for capturing in depth analysis between the variables. Lottery sampling was used to choose 4 provinces and purposive sampling was used to choose the districts. The sampling procedure yielded primary school teachers, secondary school teachers, 28 primary school head teachers, 28 secondary school head teachers, 20 parents and 80 opinion leaders were selected resulting sampling matrix of 604. The use of purposive

sampling can introduce bias into the study. Time is lost on internal examinations on the first week and last two weeks. This forces most secondary schools to ask parents to pay tuition money to help pay teachers for remedial studies to complete syllabus coverage. The Ministry of Education has prescribed the official school hours for all public and private day primary and secondary schools to be from 8am to 3.30pm and 3.30pm to 4.45pm as time for co-curricular activities of games and clubs and 7pm to 9.30pm for preps time for week days (MOE, 2015).

Molochi (2008) in Kuria West district found out that secondary schools lacked basic facilities like libraries. It was established that the books in the library were outdated and there were very few relevant books as the library had no furniture to be used Chacha and Zani (2015) on impact of FPE on pupil teacher ratio in Kuria East community established that after the introduction of FPE there was no commensurate increase in school facilities like books and desks. The study reports a great shortage of books and furniture. Moreover the scarcity of textbooks, the inadequacy of current and relevant reference books and insufficient reading materials is compounded by limited use of computers and internet to provide information. The problem is further aggregated by inadequate science equipment and very few stationery which undermines quality of secondary school education.

Koech (2013) in Kuria East district found out that 53.3% of the head teachers indicated that parents bought supplementary textbooks for their children but 66.7% of the teachers indicated that parents did not buy books for their children and 90% of the head teachers indicated that parents should buy materials. The study adopted a descriptive survey design which is appropriate as it concerns current state of phenomena of the variables. The target

population consisted of 4770 pupils, 57 head teachers and 278 teachers from which simple random sampling was done to select 35 head teachers, 70 teachers and 500 pupils. The use of simple random sampling may not have taken care of the strata in the education system. Questionnaires were used for the headteachers and teachers and focus group discussions with 7 pupils per group. The use of two instruments provided variety. Data was analysed both quantitatively and qualitatively. The strength of the study is that it used reliable instrumentation and sampling procedure but lack of inclusion of various strata limited in-depth analysis. The reviewed study did not deal with influence of institutional inputs on the quality of secondary school education. This is the gap in knowledge that the study seeks to filled in the study of Migori County.

Molochi (2008) in Kuria West established that secondary schools lacked computers, trained teachers and computer laboratories. There were many students but the teacher numbers did not increase in the same ratio. The study on the influence of institutional inputs on quality of secondary school education in Migori county investigated the influence of teaching /learning resources and other inputs on quality of secondary school education.

2.5 Influence of Teacher Characteristics on Quality of Secondary School Education

Teacher characteristics refers to the gender, qualifications, experience, integrity, efficiency, competency, terms of employment and time management. Educational research in several related fields has pointed out the importance of the teacher acquiring pedagogical content knowledge which is specific and specialised knowledge about teaching and learning in a particular discipline and promotes better student results, productive and inclusive secondary schools (Morine-Dershinner & Todd, 2003). The Morine-Dershinner and Todd study is

reinforced by a World Bank study (2013) that observed that secondary education and training system must also enhance students ability to promote innovation, entrepreneurship and knowledge adaptation and application to enable countries to move up the value added ladder from low to high productivity sectors. Teacher characteristic is an input in the secondary school education in that it enhances the quality of secondary school education.

The World Bank (2005) 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/AIDs. Low salaries, poor motivation and increased enrolment fans teacher shortages. The above reviewed studies did not deal with influence of learning resources on the quality of secondary school education, which the present study in Migori County 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). The study on influence of institutional inputs in Migori County indicated that higher teacher qualification contributed positively to improving quality secondary education. Although the evidence is scarce on teacher incentive programs in developing countries results from Israel suggest that teacher incentives, positively and significantly affected student education outcomes and mainly for weaker students (Jimenez & Patrinos, 2008). Neither the World Bank (2005) nor the Jaminez and Patrinos (2008) studies compared the link between qualification, incentives and quality of

secondary school education but the Migori study on influence of institutional inputs did tackle link by exploring a robust spectrum of teacher characteristics comprising teacher knowledge delivery, teacher frequency of class attendance, teacher's efficiency in marking student's assignments and examinations and teachers contract with students outside class. The Migori study looked at the contribution of each teacher characteristic of qualification, efficiency, terms of employment and experience to quality of secondary education.

An analysis of Chinese education concluded that teacher characteristics explained a large proportion of the variance in achievement in different subjects (Park & 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 *et al,* 2005). Teacher training and continuous professional teacher in-service go a long way in enhancing teacher competency and performance. The study on institutional inputs investigated how teacher characteristics of terms of employment and experience affect quality of secondary school education.

The World Bank (2004) reported that 47 countries in the low income brackets like Somalia and Chad, with respect to achieving Universal Primary Education (UPE) by 2015 showed a wide variation in average annual salaries ranging from 0.6 to 9.6 times per capita, GDP. 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.

Hanushek, Lavy and Hitomi (2006) 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, qualification, gender, experience and competency 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 institutional inputs on the quality of secondary school education.

Adeyemi (2008) in Ondo State of Nigeria on teachers teaching experience and students learning outcomes established that teacher experience and competence were the prime predictors of students' performance in all subjects in secondary schools. The World Bank (2005) observed 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 did not deal with influence of institutional inputs on quality of secondary school education which the Migori study did.

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 quality of secondary school education.

Yara (2011) on performance determinants of KCSE 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 KCSE 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. The variety of instruments enhanced the range of data collected. The data was analysed using multiple regression analysis which brought a clear correlation between the independent and dependent 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. This is the knowledge gap that the study on institutional inputs tackled.

The MOE (2008) in Kuria West observes that the pupil population 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 174 teachers resulting in a student /teacher ratio of 32:1. This depicts a shortage 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. The study on institutional inputs focused on a broad spectrum of inputs like entry behaviour, physical facilities and teacher characteristics. The focus on teacher characteristics included the contribution of gender, qualification, experience, efficiency, competency integrity, mode of employment and time management. The Migori study showed that teacher qualification and experience and effective time management influenced quality of secondary school education.

Koech (2013) 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 undermines the quality of the quality of education. The Koech (2013) study did not deal with the influence of teacher characteristics on the quality of secondary school education but focused on teacher shortages. The study on the influence of institutional inputs on the quality of secondary school in Migori not only investigated teacher shortages but also tackled the contribution of teacher characteristics on quality education. Although teacher characteristics symbolises the quality of instruction but it also greatly contributes to performance as it consistently

determines the level of academic achievement and subsequently quality of education. The study in Migori County on institutional inputs indicated that of all the inputs influencing quality of education, teacher characteristics had the contribution and is thus central to the provision of quality education.

2.6 Influence of Income Generating Activities on Quality Secondary School Education

There are many ways of financing secondary school education which comprise personal grants, government, non-governmental organizations, foreign aid and commercial banks. Community financing and IGAs play a complementary role. IGAs include maize planting, bee-keeping, brick making, horticulture and bus hiring.

Oluyele and Kunene (2001) in a case study of Swaziland education financing and budgetary reforms in Africa, found out that despite all the government provision of almost all expenditure other source like local communities, foreign aid, families and individuals, NGOs, mission institution can be used to finance education. This is necessary because government financial constraints cannot allow them to meet the entire entry cost of education.

The World Bank (2005) on financing education articulates that education systems even in developed countries do not fund schools as schools are usually provided by inputs through teacher replacement, provision of books and materials as most school districts in the United States schools have real discretionary funding for only 10% to 20% of their total reserve use, the balance come in the form of direct inputs. The report further states that in Korea the government introduced subsidies, paid tax exemption for private sector finances. The study

in Migori county on institutional inputs explored the influence of IGAs on quality secondary education.

Improving the quality of education will require nations to invest more financial resources in education. The Republic of Kenya (1997) states that by the take-off point into industrialization the newly industrialized countries of Korea, Malaysia and Mauritius had achieved secondary enrolment rate of 42%, 34% and 30% respectively but by 1991 these percentages had risen to 88%, 58% and 54% compared to Kenya's 29%. The massive expansion in enrolment created the necessary human capital that was able to engineer economic growth and development. Psacharopolous and Patrinos (2004) in a study on return to additional year of schooling averaged 10% in 100 countries with the highest returns resulting in low income countries and the developed had the lowest. The highest return was in Latin America followed by Sub Saharan Africa and the lowest was in OECD Europe, Middle East and North Africa.

Mingat et al (2010) and UNESCO (2013) articulate that civil society organizations and others have argued that there is need to increase levels of education aid but the latest findings show that aid to education decreased for the first time since 2002 by 7% from 2010 to 2011. Whereas Mingat (2010) explored how financing sustainability improves quality education in secondary school in Africa, UNESCO (2013) reports on how financing can enhance the attainment of universal primary education for all by 2015. The synthesis between the two studies is the focus on quality education although Mingat concentrates on secondary and UNESO on primary subsection. The study in Migori explored how IGAs in

form of planting maize, bee keeping, brick laying, horticulture, dairy farming, poultry keeping and hiring of school bus contribute to quality education.

Gillies (2010) completes the above studies and reports that in times ahead external aid financing, while still important will play a diminishing role compared to domestic spending for most countries with the exception of fragile states where aid is likely to continue in the more traditional sense but for other countries aid should be considered as addition to rather than a substitute for domestic funding and should initiate and stimulate change. The high returns to low income countries is because of the underdeveloped human capital which is relatively developed in middle and high income countries. With diminished foreign aid alternative sources of financing quality secondary school education will be explored. The study on institutional inputs in Migori County investigated contribution of IGAs to quality secondary school education.

In South Asia, Bangladesh donates only 2.6% of its national income in education and Pakistan 2.7% and India donates 3.3% of its GDP which is lower than the median for sub Saharan Africa which is 4% and even the National income donated to education is stagnating or decreasing in countries like Bangladesh, India and Pakistan resulting in 15 million out of school children (UNICEF, 2008). The decline in national income contribution to education undermines provision of quality education at all levels. It also reduces access, retention and performance of education.

Kenya's expenditure on education as a percentage of Government expenditure stands at 33% compared to Indonesia that spends 10%, South Africa 24% and Malaysia 20% and Kenya's

expenditure per pupil as a percentage of Gross Domestic Product per capita is 25% compared to Indonesia's 3%, South Africa's 14% and Malaysia's 17% (Republic of Kenya, 2007). This shows that Kenya spends an inordinately higher amounts of money than many middle income countries like Indonesia, South Africa and Malaysia yet the quality of education is lower. The study on institutional inputs showed declining quality of education for the last five years as KCSE scores have been below C+ for the last five years which is the bench mark for quality performance. The study also indicated poor physical facilities and lack of teaching and learning resources.

Republic of Kenya (2012) observes that in spite of continuous huge budgetary allocations over the last decade especially since the launch of Free Primary Education in (FPE) in 2003 and Free Day Secondary Education (FDSE) in 2008 quality remains an issue across the entire spectrum of the education and training sector because of declining KCSE performance, inadequate physical facilities and insufficient teaching and learning resources. The quantitative expansion in secondary education has not been matched by qualitative improvements of secondary education. Consequently, there is need to match the increase in number of students with increased provision of inputs of physical facilities, teaching /learning resources and additional financing.

Financing of secondary education faces many challenges which includes inadequacy of public resources to effectively meet infrastructural needs of secondary schools, inequality of funding between primary and secondary schools, weaknesses in the bursary funds scheme, inefficiency in resource utilization and lack of enforcement of fees guidelines and high

additional and unregulated school levies and high costs of school uniforms and delays in remittance of funds and failure to comply with financial regulations like poor procurement procedures (Republic of Kenya, 2012). This impoverishes schools making them vulnerable and undermining the quality of secondary school education.

Gogo (2002) on the impact of Cost sharing strategies on access, equity and quality of secondary school education in Rachuonyo district established that the financiers of secondary school projects (1996-1999) comprised 58% by PTA, 29% by community, 6% local donors, 2.47% foreign aid and government 2.47% and individuals 1.23% whereas between 1996-1999; 65.63% of the schools had no income generations activities while 12.5% had vegetable and maize production, hiring of school chair comprised 3.13%, beans 3.13% and brick making was 3.13%. The low engagement in IGAs by secondary schools denied the schools of the much needed complementary financing and reduced the quality of education through scarcity of institutional inputs. Secondary schools have ignored income generating projects but with government budgetary constraints these activities will take an increasing role. The study design was a correlation research design used to establish the magnitude of the relationship among the variables. The target population was 46 schools but a sample of 32 schools was taken which was adequate. This study however used only the questionnaire as an instrument of collecting information on students and teachers. The study on influence of institutional inputs on the quality of secondary school education in Migori County used a variety of instruments and investigated the contribution of IGAs to quality secondary education.

KIPPRA (2006) asserts that the government alone cannot meet the education cost due to inflation rate and poor performance of the economy which has led to only a small increment of the per student allocation per year. Improving quality of secondary school education will entail mobilizing supplementary sources of income to finance learning and teaching in secondary schools. The study on influence of institutional inputs explored how IGAs can implement the available resources to promote quality secondary school education. Getange (2013) on financing of public day secondary schools and its impact on quality of learning in Kisii Central District established that there was a coefficient of correlation of 0.447 at the 0.05 level of significance. It was also established that the revenue to FSE were inadequate and parents also owed the schools fees arrears to parents low income which affected the ability of parents to pay fees required by the schools. The report further stated that with the introduction of FSE parents sources of financing day secondary education were 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 facilities.

The study used survey design which was suitable at it enabled investigation of the state of affairs as it exists. From a target population of 102 public day secondary schools a sample of 36 schools were chosen through stratified random sampling. Purposive sampling was used to select 36 principals, 36 bursars, 36 BOM, 36 PTA and 4 District quality Assurance officers resulting in 148 respondents. The use of stratified sampling took care of the strata but purposive sampling may have reduced reliability due to possibility of bias. Moreover the sample of 36 schools out of 102 was inadequate. Questionnaires were used for principals but interview schedule were used for PTA and Board of Management. The use of two

instruments enhanced reliability because of wide data capture. The use of descriptive and inferential statistics to analyse data gave an in-depth insight into the relationship between variables in the study. The study on influence of institutional inputs on the quality of secondary school education in Migori County used adequate sample to enhance reliability through use of random sampling. The study in Migori County focused on institutional inputs that influence quality of secondary education unlike the Getange (2005) study which focused on the influence of finance on the quality of learning in public secondary schools.

Omukoba, Simatwa and Ayodo (2011) in their study on contribution of IGAs to financing secondary school education in Kenya established that IGAs contributed significantly to financing education by purchasing of inputs and payment of salaries which in turn enhance quality of secondary education. The study used a descriptive survey design. The study population consisted of 14 principals, 3 CQASOs, 2 District school auditors and deputy District Education officers who were purposively sampled. A semi-structured questionnaire and an interview schedule were used as data collection tools. The study showed that public secondary schools have the potential to generate additional income. The study on influence of institutional inputs on quality of secondary school education used a wide spectrum of inputs and explored the contribution of each input entry behaviour, physical facilities, teaching /learning resources, teacher characteristics and IGAs on quality secondary school education. The Migori study further investigated how each activity of IGAs contributed to quality secondary education.

Quality manifests itself through the achievement level at KCSE and school level. The quality of education is determined by the level of performance. Todaro (2011) has observed that

quality of education is higher in high income countries as it is higher in Europe than it is in Africa. However quality education can differ even within the same region as there can exist elite private schools that offer quality education compared to public schools or it can differ between urban areas and rural areas.

Darling and Wentworth (2010) and Ravela (2005) report that in countries like Australia, Finland, Singapore, Sweden, Uruguay and the United Kingdom education systems are high performing systems but their assessment systems comprise, examinations, classroom assessment and large –scale system level assessments, whereas the United States emphasises on standardised testing but does not perform well in international assessment exercises. The above reviewed studies did not investigate the influence of institutional inputs on the quality of secondary school education. It is this knowledge gap that the study filled.

A study by Ouma (2013) on factors affecting participation of the girl-child in secondary school education in Migori sub-county found out that 80% of the respondents identified socio-economic background and 50% identified teaching /learning resources and 75% identified school fees while 47% identified levies as inhibiting effective participation. School fees and levies which are financing aspects combined greatly inhibit participation of the girl in secondary school education. The study used a survey research design and a target population of 33 schools and a census sample was undertaken. The questionnaire was used to collect the information. The study used only descriptive statistics using means and percentages. This did not effectively bring out the relationship among the variables. The study also used only the information and this limited the scope and variety of the information collected. The reviewed study only tackled the factors affecting girl-child participation in

secondary school but did not focus on institutional inputs that influence the quality of secondary school education which gap this study in Migori filled.

Republic of Kenya (2003) in an Education sector review identified challenges that affect enrolment in education as being due to high dropout rates, low retention rates, non-enrolment, high cost of education, declining economic growth rate, increased household poverty levels, HIV/AIDS pandemic, internal management inefficiencies, inhibitive socio-cultural practices and practices and beliefs, rigidity in the education system, poor child health and nutrition and uncongenial learning environment. These challenges vary on their impact on enrolment but when taken together they greatly undermine the quality of education and performance. Daily nation (2012) has stated that transition from primary to secondary has increased from 40% in 2003 to 73% in 2012 and secondary school completion rate has increased from 46% to 74%.

Table 2.2 shows national trends in KCSE candidates top performance mean grade by sex 2014 to 2017.

Table 2.2: National trends in KCSE candidates top performances 2014 to 2017

Year	**2014**			**2015**			**2016**			**2017**		
Sex	**Male**	**F**	**Total**	**Male**	**F**	**Total**	**Male**	**Female**	**Total**	**Male**	**F**	**Total**
Grade												
A	2133	940	3073	2024	661	2685	58	83	141	81	61	142
A-	**7644**	4124	4768	7952	4417	2069	2585	1960	4645	1813	901	2714
B+	**12606**	7208	19814	13517	8410	21927	6581	4394	10975	4596	2748	7344
B	**17941**	11378	29319	19826	13634	33460	10204	7012	17216	7738	4890	12628
B-	**21997**	16318	38315	25312	19269	44581	13649	10096	23745	11631	7754	19385
C+	**25978**	21450	47428	29556	25214	54770	17238	14989	32207	15828	12032	27560

Source: KNEC

Key: F = Female

From Table 2.2, the number of candidates grew from 482,133 in 2014 to 610,501. The number of candidates increased from 223,231 in 2014 to 295,623 in 2017 but the males increased from 258,896 in 2014 to 314,875 in 2017. The number of students who scored a minimum university entry score of C (plus) and above decreased by 21.2% to 70,073 in 2017 from 85,929 in 2016. During the review period the number of candidates who scored A (minus) and above declined by 40.3% from 4,786 in 2016 to 2,856 in 2017. This depicts decline in quality of education between 2014 to 2017. Although quality of education of the students was deteriorating the performance of the boys is better than that of girls. However the girls in 2016 got higher grade A than boys. Kenya Economic Survey 2018 has shown that although the annual intake of boys is standard one is will higher than that of girls, more boys dropout in the 8 years of primary school. The declining quality of education shows that many of the students cannot pursue courses in Science and technology and this can hamper the rate of development. The report on performance also exhibits a very high wastage rate in the education system.

Cheeseman (2015) in a research found out that there were more than 13 year old girls in secondary school than boys but the age of 14 onwards boys increasingly outnumbered the girls but what was worse was that only 25% young people of secondary school age attended schools. Standards and quality assurance officers need to evolve a new strategy on ensuring quality education, quality learning outcomes and quality institutional leadership through frequent and constant assessment of learning programmes.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section focused on the research design, the area of study, the study population, the sample, the pilot study, instrumentation, data collection procedure and methods of data analysis.

3.2 Research Design

A descriptive survey design and a correlation design were used. A descriptive survey design was used as it builds a picture of the current situation and describes what exists at the moment in a given context. Best and Khan (2006) assert that descriptive research is designed to obtain current information or phenomena and wherever possible to draw valid general conclusions from facts discussed. Thus descriptive survey is designed to explain, analyse and interpret particular conditions. Correlation research was used because it deals with the relationships between variables through the use of co-relational statistics. The use of correlation design helps to explain the magnitude of the relationship between the variables and gives the level of variance an independent variable has on a dependent variable.

Gall, Borg and Gall (1996) observed that descriptive survey design is important in education as it involves description of phenomena in their form, actions, changes over time and similarities with other phenomena. Mugenda (2008) reinforces Gall's view by stating that descriptive study design are quite important as they provide the foundation upon which correlational and experimental studies emerge. Gall et (1996) further observed that correlation studies enabled analysis of relationships among a large number of variables and it measured the degree of the relationship between the variables.

3.3 Area of Study

The area of study was Migori County, Kenya. Migori County is located between latitude 0040' and 0^0 South and longitude 34^0 and 34^0 and 50' East. According to census report (2009) Migori County had a population of 917,170 people with a size of 2576 square kilometres of which 475km^2 covers a section of Lake Victoria and also a semi arid and arable land. Migori County borders Homabay and Kisii counties in the North. It also borders Nyamira and Narok counties in the East and is bordered by the Republic of Tanzania in the South and Lake Victoria in the West. Migori County is inhabited by the Luos, the Luhyia and the Abakuria. The immediate neighbours of the inhabitants of Migori are the Abagusii, Zanaki, the Ikoma, the Maasai and the Suba. The sub counties of Migori are Awendo, Kuria East, Kuria West, Migori, Nyatike, Rongo and Uriri.

Migori County had a human development index of 0.357 indicating economic hardships for households. Economic undertakings comprise agricultural activities such as cassava, maize, sugarcane, tobacco, sorghum, finger millet, banana and cattle rearing. Other economic activities include trading, mining gold and bodaboda activities. The major institution of higher learning in Migori is Rongo University. The PDE Nyanza (2009) in an education report infrastructure such as insufficient libraries, with few books, lack of laboratories, dormitories, classrooms, playgrounds and a shortage of teachers. Performance in KCSE in Migori County was 5.154 (C-) in 2011, 4.356 (D+) in 2012; 5.144 (C-) in 2013; 5.225 (C-) in 2014; 5.413 (C-) in 2015 but dropped to 3.072 in 2016 and declined to 3.316 (D) in 2017 resulting in an average of 4.530 (D+) for the last 7 years. This is below C+ which is the benchmark for university admission which indicates low quality of education in Migori.

The national mean score was 4.617 (D+) for the last 7 years which depicts low quality education.

3.4 Study Population

The study population comprised 245 principals, 2439 teachers, 57,000 students and 7 Quality Assurance Officers. Table 3.1 shows the study population and the distribution for each item in the population in Migori County.

Table 3.1

Study Population

Subject	Number
Principals	245
Teachers	2,439
Students	57,000
QASO	7
Total	**59,691**

The sample size was determined using the following formula from Fisher et al (1983).

$$nf = \frac{n}{1 + \frac{n}{N}}$$

Where nf = the desired sample size when the population is less than 10,000.

n = the desired sample size when the population is more than 10,000.

N = is the estimate of the population size.

For populations that are large as to be more than 10,000 like that of students in Migori County which stands at 57,000 Cochran (1963) developed an equation to yield a representative sample. Cochran's formula used to determine the sample size for students is

$$n = \frac{Z^2 pq}{d^2}$$

Where n = the desired sample size if the population is greater than 10,000.

z = the standard normal deviate at the required confidence level

p = the proportion in the target population estimated to have the characteristics being measured

q = I-P

d = the level of statistical significance

3.5 Sample and Sampling Technique

Table 3.2: Sample Frame

Categories	**Target**	**Sample Size**		**Total**
Respondents	**population**	**Males**	**Females**	
Principals	245	80	68	148
Teachers	2,439	257	74	331
Students	57,000	226	158	384
QASO	7	5	2	7
Total	**59,691**	**568**	**302**	**870**

The sample size selection was guided by the heterogeneity of the data in the form of National, Extra county, County and Sub-county schools. The subgroups within the

population were fairly represented. Stratified random sampling was done to identify 148 principals of 148 secondary schools that were used in the study. The teachers population was 2439 and by using the formula for populations of less than 10,000 a sample size of 331 teachers was derived. The students were 57000 but using Cochran's formula a sample size of 384 students were derived. Saturated sampling was used to obtain a sample size of 7 for the QASOs.

Connelly (2008) suggested that a pilot study sample should be 10% of the sample projected for the larger parent study. Treece and Treece (1982) compliments the view that 10% of the sample study should to be taken. Isaac and Michael (1995) and Hill (1988) state that 10 to 30 participants in survey research should be chosen. Random sampling was used to choose 15(10%) schools for the pilot study out of the 148 schools. The pilot was done on 34 students, 38 teachers and 15 principals.

3.6 Instruments of Data Collection

The instruments of data collection were the questionnaires, student focus group discussion, interview schedule, observation and document analysis.

3.6.1 Questionnaire

The questionnaire was used to collect information from principals, teachers, students and Sub county Quality Assurance and Standards Officers. The questionnaire was the main instrument of data collection. The questionnaire sought information on the five objectives of entry behaviour, physical facilities, teaching /learning resources, teacher characteristics and IGAs. The questionnaire comprised open-ended, closed ended and matrix questions.

3.6.2 Principal's Questionnaire

It sourced information on inputs and quality of secondary school education. It sought information on how KCPE scores influenced KCSE performance. It sought information on contribution of physical facilities like classrooms, dormitories to quality education. It also sought information on influence of teaching /learning resources on quality education. The principals questionnaire sought information on how teacher characteristics like qualification and IGAs contributed to quality secondary education (Appendix A).

3.6.3 Teacher Questionnaire

It was used to source information on inputs and quality of secondary school education. It sought information on entry behaviour, physical facilities, teaching and learning resources, teacher characteristics especially their qualification, experience, terms of employment and on IGAs and how they affect quality of education (Appendix B).

3.6.4 Student Questionnaire

It sought information on inputs and influence on quality of secondary school education. It elicited information on entry behaviour, on how KCPE scores influenced quality of secondary education. It also sought information on the influence of physical facilities, teaching/learning resources, and teacher characteristics (Appendix C).

3.6.5 Sub County Quality and Assurance Standards Officers Questionnaire

This sought information on objectives of the study of entry behaviour, physical facilities, teaching/learning resources, teacher characteristics and IGAs (Appendix D).

3.6.6 Student Focus Group Discussion Guide

This elicited information through discussion in groups. Focus group discussion sought information on marks scored in KCPE and how it influenced quality education. It also

elicited information on influence of physical facilities, teaching /learning resources, teacher characteristics and IGAs on quality of education (Appendix I).

3.6.7 Interview Schedule for Principals

It sought in-depth information on the objectives of the study of entry behaviour, physical facilities, teaching /learning resources, teacher characteristics and IGAs. It sets out to enhance clarity of ambiguous information (Appendix F).

3.6.8 Interview Schedule for Quality Assurance and Standards Officers (QASO)

It sought detailed information on influence of inputs of entry behaviour, physical facilities, teaching /learning resources, teacher characteristics and IGAs on quality of secondary school education (Appendix E).

3.6.9 Observation Guide

It elicited information through observation. It sought information on availability and adequacy of physical facilities, teaching and learning resources, teacher characteristics on IGAs and their influence on quality secondary education. (Appendix G).

3.6.10 Document Analysis Guide

Document analysis guide sought information on KCPE and KCSE scores, fees payments, physical facilities, teaching and learning resources, and receipts and IGAs and how they influenced quality of secondary school education (Appendix H).

3.6.11 Piloting

Fifteen schools (10%) were randomly selected out of the 148 schools in Migori county that were piloted. Connely (2008) observes that a pilot study sample should be 10% of the sample projected for the larger parent study. Kothari (2019) complements it as a preliminary survey and Zikmund et al (2013) conceptualizes it as a small scale research project that

collects data from respondents similar to those used in a full study so as to refine the questions. The studies concur on pilot study being on a small scale but arguably less costly, reduces risks of collecting flawed information and enhances data validity. The questionnaires and interview schedules were administered to students and principals in 15 schools. The questionnaires and the interview schedules were tested on the potential to elicit the right responses, ease of completion and preciseness. The clarity and relevance of the questions posed were determined by focusing the questions on the influence of inputs and quality of secondary school education. Cooper and Schindler (2005) observe that pilot testing is intended to reveal errors in design and improper control of extraneous or environmental conditions.

3.7 Validity and Reliability of Instruments

3.7.1 Validity

Mugenda and Mugenda (2008) have defined validity as the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. This means that validity is the extent to which a test measures what it is supposed to measure. In this study piloting was done in 15 schools to establish the validity of the instruments. The instruments were validated through face validity, content validity and construct validity.

Face validity involved a rigorous examination of the wording of the items in the study and an examination of their correspondence with the theoretical literature on quality of secondary school education. Content validity is the degree to which data collected using a particular instrument represents a specific instrument or concept. The researcher sought the assistance of 3 university lecturers in the School of Education of Maseno University to assess the

content validity of the questionnaire, interview schedules and observation checklists to improve the quality of the instruments. Kothari and Garg (2019) refer to construct validity as a measure of the degree to which data obtained from an instrument meaningfully and accurately reflects or represents a theoretical concept. In this study construct validity was achieved by using two different instruments comprising questionnaire and interview schedules on the principals to measure level of financing of secondary school education using Income Generating activities (IGAs) above FSE.

3.7.2 Reliability of the Instruments

Mugenda (2008) conceptualizes reliability as a measure of the degree to which a research instrument would yield the same result on data after repeated trials. Reliability can be external or internal. Hardy and Bryman (2010) explain that a variable is externally reliable if it does not fluctuate over time and is stable whereas internal reliability means that all the constituent indicators are measuring the same thing. This study used external reliability of a test-retest method to measure the reliability of the instruments. This was done by administering the same type of questionnaire to the same group after an interval of three weeks by keeping all initial conditions constant and by using the same respondents and using the same room. The test -retest approach was used to estimate the reliability of the questionnaires. The reliability is the correlation between the scores of the two questionnaires. To determine the stability the relationship between the two scores obtained a reliability coefficient (r) will be calculated. The method of calculating r is called the Pearson Product Moment correlation coefficient by the use of the formula

$$r = \frac{\Sigma\left(x-\bar{x}\right)\left(y-\bar{y}\right)}{\Sigma\left(x-\bar{x}\right)^2 \Sigma\left(y-\bar{y}\right)^2}$$

Where x = the first observation

y = the second observation

The Pearson product moment coefficient was computed for the principals' and teacher's questionnaire to determine the r value in a pilot study of 15 schools in Migori County. If the Pearson (r) value is greater than 0.7 at the 0.05 p value then it is reliable but if it is less than 0.7 then it is unreliable. Reliability of the instruments was determined by the test –re test method through a pilot study in 15 schools and a Pearson coefficient of 0.76 and 0.82 was obtained for the principal and teachers questionnaire respectively at a set p-value of 0.05.

3.8 Data Collection Procedures

An introductory letter was obtained from Maseno Graduate School. This letter was presented to the Ministry of Education, Science and Technology to help in the issuance of research authorization letter. The research authorization letter enabled the collection of the necessary information from Migori County public secondary schools, principals, teachers, students and quality assurance officers. Consent was also sought from the County Commissioner and the Sub county education Officers. Two assistants were trained and thoroughly explained to the purpose of the research, the concepts involved in the study and the instruments that were to be used and the type of data supposed to be collected. The content of the questionnaire was thoroughly discussed with the research assistants. The two assistants assisted in all the seven sub counties. The researcher introduced all research assistants to the respondents in all sampled schools. Consent was sought from the principal before the questionnaires and focus group discussions were administered to the students because the students are minors and the principal is the TSC chief appointed officer for the school. The researcher administered

the questionnaires for the principals and the interview schedules were also administered and quality assurance officers. The researcher facilitated focus group discussions. Administered questionnaires for the teachers and the students. The researcher filled observation checklists for the sampled schools.

3.9 Data Analysis

The unit of data analysis were the schools. Both Primary and secondary data were used in the analysis. In this study data was analysed both quantitatively and qualitatively. Data collected by use of questionnaires and interviews were analysed according to the nature of the responses. Mugenda (1999) conceptualizes qualitative data as the process of obtaining detailed information about phenomena being studied and establishing trends, patterns and relationships from the phenomena. Qualitative data was generated from interviews schedules, observation checklist and discussion focus group through in-depth interviews and discussions. It involved data organization which involved thorough reading of the data. Data from interviews and field studies were edited as data was being organised. The data was categorised into themes and patterns as per the objectives of the study. The relationships among the categories were established. The themes and patterns and categories were then assigned codes before being entered into the computer for analysis. The data was again edited or cleaned for accuracy, preciseness and completeness before being analysed using computer.

Reference codes and factual codes were used to locate specific information in a text interview or fact or attitude for analysis. The researcher then analysed the data to determine the adequacy of information and its relationship with the hypothesis.

Quantitative data analysis used inferential statistics. A code was developed with rules on how respondents answered was assigned values that were analysed by a computer. After coding data entry and data editing was undertaken to enhance the accuracy, completeness and conciseness of the data. Close-ended responses were recorded and coded. Once the coding was completed the responses were transferred into a summary sheet by tabulating. These were then tallied to establish frequencies which were converted into percentages, means and deviations.

The responses for open ended questions were recorded word for word and frequencies were determined for each response which gave rise to frequencies for similar responses which were converted into percentages. The items on attitude scales were coded using likert scale and percentages were determined. To achieve the objectives of the study triangulation of both qualitative and quantitative data was done.

To determine the influence of entry behaviour on quality of secondary school education percentages, frequencies, standard deviations and variances computed for KCPE were regressed on KCSE performance and linear regression, ANOVA and multiple regression obtained to establish the relationship between the two.

To determine the influence of physical facilities on the quality of secondary school education a five point scale rating was used to measure the value of physical facilities. The use of the numerical scales and values assisted in enhancing objectivity and enabled the use of

quantitative analysis. The values were then regressed on KCSE performance and simple linear regression, ANOVA and multiple regression were done.

To determine the value of teaching / learning resources a rating scale of one to five was used to discriminate the many values which were then regressed on quality of secondary school education using KCSE scores. Linear, ANOVA and multiple regression were then computed and interpreted.

To determine the value of teacher characteristics, frequencies were determined for each characteristic and mean scores and standard deviations were calculated which were then regressed on KCSE mean scores to determine linear, ANOVA and multiple regression.

To determine the value of income generating activities the frequencies of the values of various IGAs were determined and then regressed on KCSE performance. Linear, ANOVA and multiple regression were consequently determined.

Multivariate analysis of all the combined inputs was regressed on KCSE performance and the contribution of each input was determined. Multiple regression was used to analyse the data. The assumptions of linear regression model were taken into account. To enable the adequacy of the regression model an analysis of residuals and significant independent variables were tested for significance at the 0.05 level of significance. Pearson correlation coefficient was used to establish the rating of relationship between independent and dependent variables.

3.10 Ethical Considerations

The respondents were made aware of the impeding research exercise so that they were psychologically prepared. The consent of the students (who are minors) was sought by

getting permission from the principal who the Ministry of Education had given the mandate to manage schools and the resources therein. Participants were promised confidentiality and were treated with respect and dignity. This research protected the participants from physical and psychological harm by asking subjects to give information anonymously or using code numbers. Access to respondents identification was restricted. Armstrong (2009) has observed that a researcher must respect the rights of participants by not publishing any information that may harm their interest.

The objective of the study was explained to the potential respondents and they were made aware that their participation is voluntary with the freedom to withdraw from the study at anytime or to continue participating. Final report focused on the objectives of the study and did not expose the respondents. However their ideas were included in the final report.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents demographic data of the respondents, results and discussion of the findings of the study relating to influence of institutional inputs on the quality of secondary school education in Kenya. The findings and discussions are presented using both qualitative and quantitative reporting. In order to assess these objective, the following hypothesis were tested.

H_{01}: Entry behaviour of students has no influence on quality of secondary school education

H_{02}: Physical facilities have no influence on quality of secondary school education

H_{03}: Teaching/Learning resources have no influence on quality of secondary school education

H_{04}: Teacher characteristics have no influence on quality of secondary school education

H_{05}: Income generating activities has no influence on quality of secondary school education.

In order to test the hypothesis, regression test was conducted and the outcome was supported by descriptive statistics related to given objectives or research hypotheses.

4.2 Return Rate of Questionnaires

The return rate of questionnaire was as shown in Table 4.1.

Table 4.1: Return Rate of Questionnaire

Respondents	Issued	Returned	Percentage
Principals	148	148	100
Teachers	331	331	100
Students	384	384	100
QASOs	7	7	100
Total	**870**	**870**	**100**

From Table 4.1, it can be observed that a total of 148 questionnaires were issued to the principals, 331 teachers and 384 to students whereas 7 questionnaires were given to the QASO. Out of the questionnaires issued all were returned giving a response rate of 100%. Mugenda and Mugenda (2003) recommended a response rate of 50% as adequate, 60% as good and about 75% rate as very good. Based on this statement the response rate was very good.

4.3 Demographic Characteristics of Respondents

Demographic data showed how the various population subgroups of students, teachers and principals related to the inputs and outputs for example students entry behaviour influenced quality of education. Teachers' gender influenced quality of secondary school education and the number of qualified teachers employed by TSC influenced quality education.

4.3.1 Demographic Characteristics of Respondents

The respondents in this study included school principals, teachers and students as shown in Tables 4.2 and 4.3 respectively.

Table 4.2: Principals' Gender, Qualification and Headship Experience (n=148)

Demographic Characteristics	**Frequency (f)**	**Percentage (%)**
Gender		
Male	80	54.1
Female	68	45.9
Total	**148**	**100.00**
Qualification		
Diploma/S1	65	**43.9**
B.Ed	43	**29.1**
BA/B.Sc/PGDE	30	**20.3**
M.Ed	10	6.8
Total	**148**	**100.0**
Experience		
Less than 5 years	5	3.4
6-14 years	21	14.2
15-19 years	61	41.2
over 20 years	**61**	41.2
Total	**148**	**100.0**

From Table 4.2, out of 148 school principals, male principals were in charge of 80(54.1%) schools while female principals were in charge of 68(45.9%) schools. According to the results in the same table, it is clear that 65(43.9%) of the school principals had Diploma/S1 education level while 43(29.1%) had Bachelor of Education in ether Arts or Sciences. Different from that, was a group of 30(20.3%) and 10(6.8%) principals who stated that they had attained Bachelor of Art or Sciences, but with Post Graduate Diploma in Education and Master of Education respectively. Over 80% of the school principals had an experience of over 15 years. Notably, 61 school principals in each case observed that they had 15-19 years and over 20 years' experience respectively as principals in high schools. In another case, 21 principals stated that they had 6-14 years while and 5 school principals indicated that they had less than 5 years level of experience. The study in Migori County showed that teacher experience influenced the quality of secondary school education.

The principals population was grouped into male and female to enhance balanced representation and to eliminate bias occasioned by using one gender. Qualification was used because it embodies the human capital of the principal and uplifts their competencies and delivery. The study in Migori confirmed that teacher qualification influenced quality of secondary school education. Experience was used as it upgrades the skills and improves the performance of the principals thus uplifting the quality of secondary school education. Edmonds (2001) on a study of exceptional urban elementary schools established that the headteachers management practices influenced school success over failure because they influence the behaviour of subordinates and teachers to initiate programs, set policies, obtain materials, and fiscal resources and provide motivation and introduce useful changes for improving quality of education. The study in Migori County on institutional inputs confirmed

that experience improved quality of education. Information about the principals was important as they either promote or hinder the outcome of quality education.

Table 4.3 shows the demographic characteristics of teachers by gender.

Table 4.3: Demographic Characteristics of Teachers by Gender

	Frequency	**Percent**
Male	249	75.2
Female	82	24.8
Total	**331**	**100.0**

Table 4.3, indicates that 249(75.2%) were male teachers while 82(24.8%) were female teachers. The rationale behind categorizing teachers based on gender was to avoid biasness. Further, in order to consider all elements of teacher characteristics, gender was an important component that described teachers.

Level of Education attained by the parents /guardian

Table 4.4 indicate the level of education attained by the parents or guardian which explains the socio-economic background of the students.

Table 4.4: Level of education attained by the parents/guardians

	Frequency	**Percent**	**Cumulative Percent**
None	18	4.7	4.7
Primary	83	21.6	26.3
Secondary	171	44.5	70.8
Middle level college	45	11.7	82.6
University	67	17.4	100.0
Total	**384**	**100.0**	

From Table 4.4, indicates that cumulatively, almost 70% of the students stated that their parents only attained secondary education and below. Notably, 171(44.5%) students stated that their parents/guardians attained secondary education, while 83(21.6%) students stated that parents attained primary education. It was established that 67(17.4) students parents/guardians attained university education while 45(11.7%) observed that their parents/guardians attained middle level college, qualification which offer diploma certificates. Out of 384 students who took part in the study, 18 who represented 4.7% stated that their parents/guardians had not acquired any educational qualification. The level of education of parents/guardians was important because it provided insight on the socio-economic status of the family from which the student hailed, which also contributed towards influencing the quality of secondary school education. In a study by Ogalo, Simatwa and Okwach (2013) on challenges faced by principals in the provision of quality secondary school education it was established that parents with low education did not monitor or encourage their children in academic work.

4.3.1 School Data

This study considered 148 schools, which were categorized, based on nature and the information presented in Table 4.5 that indicates the number of schools considered and their nature.

Table 4.5: Information on School Data

Type of School		
Mixed	75	50.7
Girls	33	22.3
Boys	40	27.0
Total	**148**	**100.0**

In Table 4.5, out of 148 schools for the study, 75 were mixed schools, 33 were girls' schools while 40 were boys' schools. The information gave the proportion of schools thus enhancing the credibility of results for each category.

4.4 Influence of Entry Behaviour of Students on the Quality of Secondary School Education

Entry behaviour of students as stated by school principals and supported by teachers, students, and QASOs is presented. Descriptive findings related to the research objective, and regression results were used in establishing the association, and influence between entry behaviours of students and quality of secondary education in secondary schools.

Table 4.6 exhibits KCPE and KCSE marks scored by students. The report was based on performance of students and also on performance of boys and girls.

Table 4.6: Entry behavior of students as measured by KCPE scores and its influence on quality of secondary education as measured by KCSE

Points	KCPE Mean score in schools						KCSE Mean score in schools					
	Boys		Girls		Total		Boys		Girls		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
5	88	23.0	34	8.8	122	31.8	91	23.8	34	8.8	125	32.4
6	55	14.2	44	11.5	99	25.6	73	18.9	39	10.1	112	29.1
7	21	5.4	26	6.7	47	12.2	29	7.4	23	6.1	52	13.5
8	25	6.8	24	6.1	49	12.8	18	4.7	18	4.7	36	9.5
9	21	5.4	18	4.7	39	10.1	10	2.7	18	4.7	28	7.4
10	8	2.0	5	1.3	13	3.4	5	1.4	13	3.4	18	4.7
11	5	1.4	7	2.0	10	2.7	0	0.0	13	3.3	8	2.0
12	1	0.3	2	0.7	5	1.4	0	0.0	0	0.0	1	0.3
Total	**226**	**58.9**	**158**	**41.1**	**384**	**100.0**	**226**	**58.9**	**158**	**41.1**	**384**	**100.0**

Source: Field data

Findings in Table 4.6, indicates that 143(63.3%) boys and 74(46.8%) girls scored less than 7 points, which was below a C+ in KCPE examination. Students who scored more than grade C+ (7points) and above in KCPE for boys were 83 out of 226 while girls were 84 (53.8%). At KCSE level, 164(72.6%) of 226 boys and 73(46.2%) out of 158 girls scored less than 7 points, which was below the standards required for quality education in secondary schools. Students who scored grade C+ 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. From Table 4.6, it is evident that the 143(37.2%) of boys performed poorly in KCPE as they got below 7 points and their performance at KCSE deteriorated even further as 164(42.7%) got below seven points . With

regard to girls, approximately 78(20.3%) performed got below 7 points and 73(18.9%) scored less than grade C+ in KCSE examinations. During a focus group discussion a student remarked;

> Those who are admitted with low KCPE marks are ignored by teachers in class and out of class consultation. The teachers assist the students who have been admitted with higher marks. The students with low marks lack appreciation, support and end up doing poorly in internal examinations in KCSE. The teachers usually give more attention and support to brighter students and yet it is the weaker student who needs more support and attention (FGDs, 280)

Fieshman (2005) complements this finding by stating that in cases where there are few teachers the lower forms 1 and 2 are ignored and more attention is paid to the examination classes. This lowers performance and undermines quality of education.

Table 4.7 exhibits regression analysis of student entry behaviour (boys and girls) and quality of secondary school education.

Table 4.7: Regression analysis of student entry behavior (boys and girls) and quality of secondary school education

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.764[a]	.584	.541	1.439	.584	4.576	1	382	.003

a. Predictors: (Constant), Students' entry behavior in KCPE

From Table 4.7, it can be observed that entry behaviour of students had a strong influence on the quality of secondary school education. The influence was positive and significant ($r = .764$, $N = 331$, $p < .05$). Therefore the null hypothesis that entry behaviour of students does

not significantly influence quality of secondary school education was rejected and the alternative hypothesis entry behaviour of students significantly influenced quality of secondary school education was accepted. Entry behaviour of students accounted for 54.1% of the variance in quality secondary school education as denoted by Adjusted R square coefficient .541. The other 45.9% was due to other factors that were not subject of this study. This means that entry behaviour of students explained 54.1% of quality secondary school education. Entry behaviour of students influences quality education because it is the ability of students that is a precursor of effective learning that culminates in performance. Other factors' effectiveness depend on the entry behaviour.

The significant F change was 0.003, which was less than the level of significance adopted for the study where $p<0.05$. In this case, the null hypothesis was rejected and the alternative adopted such that students' entry behavior influence the quality of secondary school education. Relative to the quantitative findings, SCQASOs in their interview responses indicated that most schools admitted students with even less than 6 points in KCPE because of the need to get money from fees payment. This negatively influenced the quality of education especially in KCSE exams. It is a common practice in sub-county schools whose student's population is usually low.

Amburo (2010) on influence of KCPE on KCSE established that the Pearson coefficient correlation between KCPE and KCSE was 0.452 at 0.05 level of confidence. Jagero (2013) that purposed to determine how performance in KCPE can predict performance in KCSE established that the there was a correlation of 0.773 between performance in KCPE examination and performance in KCSE in western Kenya. Compared Ambura (2010) and

Jagero (2013) this study established a correlation coefficient of 0.764, while that of Amburo was of a coefficient of 0.452 and of Jagero was 0.773. The differences can be explained by differences in size of sample or difference in context as defined by time (2010, 2013, 2016) or the level of difficulty or ease of the examination.

To determine the influence of entry behaviour of students on quality of secondary school education the data in Tables 4.8 was used in the computation.

Table 4.8: Analysis of Variance of students' entry behavior (boys and girls) and quality of secondary school education

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.508	1	4.508	4.576	.003[b]
	Residual	376.302	382	.985		
	Total	380.810	383			

a. Predictors: (Constant), Entry behaviour of students

b. Dependent Variable: Quality of secondary education as measured by KCSE mean score

Table 4.8, indicates that entry behaviour of students was a significant predictor of quality secondary school education [$F(1,382) = 4.576$, $p<0.05$]. This means that entry behaviour of students influenced quality of secondary school education.

Table 4.9 exhibits the multiple linear regression between entry behaviour of boys and girls and quality of secondary school education.

Table 4.9: Linear regression between entry behavior of boys and girls in and quality of secondary education

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	3.763	.482		8.802	.000
	KCPE mean score for entry	.593	.139	.764	3.132	.003

Dependent Variable: Quality of secondary education

Regression Equation $Y=B_0+B_1X_1$

From Table 4.9 indicates that entry behaviour of students when disaggregated reveal that each characteristic has different power of influence and therefore fit well in prediction model. The regression equation is $Y = 3.763 + 0.593X_1$.This means that for every one unit increase in entry behaviour of students there was improvement in quality secondary school education by .593 units. That is, for every one unit increase entry behaviour of students (Kenya Certificate of Primary Education mean scores) quality secondary school education improved by .593 units, This model can be used in predicting influence of entry behaviour of students on quality of secondary school education.

Table 4.10 shows regression analysis between entry behaviour of boys and quality of secondary school education.

Table 4.10: Regression analysis between entry behavior of boys 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	.733[b]	.538	.510	.138	.538	2.612	3	380	.001[b]

a. Predictors: (Constant), KCPE mean score for boys

Table 4.10, indicates that entry behaviour of boy- student had a strong influence on the quality of secondary school education. The influence was positive and significant ($r = .733$, $N = 331$, $p < .05$). Therefore the null hypothesis entry behaviour of boy-student do not significantly influence quality of secondary school education" was rejected and the alternative hypothesis "entry behaviour of boy-student significantly influenced quality of secondary school education was accepted. Entry behaviour of boy-student accounted for 51% of the variance in quality secondary school education as denoted by Adjusted R square coefficient .510. The other 49% was due to other factors that were not subject of this study. This means that entry behaviour of boy-student explained 51% of quality secondary school education. Entry behaviour of boy-student is key to quality education because it is the ability of students that is a precursor of effective learning that culminates in performance. Other factors' effectiveness depend on the entry behaviour.

In order to test the research hypothesis related to entry behaviour of boys and quality of secondary school education, the value of significant F change was compared to the level of confidence adopted for the study. The value of F change statistic was 0.001, which was less than 0.05 the value tolerance level adopted for the study meaning that the null hypothesis was rejected and the alternative adopted. The alternative adopted was that entry behaviour of boys had positive coefficient correlation of 0.733. In their submissions, SCQASOs stated that the majority of boys were admitted with mean score of 6 and below and only a few students were admitted with mean score of 9 and above. The SCQASOS noted that very few students got a mean score of 7 and above in their KCSE. Document analysis guide comprising KNEC results and examination minutes analysis as shown in Appendix I indicated that 37.2% of

the boys had an entry behaviour of 6 and below at KCPE but this percentage increased to 42.7% who got a mean score of 6 and below in KCSE.

Ondima, Nyamasege, Moguambo and Ochori (2013) on a study of influence of KCPE on KCSE performance in Nyamira Sub county found a coefficient correlation of 0.6614 while this study found a coefficient of correlation of 0.538 for boys only. This means that entry behaviour of boys at KCPE predicts quality of education at KCSE.

Table 4.11 shows the analysis of variance between entry behaviour of boys and quality of secondary school education.

Table 4.11: Analysis of variance between entry behavior of boys and quality of secondary school education

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.263	3	2.088	2.612	.001
	Residual	303.695	380	.799		
	Total	309.958	383			

a. Predictors: (Constant), KCPE mean score for boys

b. Dependent Variable: Quality of secondary education for boys

Table 4.11, indicates that entry behaviour of students was a significant predictor of quality secondary education [$F(1,380) = 2.612$, $p<0.05$]. This means that entry behaviour of students real influences quality secondary school education. It is not by chance and as such can be relied upon with regard to enhancement of quality secondary education.

Table 4.12 indicates the linear regression model for entry behaviour for boys and quality of secondary school education.

Table 4.12: Linear regression model for entry behavior for boys and quality of secondary school education

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**T**	**Sig.**
1	(Constant)	2.915	.203		10.886	.000
	KCPE mean score for boys	.459	.071	.733	3.680	.001

a. Dependent Variable: KCSE mean score for boys

Table 4.12 indicates that entry behaviour of boy-student when disaggregated reveals that each characteristic has different power of influence and therefore fit well in prediction model. The regression equation is $Y = 2.915 + 0.459X_1$. This means that for every one unit increase in entry behaviour of students there was improvement in quality secondary school education by .459 units. That is, for every one unit increase entry behaviour of boy-student (Kenya Certificate of Primary Education mean scores) quality of secondary school education improved by .459 units, This model can be used in predicting influence of entry behaviour of boy-student on quality of secondary school education.

Out of 331 teachers 177(35.3%) of the teachers stated that entry marks of KCPE influenced performance in mocks, Continuous Assessment Tests assignments and end term examinations very much. Another group of teachers comprising 101(30.5%) of the teachers stated that entry marks in KCPE influenced performance in mocks, CATs, assignments and

end term examinations much. However another group of 53(16%) teacher stated that KCPE entry marks did not influence performance in mocks, CATs, assignments and end term examinations. This means that the students who got higher marks in KCPE did better in subsequent examinations than the ones who scored lower marks in KCPE.

Table 4.13 shows regression analysis between entry behaviour of girls and quality school education.

Table 4.13: Regression analysis between entry behavior of girls and quality of secondary school education

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.760[a]	.578	.529	.128	.578	13.497	1	382	.000

a. Predictors: (Constant), Students' entry behavior in KCPE for girls

Table 4.13 indicates that entry behaviour of girl- student had a strong influence on the quality of secondary school education. The influence was positive and significant (r =.760, N =331, p<.05). Therefore the null hypothesis entry behaviour of girl- student does not significantly influence quality of secondary school education was rejected and the alternative hypothesis entry behaviour of girl- student significantly influenced quality of secondary school education was accepted. Entry behaviour of girl- student accounted for 52.9% of the variance in quality secondary school education as denoted by Adjusted R square coefficient .529. The other 47.1% was due to other factors that were not subject of this study. This means that entry behaviour of girl- student explained 52.9% of quality secondary school education. Entry behaviour of girl- student is key to quality education because it is the ability of girl-

student that is a precursor of effective learning that culminates in performance. Other factors' effectiveness depend on the entry behaviour.

According to the interview responses given by SCQASOS, girls performed better than boys in KCSE despite their low entry marks in KCPE. The SCQASOs explained that the girls performed better than the boys in KCSE because the girls had higher levels of discipline and commitment in their studies and there was also greater financial and moral support for girls given by parents and women organizations like FAWE and FIDA. During the interview one of the SCQASOs noted;

> Most of the financial assistance goes to the girls as most NGOs that operate in Migori like FAWE, FIDA sponsor the girl child. It is the girls have more needs than the boys like the girls need sanitary towels but completely neglect of the boy-child has made him an endangered species (SCQASO, 1)

However another SCQASO remarked;

> The girls do better than the boys because of the unique support, mentorship, supervision and motivation given by the principals who are leaders. The female principals pay closer attention to discipline, have higher empathy for the students and are keener on supervision thus creating an enabling environment for high performance (SCQASO, 2)

UNICEF (2011) complements this view as it states that high performing students regardless of their family background tend to be more motivated and confident learners have the necessary support in their home environment, spend adequate amount of time on challenges tasks and attend school with positive, disciplinary climate and sufficient climate. The two findings are not in conflict but reinforce each other as financing and provision of resources reinforce mentorship, motivation and creation of a conducive environment for learning.

However entry behaviour of the students plays a significant role on the quality of secondary education as it is a predictor of KCSE scores.

The student focus group discussion revealed that the girls who scored higher marks in KCPE performed better in the end of term and mock examinations than the girls who scored lower marks. Documentary evidence comprising KNEC and KCPE results revealed that 78(20.3%) of the girls were admitted with mean points of 6 and below but in KCSE 73(18.9%) of the girls got a mean score of 6 points and below. During the discussion a student in a mixed secondary school observed: "The teachers were more sympathetic to the girls and gave the girls more academic attention and this made the girls to do better." However a girl in the same group observed that girls are usually very shy to seek consultation and that is why the teachers singled them out for academic assistance. Good performance depends on one's commitment and attitude. Other findings show that the entry behaviour of the students significantly influence performance in KCSE. Other factors can only complement.

Documentary analysis guide involving KCPE and KCSE performance shows that those students who scored lower points in KCPE did worse in KCSE as 88(23%) of the boys who scored 5 points and below now declined to 90(23.8%) who now scored 5 points and below in KCSE. On the other hand 34(8.8%) of the girls who scored 5 points and below however maintained the same number of 34(8.8%) in KCSE. On the higher performing students there were those who got 10 points comprising 8(1.4%) of the boys but in KCSE the boys declined performance as only 5(1.4%) boys scored 10 points. On the other hand the girls who scored

10 points in KCPE were 5(1.3%) but in KCSE 13(3.4%) score 10 points which shows remarkable improvement. During the interview a principal stated:

> The students that attain high performance do not do so on the basis of their gender but because they have characteristics that bring about success such as high discipline, high self esteem, confidence, a passion for hard work, persistence, self motivation and positive attitude towards the school, the subject and the teacher. (Principal 80)

The above characteristics play a role in the students' performance but entry behaviour is the major factor that determines the quality of education. This is confirmed by Amburo (2011) who found that entry behaviour based on KCPE scores had a significant influence on quality of secondary school education as denoted by KCSE.

A study by Barthes, Nair and Malpede (2000) on scientific, technical and vocational education of girls in Africa found out that performance in the above subjects in secondary school education compared to their primary school performance when compared to that of boys was inferior. This study however found out that girls performed better than boys as girls had an adjusted R of .529 and boys 0.510. The divergence between the two studies may be explained by differences in sample sizes as the Barthe's study was across 27 countries across Africa while this study focused only in Kenya. The Barthes study also focused only on some subjects while this study focused on all subjects.

Table 4.14 shows analysis of variance between entry behavior for girls and the quality of secondary school education.

Table 4.14: Analysis of Variance between Entry behavior for girls and quality of secondary school education

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	57.185	1	6.354	4.224	.000[a]
	Residual	562.604	382	1.504		
	Total	619.789	383			

a. Predictors: (Constant), KCPE mean score for girls

b. Dependent Variable: KCSE mean score for girls

Table 4.14 indicates that entry behaviour of students was a significant predictor of quality secondary education [F (1,382) = 4.224, p<0.05]. This means that entry behaviour of students real influences quality secondary school education. It is not by chance and as such could be relied upon with regard to enhancement of quality secondary education.

Table 4.15 shows linear regression between entry behavior for girls and quality of secondary school education.

Table 4.15: Linear regression between entry behavior for girls and quality of secondary school education

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.686	.199		8.618	.000
	KCPE entry mean score for girls	.519	.062	.760	2.642	.000

a. Dependent Variable: KCSE mean score for girls

According to the findings in Table 4.15, it can be noted that entry behaviour of girl-student when disaggregated reveal that each characteristic has different power of influence and therefore fit well in prediction model. The regression equation is $Y = 1.686 + 0.519X_1$.This means that for every one unit increase in entry behaviour of girl-student there was improvement in quality secondary school education by .519 units. That is, for every one unit increase entry behaviour of girl-student (KCPE) quality secondary school education improved by .519 units, This model can be used in predicting influence of entry behaviour of students on quality of secondary school education.

Combined students (boys and girls) give a combined adjusted R square of 0.541 while the boys give an adjusted R square of 0.510 and girls give an adjusted R square of 0.510. The combined performance is higher than either of the two because when they are combined both are likely to work harder and this synergy competition uplifts performance to higher levels.

4.5 Influence of Physical Facilities on Quality Education in Secondary School

This section presents results related to physical facilities as given by school principals and supported by Teachers, and QASOs. Descriptive findings related to the research objective, and regression results were used in establishing the association, and influence between school physical facilities and quality of secondary school education. In order to rate physical facilities, money values were attached to the facilities to establish the extent to which they would influence quality of learning in secondary schools as measured by KCSE mean scores. It should be noted that the money values were rated as very high, high, moderate, low and very low.

Table 4.16 shows school principals rating of physical facilities.

Table 4.16: School principals-rating physical facilities

		Very low	Low	Moderate	High	Very high	Total
Physical facilities		**Ksh. 0.1 to 0.4 M**	**Ksh. 0.5 to 0.9 Million**	**Ksh. 1.0 to 1.4 Million**	**Ksh. 1.5 to 1.9 Million**	**>Ksh. 2 Million**	
Dormitories	F	36	35	24	10	5	110
	%	24.3	23.6	16.2	6.8	3.4	74.3
Classrooms	F	36	60	10	42	0	148
	%	24.3	40.5	6.8	28.4	0	100
Furniture	F	79	33	34	0	0	148
	%	54.7	22.3	23	0	0	100
Staff Houses	F	39	36	15	10	0	100
	%	26.4	24.3	10.1	6.8	0	67.6
Dept. offices	F	32	34	21	18	0	105
	%	21.6	23	14.2	12.2	0	71
Admin. offices	F	56	39	34	10	9	148
	%	37.8	26.4	23	6.8	6.1	100
Water	F	72	54	22	0	0	72
	%	48.6	36.5	14.9	0	0	100
Electricity	F	63	54	22	9	0	148
	%	42.6	36.5	14.9	6.1	0	100
Dining hall	F	18	39	23	53	15	148
	%	12.2	26.4	15.5	35.8	10.1	100
Toilets	F	55	64	29	0	0	148
	%	37.2	43.2	19.6	0	0	100
Play ground	F	38	52	50	0	0	148
	%	25.7	35.1	33.8	0	0	100
Health bay	F	20	19	18	0	0	57
	%	13.5	12.8	12.2	0	0	38.5

According to the findings in Table 4.16, none of the classrooms, furniture, departmental offices, water, electricity toilets, playground and health bay were rated as very high. From the table, 50-60% of school principals rated physical facilities as low and very low where values were from Ksh. 0.5 million to 0.9 million and from Ksh. 0.1 million to 0.4 million respectively. 25.6% of school principals rated classrooms as being moderate and low. All the principals raised furniture as being very low and low and furniture as fair and poor. Further, out of 148 schools considered, only 110(74.3%), 100(67.6%), and 105(71%) of schools had dormitories, staff houses and administrative offices, which are essential facilities for any learning institution to improve quality of education. A principal stated:

> The government does not provide enough funds to expand infrastructure yet because of 100% transition policy the number of students have increased tremendously. The dormitories are crowded, the classes are compressed and water supply is not adequate yet water is so vital for the students and the teachers welfare and its scarcity endangers the learning process and the performance of the students. (Principal 31)

The remarks show that there is a mismatch between students enrolled and the resources availed to meet their needs. This tension lowers the quality of secondary school education. Findings in the same table indicate that all the schools had water, electricity, dining hall, and playgrounds; even so, investments made in these physical facilities are low and therefore had a low influence on the quality of secondary education. Many schools invested heavily in dining halls because dining halls would be sometimes used as multipurpose halls. Out of 148 schools, 15(10.1%) school principals rated dining hall as excellent while 53(35.8%) principals rated the facilities in their respective schools as very good. Only 57(38.5%) of principals had health bay. Statistics indicated that approximately two thirds of the schools did not have health bays indicating that school community members would spent time looking

for health services in external facilities. A number of teachers comprising 59.3% stated that facilities affected quality of education much. Many of the teachers comprising 31.7% of them stated that facilities affected quality of education very much. A few of the teachers comprising 8.5% and 3% observed that facilities affected quality of education not much and not all respectively.

In support of the findings school principals and teachers stated that lack of physical facilities largely influenced quality of education as highlighted in KCSE academic performance. A few teachers comprising 29(8.8%) stated that physical facilities did not have a great influence on the quality of education. In this regard a teacher indicated;

> The overcrowding in the dormitories occurred because of lack of funds to build more dormitories. The students do not sleep well at night as two students share a bed. During lessons in class many students doze off or sleep thus loosing concentration and understanding of concepts. This makes the students to perform poorly in the assessment and KCSE (Teacher 61)

Akomolaye and Adesua (2016) found a significant relationship between physical facilities and students level of motivation and academic performance. Adequate provision of facilities and their effective utilization promotes performance. Some of the students comprising 229(59.6%) stated that physical facilities are not enough. Many of the students comprising 113(29.4%) stated that some of the facilities were not in good condition. Some of the students comprising 42(10.9%) students stated that physical facilities are not enough, not spacious and negatively influenced quality of education. In this respect a student stated;

> We suffer from overcrowding in dining halls, dormitories and classes but the worst suffering is lack of water for bathing, drinking and for general cleanliness. This state is not good for reading. The school should provide water. (student 50)

The remarks show that a conducive environment is needed for learning. This finding is complemented by Murillo and Roman (2011) who established that provision of water contributes significantly to academic performance.

All the SCQASOs stated that most schools in Migori County were still struggling to achieve quality education and that only a few had requisite physical facilities that are needed to facilitate quality education. During the interview a SCQASO observed;

> Some schools have not obtained land title deeds for their schools. Many schools still lack adequate toilets and well stocked spacious libraries. The dormitories and the classrooms are overcrowded. This makes the learning process to be stressful, uncomfortable and unhealthy for the students resulting in low achievement (SCQASO, 3)

Document analysis was used to get information from Audit reports, minutes of Board of Management meetings, tender committee meetings, teaching staff minute's meetings. The minutes showed the amount of money budgeted and provided for various projects such as dormitories, classrooms, dining halls, workshops, water and electricity. Some schools had spent more money than the amount of money budgeted for the projects.

Observation guide showed that only 100(67.6%) had title deeds that were free without any constraints. However only 91(61.5%) schools had dormitories that were permanent buildings but 19(12.8%) were buildings of temporary nature, 15.7% were day secondary schools and did not have dormitories. There were 134(90.5%) classrooms of permanent buildings but 14(9.5%) were temporary. Only 52(35.1%) of the laboratories were equipped but 48% were not well equipped. All the schools had toilets but they were not adequate for the number of students creating long ques to the toilets during break times. The schools that had adequate

furniture were 65(43.9%) while those that had but were not adequate were 83(56.1%). These observations concur with Akomolaye and Adesun (2016) that most of the physical facilities that are germane to effective learning /academic performance of students are insufficient in our public schools today and the ones there are not of the right quality, lack maintenance and are in dilapidated condition. Quality, adequate physical facilities create an enabling environment for learning thus enhancing quality of education.

Table 4.17 shows Regression analysis of physical facilities and quality of secondary education.

Table 4.17: Regression analysis of physical facilities and quality of secondary school education

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.606[a]	.367	.349	.397	.367	49.571	18	129	.000

a. Predictors: (Constant), playground, electricity, administration offices, water, dining hall, classroom, furniture, health bay, toilets, staff houses, departmental offices

Table 4.17 indicates the value of adjusted R square as 0.349 which explains the influence of physical facilities on the quality of secondary school education. However the value of R square was 0.367. The value of adjusted R square which would change on the addition of additional predictors hence the wide usage of R adjusted in explaining the influence of independent variables such as physical facilities on dependent variables denoted by quality of secondary school education.

The research hypothesis relating to influence of physical facilities to quality of secondary school education was determined by the F change statistics which was 0.000 compared to the P value which was set at 0.05 level of confidence. Since the F value was less than the P value of 0.05 the hypothesis was rejected and the alternative hypothesis that is a statistically significant relationship between physical facilities and quality of education was adopted.

Findings from interview responses given by SCQASOs indicated that only 25% of schools had requisite physical facilities in form of classrooms, dormitories, furniture and water used to support learning. SCQASOs added that most schools had inadequate and unequipped facilities such as dining hall, classrooms and dormitories that lower the quality of education in secondary schools. In support of the same view, school principals in their responses indicated that some of the physical facilities were not available, not equipped, or could not cater for the increased learners enrolment such as playgrounds, dining hall, health bay and water . In their discussions, students pointed out that most of the physical facilities at school were in a bad state, most required repair, and maintenance while others required an overhaul or construction of new ones such as toilets, classrooms and dormitories to enhance quality education. Document analysis guide and observation guide got information from board minutes, school budget, CDF bursary records, fees structure and log book and audit reports showed that 110(74.3%) schools had dormitories and 148(100%) schools had classrooms and 148(100) of the schools had furniture and only 100(67.6%) had staff houses and 105(71%) had departmental offices while only 4(72%) had in school electricity, toilets and dining hall and playing grounds were in all schools, thus affecting the quality of secondary

school education. Only 38.5% schools had health bay. Observation guide showed that 39.2% of the dormitories 68.3% of classrooms and 65.1% of furniture were well maintained. This affected the quality of secondary school education. It was also established that 54.7% of dormitories, 41.2% of classrooms and 36.5% of laboratories and 9.5% of school were equipped. This greatly affected banning outcome It was observed that 70% had water supply and 100% had toilets. Given the importance of water availability to learning this affected the quality of education.

Playgrounds are important for the physical development of the students. Adequate playground promote games and supports and enable students develop the character of teamwork, competition, discipline and achievement. Adequate playgrounds enable students to acquire physical fitness, enhance motivation, effort and alertness during the learning process thus promoting quality of education. Abagi and Ogachi (2014) have decried the scarcity pf physical facilities that lower the quality of education. The study in Migori County showed that playgrounds influenced the quality of secondary school education. Since 91(61%) had playgrounds that were valued at less than 0.9m it means the infrastructure for playground was very weak. This undermined talent development in games and sports and ultimately lowered the quality of education.

Electricity is an important component of the learning process as it the major source of lighting for most schools. The study in Migori County showed that 119(71.9%) of the schools had spent 0.9 million shillings or less on electricity financial outlay which exhibited wealth outlay where financial physical outlay on electricity is low, learning is hampered.

Another physical facility was water. This is because water was used to maintain cleanliness for cooking and for drinking. During dry spells schools who do not have water have to move long distances to get water and this reduces time available for learning or games. The effect of wastage of time is that it reduces the quality of learning. An investigation by Murrillo and Roman (2011) established that the availability of water had an effect on academic achievement. The study on institutional inputs in Migori confirmed that water has an influence on quality of education.

Nandamuri (2012) who focused on establishing the influence physical facilities on quality of secondary school education, observed there was a 0.026 correlation coefficient between physical facilities and quality of education. The study noted there was a weak relationship between physical facilities and quality of secondary education. Compared to the findings by Nandamuri (2012), the study in Migori county established that the coefficient of correlation which was R = 0.349 was higher than 0.026 obtained by Nandamuri. However when the value of physical facilities of 0.349 in Migori study is compared to entry behaviour of 0.541 it was found to be lower. This means that entry behaviour had greater influence on the quality of secondary school education than physical facilities. This study differs from the Nandamuri study whose focus was on the status of secondary school education while this study was on the influence of inputs on the quality of secondary education. The research design of the Nandamuri study was a descriptive survey but this study used a cross sectional study.

The state of physical facilities like dining hall, classrooms, administrative offices, toilets, staff houses and departmental office is worrying to the government, parents, teachers and students. Inadequate physical facilities and a poor learning environment affects the performance of students in examinations as it demotivates them. Akomolaye et al (2016) stated that if the physical facilities are available, adequate and effectively utilised it could captivate and sustain interest to learn and invariably contribute to a high level of academic performance in secondary schools. Bacolon and Tobias (2006) on school quality and academic achievement established that basic facilities as electricity and water enhanced student outcomes. Fisher (2006) on impact of school infrastructure on school buildings reported that quality building; clean dining facilities, good air quality and conducive temperature improved student outcomes. The three studies differ in scope but are similar in focusing on student outcomes. The study on influence of institutional inputs in Migori had a broader focus of inputs of entry behaviour, physical facilities, teaching and learning resources, teacher characteristics and IGAs on quality of secondary school education.

Insufficient and inadequate well ventilated dormitories with safety provisions can result in discomfort, insecurity, lack of proper sleep and rest and poor concentration during the day in class time. However where the dormitories are adequate, spacious, well ventilated, the students sleep well and concentrate better during the day when the students are in class. Indeed with increasing demand for secondary school education congestion occurs in dormitories and classrooms and reduces students capacity to learn undermining quality of education.

Guo, Olel and Oander (2011) on university expansion and issues of quality education observe that congestion in physical facilities had serious negative consequences on the quality of education. However the context of the study was university the issues of quality dealt with were limited whereas the Migori study explored secondary school education and tackled a robust spectrum of issues.

When classes are overcrowded due to increased student number, learning is hampered. Where the classes are small and not well ventilated concentration of the learners is impaired as they concentrate on their discomfort. A review by Chavundika (2006) and by the World Bank (2008) state there is a relationship between instructional quality, class size and performance in national examinations. Whereas the two studies explore the relationship between instructional quality, class size and performance in National examinations, their focus and scope is different. The Chavundika study focuses on resources in science education whereas the education with emphasis on assessments. The study on institutional inputs in Migori County tackled inputs of teaching /learning resources, entry behaviour, physical facilities, teacher characteristics and IGAs with focus on their contribution to quality of secondary school education.

Toilet facilities influence learning outcomes. In the study in Migori County only 29(19%) of the schools had spent between 10million on toilet facilities while other 119(70%) spent less than 0.9 million This is because where toilet facilities are inadequate there is wastage of time as students have to queue and miss learning time. This affects the girls much more than the boys. Limited or poor quality toilet facilities may have differential implications for girls in terms of enrolment and attendance because of their special needs during their menstrual

periods as well as their vulnerability to sexual harassment on their way to and from the toilet (Lyod, Mensch & Clark, 2000). Time, wastage and inadequate concentration lower the quality of education.

Table 4.18 shows analysis of variance of physical facilities and quality of secondary school education.

Table 4.18: Analysis of variance of Physical Facilities and quality of secondary education in secondary schools

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	78.734	18	4.374	49.571	.000[a]
	Residual	8.030	129	.088		
	Total	86.764	147			

a. Predictors: (Constant), playground, electricity, administration offices, water, dining hall, classroom, furniture, health bay, dormitories, toilets, staff houses, departmental offices

b. Dependent Variable: Quality of secondary education

Findings in Table 4.18 indicates there was a statistical significant relationship between physical facilities and quality of secondary education. In this case, the null hypothesis, which stated that there was no significant relationship between physical facilities and quality of secondary education is rejected and the alternative hypothesis adopted. The alternative hypothesis states, there was a significant statistical relationship between physical facilities and quality of secondary education from Table 4.18, which was less than the level of significance of p –value of 0.05 adopted for the study. This means that the null hypothesis should be rejected and the alternative hypothesis adopted which states that physical facilities influenced the quality of secondary school education.

Table 4.19 shows linear regression between physical facilities and quality of secondary education.

Table 4.19: Linear Regression between physical facilities and quality of secondary education in secondary schools in Migori County

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	1.602	.210		7.620	.000
	Dormitories	.292	.076	.441	6.438	.000
	Classroom	.227	.119	.591	2.749	.007
	Furniture	.176	.091	.310	17.242	.000
	Water	.172	.098	.461	4.831	.000
	Electricity	.232	.073	.365	4.549	.000
	Dining hall	.069	.034	.408	7.818	.000
	Toilets	.005	.216	.112	2.690	.009
	Playground	.084	.058	.106	1.457	.149
	Staff houses	.140	.175	.368	1.945	.005
	administration offices	.014	.097	.580	5.274	.000
	departmental offices	.079	.161	.094	4.846	.000
	health bay	.004	.081	.564	4.986	.000

a. Dependent Variable: Quality of secondary education

The values of unstandardized beta coefficients given by B, are used as measures of specific physical facilities; these measures of physical facilities would be used to predict the quality of secondary education. The regression equation adopted for such a relationship was as follows

$Y=B_0+B_1X_1+B_2X_2+B_3X_3$……equation 1

Where Y is the quality of secondary education

B_0= Constant, given by 1.602

B_i= coefficient of predictors for specific physical facilities

Multiple linear equation 1 predicted the influence of physical facilities had on quality of secondary education. For instance, Y=1.602+ 0.292 dormitories + 0.227 classroom+ 0.176 furniture + 0.172 water + 0.232 electricity + 0.069 dining hall + 0.05 toilets + 0.084 playground + 0.140 staff houses + 0.014 administration offices + 0.079 departmental offices + 0.004 for health bay.

In equation 2, a unit increase in dormitories, classrooms, furniture, water, electricity, dining hall, toilets, playground, staff houses, administration offices, departmental offices, health bay increases quality of secondary school education by 0.292, 0.227, 0.176, 0.172, 0.232, 0.069, 0.005, 0.084, 0.140, 0.014, 0.079 and 0.04 respectively. From Table 4.19, dormitories, classrooms, furniture, water and electricity had high influence on the quality of education while dining hall, toilets, playground, staff houses, administrative offices, departmental stores and health bay had minimum influence.

4.6 Influence of Teaching/Learning Resources on Quality of Secondary Education

This section presents results related to the influence of teaching/learning resources on quality of secondary education as given by school principals and supported by teachers, students, and SCQASOs.

Table 4.20: Principals- rating teaching/learning Resources

		Monetary value of teaching/learning resources in Millions					
		Very high	**High**	**Moderate**	**Low**	**Very low**	**Total**
Teaching/learning R.		0.1-0.4	0.5-0.9	1.0-1.4	1.5-1.9	>2	
Equipment	F	39	50	31	28	0	148
	%	26.4	33.8	20.9	19	0	100
Stationery	F	39	50	31	28	0	148
	%	26.4	33.8	20.9	19	0	100
Agric. Workshop	F	33	29	18	0	0	80
	%	22.3	19.6	12.2	0	0	54.1
Library	F	43	48	13	5	2	111
	%	29.1	32.4	8.8	3.4	1.4	75.1
Laboratory	F	52	55	12	4	2	125
	%	35.1	37.2	8.1	2.7	1.4	84.5
Books	F	55	44	29	15	5	148
	%	37.2	29.7	19.6	10.1	3.4	100
Computer lab	F	41	35	23	15	9	123
	%	27.7	23.6	15.5	10.1	6.1	83

According to findings in Table 4.20, no school principal rated equipment, stationery, and agriculture workshop over Ksh. 2 million. Even though all schools had equipment and stationery, 89 school principals rated them as less than Ksh. 1 million in value. Out of 148 school principals, only 80 (54.1%) out of the 148 principals stated that their schools had agriculture workshops. The remaining 68 schools did not have such facilities yet they were necessary to enhance quality of education.

From the findings, only 9 out of 123 schools principals rated computer labaratories as excellent because the principals considered the value of the resources as more than Ksh. 2 million; 2 principals in each case rated libraries and laboratories as excellent (over Ksh. 2 million) because of their worth. Five out of 148 principals rated books as over two million shillings. Out of 148 school principals, 5(3.4%), 4(2.7%) and 15(10.1%) school principals rated library, laboratory, and computer labs as very good. More than 60% of school principals rated the resources as moderate and very low. One principal observed stated;

> Construction of a library with sufficient sitting capacity and stocks it in with adequate books and reading materials is a challenge because of scarcity of funds. There are many needs to be met and if any of them is not met school performance deteriorates Principal, 59)

The study established that 219 (57.03%) of the students observed that the number of teachers were adequate while 49 (12.8%) students observed they were not enough but 82 (21.4%) stated the number of teacher was moderate. On teaching aids 151(39.3%) of students said they were fairly used while 73(19%) stated the usage was good but 68(17.7% said the usage was poor.

The study established that 174(45.3%) of the students had a fair frequency of laboratory experiment while 74(19.3%) had poor frequency of laboratory experiments and 31(39.3%) of the students also stated that 151(39.3%) of the schools had well equipped laboratories while 89(23.2%) had poorly equipped laboratories and 45(11.7%) had excellently equipped laboratory. A student in a focus group discussion stated;

> Laboratories do not have adequate chemicals, equipment and are too small. The teacher's demonstrations on how to conduct experiments is not clear."

The study on institutional inputs in Migori County established that laboratories enhance the quality of education. Effective use of laboratory enhances performance in sciences. Republic of Kenya (2014) in education for all has emphasised the strategy of provision of school laboratory and equipment to achieve quality education.

The students observed that 158(41.1%) of the students had very low access of the textbooks while 68(17.7%) had low access of textbooks. The students also stated that 142 (37%) had high availability of textbooks. Students observed that 40(10.4%) had very high availability of stationery and 46(12%) of the students had high availability of stationery and 91 (23.72%) had a moderate availability while 142(37%) had low availability of stationery and 65(16.9%) had very low availability of stationery. The students also stated that 74(19.3%) of the students had an excellent library and 29(7.6%) had a very good library and 82(21.4%) had a good library and 127(33.1%) of the students had a moderate library and 72(18.8%) had a poor library. Abagi and Ogachi (2014) in a report on 40 years of education in Kenya have articulated that inadequacies instructional materials such as textbooks, library books, stationery and equipment are rampant and hamper learning. This reduces quality of education. The study on institutional inputs in Migori County established that textbooks, stationery, equipment contributed to quality of secondary school education.

Upon making a research inquiry on teachers about the ratios of how students share textbooks in class, 129(39%) of the students shared textbooks in the ratio of 1:2 while 76 (23%) teachers observed that students shared textbooks in the ratio of 1:1. Different from that was a group of 74(22.4%) and 52(15.7%) teachers who indicated that students shared textbooks in the ratio 1:3 and 1:4 respectively. According to these results, it is evident that only 23% of

teachers indicated that learners used textbook in the ratio of 1:1 meaning one textbook per student. Further, at least 38% of teachers stated that their learners shared textbooks in the ratio of more than 1:3, which meant that such learners did not acquire quality education. A teacher commented inadequate textbooks in English, Kiswahili and mathematics that required daily assignments hampered learning, reduced performance and undermined quality of education. Access to textbooks by students not only enhance knowledge acquisition but also enable students to do assignments and practise learning skills that improve performance and quality of education (Teacher 2).

Table 4.21 shows who finances the provision of books in secondary school education

Table 4.21: SCQASO-Who finances the provision of books to secondary schools?

Sources	**Excellent 75%**		**Good 50-74%**		**Satisfactory 25-49%**		**Poor Below 24%**		**None**	
	F	%	F	%	F	%	F	%	F	%
Government	1	14.3	0	0	2	28.6	4	57.1	0	0
Community	0	0	1	14.3	1	14.3	4	57.1	1	14.3
NGO's	0	0	0	0	0	0	7	100	0	0
Donors	0	0	0	0	1	14.3	6	85.7	0	0
Parents	1	14.3	5	71.4	1	14.3	0	0	0	0

In support of the influence of teaching/learning resources on the quality of education in secondary schools. Six SCQASO's indicated that parents shoulder the burden of financing the provision of books to secondary schools. Four half of the SCQASO's stated that the government, community, donors and NGO's were rated as poor in terms of financing the provision of textbooks in secondary schools. This was an indication that, the government,

community, NGO's and donors played a dismal role in supporting the provision of teaching and learning resources in secondary school education. One of the SCQASOs indicated;

> The burden of providing books and learning materials should be the responsibility of the government as when parents meet the cost of disadvantages learners who come from low income groups as they cannot afford to buy (SCQASOs, 5).

Although this approach address equity but the financing of education in a context of ever growing demand requires that partnership financing strategy be adopted if other compelling national needs are to be addressed and quality of education improved. Document analysis guide from teaching staff minutes and Board of Management minutes, tender board meetings and audit reports indicate that many schools (60%) spent less than 1.4million shillings in purchasing any teaching and learning resource. for the books and the stationery the teaching staff minutes and BOM minutes showed that parents had made book donations and students had brought to school duplicating papers and fullscaps. However the support from parents was not sufficient as many schools did not have enough books, stationery, equipments, computers, library and laboratories.

Table 4.22 shows Regression analysis of teaching/learning resources and quality of secondary education.

Table 4.22: Regression analysis of teaching/learning resources and quality of secondary education

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.791[a]	.627	.618	.353	.627	13.587	7	140	.000

a. Predictors: (Constant), equipment, stationery, workshop, libraries, laboratories, computers

Findings in Table 4.22 indicate that the variation in the quality of education as measured by influence of teaching and learning resources on quality of secondary school education was adjusted R of 0.618 which explained 61.8% of the factors that affect the quality of secondary school education. The values of R, which was 0.791, meant that the correlation between teaching/learning resources and quality of secondary school education was positive and strong. The hypothesis was tested based on influence of teaching/learning resources on quality of secondary education and significant F change was compared with the level of confidence adopted for the study. Accordingly, significant F change statistics was 0.000, which was less than the level of tolerance of 0.05 adopted for this study. The null hypothesis was rejected and the alternative was adopted such that teaching/learning resources influence quality of secondary school education.

The study in Migori County established that books and laboratories had the highest contribution to quality of education while and library also influenced quality of education. Aivumbaze and Achoka (2017) on analysing the effects of teaching/learning resources on student academic achievement supports the Migori findings. However the two studies differ in scope as the Migori study was on secondary schools.

Some students 74(19.3%) observed that they had excellent library while 199(51.9%) students stated their libraries were not good and only 56(14.6%) said availability of textbooks were excellent and 226(58.8%) said the textbooks were scarce. On availability of well equipped laboratories 45(11.7%) of the students stated it was excellent and 240(62.5%) observed they were not well equipped. On availability of stationery 40(10.4%) said they were excellent and 207(53%) said they were scarce. Poorly stalked libraries and inadequate

textbooks and unequipped laboratories hamper the learning process and undermine the quality of education. When textbooks are scarce or if there is limited access to current books for reference and textbooks then the learning process is slowed down as the context delivered cannot be effectively mastered. Indeed if the laboratories are not well equipped and chemicals and apparatus are insufficient comprising the quality of secondary school education is undermined.

Stationery in form of exercise books and fulscaps and reams of duplicating paper enhance learning process. Their scarcity means the learning process was hampered derailed. The process of evaluation in terms of giving examinations, CATs and assignments will not be effective. When there are adequate exercise books, stationery and more assignments can be done then student performance and teacher effectiveness is enhanced. Kimeu, Tanui and Rotich (2015) on the influence of instructional resources on secondary school achievement complements the Migori study that established that teaching /learning resources influence quality of secondary school education.

The responses given by SCQASOs indicated that 99(66.7%) of the schools had inadequate, faulty, or unavailable instructional materials like few equipment, few books and laboratories necessary for teachers and students to enhance learning thereby compromising the quality of education. On the other hand, school principals observed that 111(75.1%) schools had libraries although one quarter were temporary infrastructure (not permanent building, but three thirds were unequipped and students had limited access as only teachers could access it. In such cases, ability of learners to use library resources depended on teachers' would help

learners hence compromising students' achievement. Students observed that most teachers did not embrace the practice of teaching using essential resources because the teaching resources were not adequate. However, some of them had a negative attitude towards using teaching aids stating that they wasted time to prepare.

Lee and Zuze (2011) on the impact of teaching/learning resources on academic performance in sub Saharan countries established a coefficient of correlation between teaching/learning resources and students' academic achievement was 0.17 at 0.05 level of confidence. The findings in the Migori county study established that the coefficient of correlation between teaching/learning resources and quality of secondary education was 0.791 which supports the Zuze study. Another study by Yara (2011) on the determinants of performance in mathematics in KCSE in secondary schools in Nyamaiywa Division of Kisii County, found that there was a coefficient of correlation of 0.564 between teaching/learning resources and academic achievement in KCSE. The two studies complement each other as they explore influence on academic performance. However they differ in scope as Lee and Zuze (2011) investigation deal with teaching and learning resources like computers, books, library, laboratories but Yara (2011) investigation is narrower in scope as it tackles factors that affect mathematics performance in KCSE. The study on institutional inputs is more robust because it dealt with many inputs like entry behaviour, teacher learning resources, teacher characteristics, physical facilities and IGAs and their influence on quality of secondary education.

Table 4.23 shows an Analysis of variance of teaching/learning resources and quality of secondary school education.

Table 4.23: Analysis of variance of teaching/learning resources and quality of secondary education

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40.532	7	5.790	13.587	.000[a]
	Residual	48.583	140	.426		
	Total	89.115	147			

a. Predictors: (Constant), equipment, stationery, books, workshop, libraries, laboratories, computers

b. Dependent Variable: KCSE mean score

Table 4.23 shows that the p-value, 0.000 is less than the level of significance adopted for the study, p-value of 0.05 meaning that the null hypothesis was rejected and the alternative hypothesis adopted. The alternative hypothesis states there is a statistical significant relationship between quality of education and teaching/learning resources.

The inadequacy of laboratories hindered hamper the frequency of carrying out experiments. The teachers' competence to use laboratories in spite of assistance from laboratory technicians was also low as they reverted to demonstrations. Yet performance of sciences in many schools is very poor. Inadequate equipment further compounds the problem and limits the provision of quality education. The variation in the findings of R of 0.17 in the Sub Saharan Africa and R of 0.791 in Migori County and R of 0.564 in Kisii County was due to variation of context in form of time and place. The variation is explained by the quality and quantity of learning and teaching as with better quality and quantity of resources performance quality of education rose. Students differed as bright ones enhanced quality of

education and weak students lowered quality of education. Nevertheless teaching and learning resources need to be complemented with other inputs like entry behaviour, physical facilities, teacher characteristics and IGAs to achieve quality education.

Table 4.24 shows linear regression result of teaching/learning resources and quality of secondary education.

Table 4.24: Linear regression result of teaching/learning resources and quality of secondary education

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**T**	**Sig.**
1	(Constant)	2.589	.310		8.340	.000
	Libraries	.374	.076	.461	4.925	.000
	Workshop	.442	.060	.602	7.322	.000
	Laboratories	.567	.092	.287	2.910	.004
	Books	.657	.124	.250	2.079	.003
	Computers	.407	.082	.011	.091	.008
	Stationery	.331	.083	.064	.851	.006
	Equipment	.462	.077	.214	2.116	.030

a. Dependent Variable: KCSE mean score

In Table 4.24, a unit increase in individuals teaching and learning resources increased KCSE mean score by one unit. The linear relationship between quality of education and teaching/learning resources is explained in the following equation.

$Y=2.589+0.374X_1+0.442X_2+ 0.567X_3+ 0.657X_4+0.407X_5+ 0.331X_6+ 0.462X_7+$ error term

Where

Y= quality of secondary education

X_i= a measure of individual teaching and learning resources

From the linear relationship, it is true that a unit increase in library, workshops, and laboratories, books, computers, stationery and equipment for instance leads to a 0.374, 0.442, 0.567, 0.407, 0.331 and 0.462 units respectively in the quality of secondary education. From the above equation, it was true that stationery had a minimal impact on quality of secondary education while books had a unit impact of 0.657 on quality of secondary school education. Gudo, Olel and Oanda (2011) found out that inadequate lecture rooms, computers, laboratories, workshops, equipment, books and particularly information on technology affected the quality of teaching and learning at the university. The investigation on institutional inputs in Migori showed the contribution of each of these teaching and learning resources to quality education.

4.7 Influence of Teacher Characteristics on Quality of Secondary Education

Indicators of teacher characteristics that include qualification, student/teacher ratio, ability to complete syllabus, time management, lesson attendance and gender were used to define the relationship with quality of secondary education.

Table 4.25

Teachers Characteristics by Gender, Qualification, and Terms of Employment

Gender				**Qualification**						**Terms of Employment**			
Male		**Female**		**Diploma/S1**		**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**

From Table 4.25, more 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. The number of male teachers were 257(77.7%) while the number of female teachers were 74(22.3%). The principals stated that there were more male teachers than female teachers.

In terms of qualification the majority of school principals stated that the majority of teachers attained Bachelors degree qualification 50.1% followed by Masters 30.4% level and then Diploma /SI qualification 9.5%.

Recording teachers lesson attendance 79(53.4%) of the principals agreed that teachers attended regularly while 69(46.6%) observed that teachers did not attend lessons regularly. The principals 80(54.1%) stated there was proper time management by teachers in class while 168(45.9%) school principals stated that there was no proper time management by teachers in class. In this regard principal remarked;

> Some teachers did not attend class regularly and some wasted a lot of time story telling. This delayed timely syllabus completion and undermine the quality of education (Principal 17)

However another principal observed

> Teachers are sometimes not well prepared or have many lessons to teach such that they cannot cope with the workload (Principal 15)

On whether the teacher was punctual and used time efficiently 59(15.4%) of the students said it was excellent and 76(19.8%) stated it was very good and 125(32.3%) stated it was good and 124(32.3) stated it was satisfactory. On whether the teacher responds properly to all questions 73(19%) stated it was excellent and 44(11.5%) said it was very good and 86(22.4%) said it was good and 120(31.2%) stated it was satisfactory while 61(15.9%) stated it was poor. On whether the teachers delivery was clear, relevant and accurate 84(21.9%) said it was excellent and 29(7.6%) stated it was very good and 90(23.4%) indicated it was good but 123(32%) observed it was satisfactory while 58(15.1%) said it was poor.

On whether the teacher was available for outside class consultation 79(20.6%) of the student stated it was excellent and 62(16.1%) observed it was good and 81(21.1%) said it was good and 159(41.4%) said it was satisfactory and 3(0.8%) stated it was poor. Giving tests and assignments was 36(9.4%) said it was excellent and 38(9.9%) stated it was very good while 71(18.5%) stated it was good and 180(46.9%) observed it was satisfactory and 59(15.4%) said it was poor.

In a student focus group discussion a student stated;

> Some teachers administer class assignments and CATs frequently and mark and revise the work. The mathematics teacher not only gives us class work to do but she also encourages us to have confidence and high self esteem. She encourages us to practise mathematics constantly and consistently. Consequently, many of us perform well in mathematics. The teacher is also knowledgeable, effective, answers questions, counsels us after lessons (FGD 1)

This finding corroborates Bennell and Akyeampong (2007) who established that although there are many other factors that affect learning outcomes, quality of teachers and teaching re the main school-level determinants of school performance.

On whether the teacher responds to tests and assignments promptly 74(19.3%) of the students observed it was excellent and 52(13.5%) said it was very good and 73(19%) said it was good and 127(33.1%) stated it was satisfactory. On whether the teacher was knowledgeable and used relevant examples 91(23.7%) indicated it was excellent and 23(6%) indicated it was very good and 99(25.8%) said it was good and 92(24%) indicated it was satisfactory and 79(20.6%) observed it was poor. A principal remarked;

> Some teachers did not attend class regularly and some waste a lot of time in story-telling. This delayed timely syllabus completion and affects quality of education. This undermines the integrity and efficiency of the teacher and hampers quality of education (Principal, 46)

Another principal observed;

> Where the administration motivates the teachers through appreciation, support and empathy the syllabus is covered within the set time and teachers were very hard (Principal 17)

Gogo (2011) on the quality of university education established that absenteeism of learners undermined the quality of education. Absenteeism by teachers and wastage of time during lessons compromises quality of education.

UNESCO (2011) on global education has underscored the importance of teacher characteristics by observing that if school and teachers fail to meet hours of instruction because of insufficient members of trained teachers, teacher absenteeism and strikes, disasters and a host of other factors there will be a decrease in quality of teaching and quality of education. The study on influence of institutional inputs on quality secondary education confirmed that teacher characteristics of qualification, integrity, efficiency, competency and experience contributed to quality of education.

Table 4.26 shows regression analysis for teacher characteristics and quality of secondary school education.

Table 4.26: Regression analysis for teacher characteristics and quality of secondary education

						Change Statistics			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	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

In Table 4.26, 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." This means that teacher characteristics influence of quality secondary education Teacher characteristics such as 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 characteristics greatly influences the quality of secondary school education. Committed and competent teachers enhance quality of secondary school education and have what it takes to deliver quality secondary education. These findings concurred with those of World Bank (2005) 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.

In the interview findings, SCQASOs stated that some teachers were not experienced because they had taught for a shorter period of time and consequently were not effective in delivery of content. Teachers were not able to change students' negative attitude towards learning and hence improve the quality of learning. In this respect one of the SCQASOs said:

> Teachers who have taught for a long period of time were experienced and competent and their content delivery was adequate and answered all students questions properly and created an enabling environment for learning. This improved student achievement and enhanced the quality of education (SQASO, 4)

This finding concurs with Gogo (2011) on quality of university education where senior lecturers and professors who had taught for a long period had higher productivity.

Giving almost the same views as SCQASOs, school principals from their interview responses exposed students observed that most teachers did not integrate computers in learning as they considered it time wasting. Moreover, schools lacked computers and the teachers lacked skills but a few who integrated ICT in their instructional practice enhanced the quality of education among learners. Thus during the interviews, one of the principals stated:

> The younger teachers are comfortable with the use of ICT in the learning process especially in assessment and also in filing teachers performance, assessment forms for TSC education. However the older generation of teachers are not comfortable with its adoption. The computers are also few and many teachers cannot access them (Principal, 90).

This finding agrees with Manyasi (2010) who explored the use of information technology and found that institutions of higher learning lacked the necessary technology. Okwakol (2008) complement this and states that although computer are scarce, it has increasingly become the major notebook, textbook, dictionary and storage facility for information. Embracing ICT by teachers and students enhances the efficiency of the teacher (Principal 18).

Park and Hammum (2001) in a study titled "Do teachers affect learning in developing countries" Evidence from China indicated 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. They established a strong relationship between teachers' competence in terms of subject matter, knowledge and students achievement. Adeyemi (2008) also concurred. In a study in Ondo State of Nigeria on teachers' teaching experience and students learning outcomes established out that teacher experience and competence were prime predictors of students' performance in all subjects in secondary schools. A study by Yara (2011) on performance determinants of Kenya Certificate of Secondary Education in Mathematics in Nyamaiya division, Kenya established that there was a positive relationship of 0.564 at 0.05 level of significance between 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. It is

empirically right to assert that teacher characteristics do influence quality of secondary school education.

Hanushek, Lavy and Hitomi (2006) in Egypt investigated the influence of teacher characteristics on school attainment in developing countries. The researchers established that there was a 0.79 correlation coefficient at 0.05 confidence level between teacher characteristics and school attainment. Compared to this study in Migori, established that the correlation between teacher characteristics and quality of learning was 0.865. Hanushek, Lavy and Hitomi (2006) considered elements of teacher characteristics that included level of experience, qualification, terms of employment, and related aspects in determining teacher characteristics.

Table 4.27 depicts analysis of variance for teacher characteristics and quality of secondary school education.

Table 4.27

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

b. Dependent Variable: Quality of secondary school education

According to the findings presented in Table 4.27, it can be observed that teacher characteristic was a significant predictor [F (9,321) = 4.652, p<0.05]. Teacher characteristics influenced quality secondary school education.

Table 4.28 shows multiple linear regression between teacher characteristics and quality of secondary education.

Table 4.28: Multiple Linear Regression Analysis between Teacher Characteristics and Quality of Secondary Education

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**T**	**Sig.**
1	(Constant)	11.713	4.187		2.976	.001
	Male teachers	.186	.192	.563	1.548	.005
	Female teachers	.279	.347	.264	.818	.008
	Diploma/S1 teachers	.447	.369	.242	.554	.002
	Student /teacher ratio	.525	.381	.531	2.638	.009
	Teaching experience	.507	.372	.527	2.524	.002
	Degree teachers	.521	.391	.543	2.746	.001
	Complete syllabus	.418	.542	.428	2.271	.001
	Master level teachers	.272	.320	.582	2.152	.009
	Time management	.546	.396	.393	1.474	.007
	Students attendance of lessons regularly	.527	.472	.198	2.175	.031
	Teachers absenteeism	-1.268	.692	-.572	-2.391	.121
	BOM teachers	.293	.675	.278	.794	.003
	TSC teachers	.425	.428	-.594	.276	.020

a. Dependent Variable: Quality of Secondary School Education

Regression Equation: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2$ ---------- ε

From Table 4.28 teacher characteristics when disaggregated showed that each characteristic has different power of influence and therefore fit well in prediction model. Out of the thirteen characteristics twelve were found to be significant predictor while one was not. The regression equation is Quality Secondary schools Education = $11.713 + 0.186X_1 + 0.279X_2 + 0.447X_3 + 0.525X_4 + 0.508X_5 + 0.521X_6 + 0.418X_7 + 0.272X_8 + 0.546X_9 + 0.527X_{10} 0.293X_{11} + 0.527X_{12} + 0.425X_{13}$. 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. Ensuring regular students attendance of lessons by 0.527 units and student /teacher ratio by 0.425 units and TSC teachers 0.425. This model can be used in predicting influence of teacher characteristics on quality of secondary school education.

The values of unstandardized beta coefficients given by B, are used as measures of specific indicators of teacher characteristics, which would be used to predict the quality of secondary education. The simple regression equation adopted for such a relationship was as follows

$Y=B_0+B_1X_1+B_2X_2+B_3X_3\ldots\ldots B_iX_i+$ error term

Where Y is the quality of secondary education

B_0= Constant, given by 11.713.

B_i= coefficient of predictors

4.8 Influence of Income Generating Activities on Quality of Secondary Education

In this section, descriptive and inferential statistics was used to establish the relationship and the nature of association between income generating activities and quality of secondary education. Data and information given by school principals was used as the focus and it was supported by information given by teachers, students, and SCQASOs.

Table 4.29 presents findings related to income generating activities and the amount accrued from the ventures in order to understand the table, consider the following initials

P.M=Planting maize

K.B=Keeping bees

P.K=Poultry keeping

D.F=dairy farming

H=horticulture

B-M=Brick-making

H.S.V=Hiring school van

Table 4.29 shows Income Generating Activities on the amount earned.

Table 4.29: Income generating activities based on the amount earned

	P.M		K.B		P.K		D.F		H		B-M		H.S.V	
IGA-Ksh. Millions	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
0.05-0.150	122	82.4	26	17.6	38	25.7	64	43.2	49	33.1	17	11.5	98	66.2
0.151-0.250	26	17.6	0	0	0	0	19	12.8	2	1.4	6	4.1	20	13.5
0.251-0.350	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.351-0.450	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Above 0.450	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**148**	**100.0**	**26**	**17.6**	**38**	**25.7**	**83**	**56.0**	**51**	**34.5**	**23**	**15.5**	**118**	**79.7**

In the findings, 122 school principals stated that their schools ventured in planting maize and they valued the practice between Ksh. 0.05-0.15million,while 26 principals valued the venture of planting maize between Ksh. 0.151-0.250 million. Bee keeping and poultry farming were done on low scales; 26 and 38 school principals valued bee keeping and poultry keeping between Ksh. 0.05-0.15million. All the schools ventured into some income generating activity which comprised planting of maize, keeping bees, poultry keeping, dairy farming, horticulture, brick-making and hiring school van. In this respect a principal commented;

> Government financing through free secondary school education and the fees paid by parents at prescribed levels is insufficient to sustain quality education because of 100% transition policy, over enrolment, inflation and the need to provide a variety of institutional inputs. The disbursement of FSE is also delayed making school management challenging (Principal 10).

The remarks show that the state of secondary school education is deteriorating and needs additional financing alternatives and prudent and efficient use of resources if is to be improved in an environment of increased access.

Upon asking teachers about the income generating activities in their respective schools, 232 out of 331 representing 70.1% indicated that various sources of income different from FSE were not adequate. Even so, 99 teachers representing 29.9% stated that the various sources of income generating activities apart from FSE were adequate. Thus during the interview, a teacher stated;

> There are a few IGAs such as horticulture and maize planting that are carried on in the school. However lack of adequate funding they are operated on a low scale and the sales from the produce are used in paying salaries of BOM teachers. Most income generating activities are small. They can do better if they are well planned and effectively (teacher 30)

All the SQASOs stated that the capitation provided by the Ministry of Education to secondary schools was not enough indicating that the quality of education in most secondary schools that relied on FSE only was insufficient. All the QASO's stated that the capitation disbursed to secondary schools were inadequate and the number of students kept increasing relative to the capitation received from the government.

Correlation Results

Table 4.30 shows regression analysis of Income Generating Activities and quality of secondary school education.

Table 4.30: Regression analysis of Income generating activities and quality of secondary 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	.727[a]	.529	.507	.314	.529	28.455	8	134	.000

a. Predictors: (Constant), poultry keeping, brick-making, hiring school van, bee keeping, dairy farming, planting maize

Table 4.30 indicates the value of R as 0.727 which explained the correlation between observed and predicted values of the quality of secondary education and income generating activities. R squared which was 0.529 indicated that the proportion of variance in quality of secondary education was explained by income generating activities. Relative to R squared, the value of adjusted R square was 0.507 which was reliable because it could not change despite additional predictors.

In order to test the hypothesis relative to this objective, a comparison between significant F change and the level of tolerance/confidence adopted for the study was done and the value of significant F change statistics was 0.000, which was less than the confidence level 0.05 adopted for this study. On this basis, null hypothesis was rejected and the alternative hypothesis was adopted such that income-generating activities in secondary schools influenced quality of secondary school education.

Compared to the quantitative findings regarding Income generating activities and quality of secondary, qualitative findings were explicit. Seven SCQASOs observed that almost half the

schools did not engage in complimentary income generating activities and a few who engaged in all the IGAs did it on a low or medium scale. Upon inquiring from principals regarding level of financing and quality of education, they stated that the capitation received from government was usually inadequate and was subject to delays. Most schools had no resources and capacity to operate other income generating activities effectively, and the leadership in some of the schools was not proactive or willing to venture in income generating activities. Some of the intervention measures suggested by principals included collaborating with the community parents and the government in financing income generating activities. The school principals added that changing the attitude about costs, capacity, and resources needed would enable schools start with small enterprises and expand their scale of operations. There was the need to stop the culture of buying almost everything such that principals should limit the items that they purchased especially if the school could produce them.

The principals reported that only 122(82.4%) schools planted maize out of the 148 schools and 26(17.6%) of the schools kept bees. The second most popular activity was hiring of school van which was taken by 98(66.2%) of the schools. Secondary schools were not adequately resourced. Indeed this problem was compounded by the fact that disbursement of funds to schools was delayed compromising routine activities. This affected performance in secondary schools as vital items like books, stationery, repairs and wages of BOM teachers and support staff could not be paid in time. Governments financial constraints and competing demand by various sectors cannot allow it to finance the entire cost of education. It is

necessary that schools start income generating activities to supplement what the government gives. Lack of financial resources can affect provision of quality education.

Secondary schools have ignored IGAs because of inadequate budgetary allocation and planning. Yet substantial gains can accrue for these activities if they are well resourced and planned. Many studies Mingat (2004) and Gillies (2010) show a strong correlation between income generating activities and quality of secondary school education. The two studies differ in scope as Mingat's study focus on financial sustainability but the Gillies study is more robust and explored how financing can be used to bring education reform. In addition, Omukoba, Simatwa and Ayodo (2011) on contribution of IGAs to financing secondary school education in Kenya established that IGAs contributed significantly to financing of education by purchasing of inputs and payment of salaries which in turn enhanced quality of secondary school education.

Getange (2013) in Kenya, in Kisii Central District on Income generating activities and quality of learning, established that there was a coefficient correlation was 0.447. Compared to Getange's (2013) the Migori study established that the coefficient of correlation between Income generating activities and quality of education was 0.507; however, the Migori study further established the extent or the contribution of each income generating activities on quality of education. A study by Gogo (2002) established that IGAs influence quality of secondary school education. The current study identifies the contribution of each IGAs on the quality of secondary school education.

Table 4.31 shows analysis of Variance of Income generating activities and quality of secondary education.

Table 4.31: Analysis of Variance of Income generating activities and quality of secondary education

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60.244	8	7.530	28.455	.000[a]
	Residual	35.462	134	.265		
	Total	95.706	142			

a. Predictors: (Constant), poultry keeping, brick-making, hiring school van, bee keeping, dairy farming, planting maize

b. Dependent Variable: KCSE mean score

Table 4.31 clearly indicates that p-value was less than the level of significance adopted for the study, p-value<level of significance, 0.000<0.05. Such a relationship indicates that the data fits in the regression model well and the null hypothesis was rejected and the alternative hypothesis adopted. The alternative hypothesis states, there is a statistical significant relationship between Income generating activities and quality of secondary education.

Table 4.32 show multiple Linear regression of Income generating activities and quality of secondary education

Table 4.32: Multiple Linear regression of IGAs and quality of secondary education

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.094	.111		9.816	.000
	Poultry keeping	.380	.081	.485	4.673	.000
	Brick making	.231	.100	.246	2.309	.002
	Bee keeping	.363	.081	.470	4.488	.000
	Planting maize	.730	.080	1.033	9.123	.000
	Dairy farming	.430	.083	.668	5.184	.000
	Hiring school van	.558	.080	.803	6.968	.000

a. Dependent Variable: KCSE mean score

Table 4.32 indicates there is a positive linear relationship between individual income generating activities venture and quality of secondary education such that a unit increase in individuals teaching and learning resources increased KCSE mean score by a given coefficient value. The linear relationship between quality of education and IGAs is shown in the following equation

$Y=1.094+0.380X_1+0.231X_2+ 0.363X_3+ 0.730X_4+0.430X_5+ 0.558X_6+$ error term

Where

Y= quality of secondary education

X_i= a measure of individual income generating activities

From the linear relationship, it is true that a unit increase in poultry keeping, brick making, bee keeping, planting maize, dairy farming, and hiring school van leads to a 0.380, 0.231, 0.363 0.730, 0.430 and 0.558 increase in quality of secondary education respectively.

4.8.1 Multivariate results regression results

Table 4.33 shows multivariate regression analysis.

Table 4.33: Multivariate regression analysis between entry behavior of students at KCPE, physical facilities, teaching/learning resources, teacher characteristics, Income generating activities and quality of secondary education

				Std. Error	Change Statistics				
Model	R	R Square	Adjusted R Square	of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.741[a]	.549	.526	.371	.549	14.581	5	101	.000

a. Predictors: (Constant), entry behavior of students in KCPE, teacher characteristics, teaching/learning resources, physical facilities, Income generating activities

Table 4.33 shows the value of R squared, as 0.549 which indicates the overall association of variables in the model. The value of R squared which was 0.549 indicated that the proportion of variance in quality of secondary education explained by the predictors. Considering that the value of R squared would change upon additional predictors, the value of adjusted R squared, which was 0.526, was reliable. The value of R, 0.741, measured the correlation between entry behaviour of students, physical facilities, teaching/learning resources, income-generating activities in secondary schools and quality of secondary school education.

From the findings in Table 4.33, it is clear that the p-value, which was 0.000, was less than the level of significance of 0.05 adopted for the study. Such a relationship indicated that there was a statistical significant relationship between entry behaviour of students in KCPE, physical facilities, teaching/learning resources, teacher characteristics, Income generating activities and quality of education in secondary schools in Migori County. Further, the null hypothesis was rejected and the alternative hypothesis was adopted such that income-generating activities in secondary schools influenced quality of secondary school education.

Table 4.34 depicts multivariate analysis of variance between independent variables and quality of secondary education.

Table 4.34

Multivariate analysis of variance between independent variables and quality of secondary education

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.743	5	4.749	14.581	.000[a]
	Residual	32.893	101	.326		
	Total	56.636	106			

a. Predictors: (Constant), entry behaviour of students in KCPE, teaching/learning resources, teacher characteristics, physical facilities, Income generating activities

b. Dependent Variable: Quality of secondary education

Table 4.34 indicates that F (5, 101) = 14.581 and the p-value, which was 0.000, was less than the level of significance of 0.05 adopted for the study. Such a relationship indicated that there was a statistical significant relationship between entry behaviour of students in KCPE,

physical facilities, teaching/learning resources, teacher characteristics, Income generating activities and quality of education in secondary schools in Migori County.

Table 4.35 shows multiple Linear regression model between entry behavior of students in KCPE, teaching/learning resources, teacher characteristics, physical facilities, Income generating activities and quality of secondary education.

Table 4.35

Multiple Linear regression model between entry behavior of students in KCPE, teaching/learning resources, teacher characteristics, physical facilities, Income generating activities and quality of secondary education

		Unstandardized Coefficients		Standardized Coefficients		
Model		**B**	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	.713	.293		2.430	.017
	Teacher characteristics	.611	.046	.542	6.777	.000
	entry behavior of student in KCPE	.434	.071	.039	.475	.001
	teaching/learning resources	.540	.055	.228	2.565	.002
	physical facilities	.252	.066	.195	2.295	.004
	Income generating activities	.342	.054	.062	.766	.003

a. Dependent Variable: Quality of secondary education

The values of unstandardized beta coefficients given by B, were used as measures of entry behavior of students in KCPE, teaching/learning resources, teacher characteristics, physical facilities, and Income generating activities. These measures would be used to predict the

quality of secondary education. The simple regression equation adopted for such a relationship was as follows

$Y=B_0+B_1X_1+ B_2X_2+ B_3X_3\ldots.+$ error term

Where Y is the quality of secondary education

B_0= Constant, given by .713.

B_i= coefficient of entry behavior of students in KCPE, teaching/learning resources, teacher characteristics, physical facilities, and Income generating activities

Multiple Linear equation, would be used to predict the influence entry behavior of students in KCPE, teaching/learning resources, teacher characteristics, physical facilities, and Income generating activities have on quality of secondary education. For instance, Y = 0.713 +0.611 teacher characteristics + 0.434 entry behavior of students in KCPE+ 0.540 teaching/learning resources + 0.252 physical facilities + 0.342 Income generating activities + error terms. In the equation above, a unit increase in teacher characteristics, entry behavior of students in KCPE, teaching and learning resources, physical facilities, and Income generating activities would increase the quality of secondary education by 0.611, 0.434, 0.540, 0.252, and 0.342 units respectively.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1. Introduction

This chapter presents the summary, conclusions and recommendations of the study. The presentation is based on themes derived from the objectives of the study.

5.2.Summary of Findings

5.2.1 Entry behavior of students and quality of secondary Schools Education

The study revealed variation in the quality of education as measured by students' entry behaviour in KCPE mean score for both boys and girls was 0.54.1, which was the value of adjusted R squared, which was considered reliable. The strength of association between quality of education and students' entry behavior in KCPE for boys and girls was significant. Entry behaviour of students had a statistically significant influence on quality of secondary school education since the F change value was 0.003 which was less than the adopted level of confidence of 0.05. Regression equation that described the linear relationship between quality of secondary school education and students' entry behaviour in KCPE was given by $Y=3.763+0.593X_1$ where a unit increase in the boys' and girls' entry behaviour in KCPE increased quality of secondary school education by 59.3% units.

Considering boys only, the variation in the quality of education as explained by boys' students' entry behaviour in KCPE was 51%, which was considered reliable. The strength of association between quality of education and boys' entry behaviour in KCPE was 73.3%. The regression equation describing the relationship was given by $Y=2.915+ 0.459X_1$ such that Y represented the quality of secondary education while X_1 represented boys' entry behaviour in KCPE.

With consideration of girls, the variation in the quality of education as explained by the girls' entry behaviour in KCPE was 52.9%. The strength of association between quality of secondary school education and girls' entry behaviour was 76%. The relationship between significant of change and level of confidence adopted for the study was 0.000 compared to 0.555. The regression equation associated with $Y=2.915+ 0.459X_1$ such that a unit increase in the girls' entry behaviour in KPCE increased quality of education by 45.9%. The interview findings supported questionnaire findings on the contribution of entry behaviour to quality of education because its contribution was higher than that of physical facilities and IGAs.

5.2.2 Physical facilities and quality of education in secondary schools

The findings of the study revealed that the reliable variation in the quality of education as explained by physical facilities was 34.9% the remaining 65.1% was explained by other factors other than physical facilities. The value of R squared, which changed upon the addition of other predictors was 36.7%. The strength of association between quality of secondary school education and physical facilities was 60.6% and was significant. The value of significant F change was 0.000, which was less than 0.05, the level of confidence adopted for the study.

The regression equation giving the linear relationship between quality of secondary school education and physical facilities was given by $Y=1.602+0.292X_1+ 0.227X_2 + 0.176X_3+ 0.172 X_4 + 0.232X_5+ 0.069 X_6+ 0.05 X_7 + 0.084 X_8 +0.140X_9+ 0.014 X_{10}+ 0.04X_{12}$. From the linear regression equation, a unit increase in the value of dormitories, classrooms, furniture, water, electricity, dining hall, toilets, playground, staff houses, administration offices and health bay increased quality of secondary school education by 29.2%, 22.7%,

17.6%, 23.2%, 6.9%, 5%, 8.4%, 14%, 1.4% and 4% respectively. The interview findings concurred with questionnaire findings on the contribution of physical facilities to quality of education which was the lowest compared to other inputs.

5.2.3 Teaching/learning resources and quality of education in secondary schools

The findings of the study show that teaching and learning resources influenced quality of secondary education by 79.1%, this was the strength of association between the two variables. The reliable variation in the quality of secondary school education as explained by teaching and learning resources was given by 61.8% and was significant. The statistical significance was established by the relationship between significant F change and level of confidence adopted by the study, where the former was less than the latter, $0.000<0.05$.

The Regression equation describing the relationship between quality of secondary school education and teaching/learning resources was given by $Y=2.589+0.374X_1+0.442X_2+ 0.567X_3+ 0.657X_4+0.407X_5+ 0.331X_6+ 0.462X_7$ where Y was the quality of secondary school education and Xi was the predictors of teaching/learning resources. From the equation, a unit increase in the value of libraries, workshops, laboratories, books, computers, stationery, and equipment increased quality of secondary school education by 37.4%, 44.2%, 56.7%, 65.7%, 40.7%, 33.1%, and 46.2% respectively. The interview findings supported teh questionnaire findings that teaching / learning resources contributed higher than all the inputs of entry behaviour, physical facilities and IGAs. Its contribution was only second to teacher characteristics.

5.2.4 Teacher characteristics and quality of education in secondary schools

The study showed that teacher characteristics contributed to quality of secondary school education by 86.5%, this was the strongest institutional factor influencing quality of secondary school education compared to students' entry behaviour, teaching/learning resources, physical facilities and income generating activities. The reliable variation in the quality of education as explained by teacher characteristics was given by 71.4%. There was a statistical significant relationship between teacher characteristics and quality of secondary school education because the p-value was less than the level of significance adopted by the study such that $0.000<0.05$.

The regression equation describing the linear relationship between teacher characteristics and quality of secondary school education was given by $Y=11.713+ 0.186X_1+ 0.279X_2+ 0.4479X_3 + 0.525X_4+ 0.418X_5+ 0.418X_6+ 0.272X_7+ 0.546X_8 + 0.219X_9 + 0.527X_{10}- 0.268X_{11}+ 0.425X_{12}$ where Y was given by the quality of secondary school education and Xi was given by the predictors of teacher characteristics. From the equation, it was established that a unit increase in the number of male teachers, number of female teachers, diploma/s1 teachers, shortfall/overstaffing, completing syllabus, master level teachers, proper time management, teacher absenteeism and students/teacher ratio increased the quality of secondary school education by 0.186, 0.279, 0.449, 0.525, 0.418, 0.272, 0.546, 0.219, 0.527, -0.268, and 0.425 respectively. The interview findings supported the questionnaire findings that teacher characteristics influenced quality of secondary education more than any other input.

5.2.5 Income Generating Activities and quality of education in secondary schools

The study revealed that Income generating activities contributed to enhancing quality of education by 72.7%, this was the value of the strength of association between the two variables. The reliable variation in the quality of education as explained by the level of income generating activities in secondary schools was given by 50.7%. There was a statistical significance relationship between income generating activities and quality of secondary school education and was given by the fact that significant F change value or p-value was less than the level of significance adopted by the study such that 0.000<0.05.

The regression equation explaining the linear relationship between quality of secondary school education and the level of income generating activities was given by $Y=1.094+0.380X_1+0.231X_2+ 0.363X_3+ 0.730X_4+0.430X_5+ 0.558X_6$ where Y measured the quality of secondary school education while Xi measured the contribution of each predictor towards quality of education. From the equation, a unit increase in the level of poultry keeping, brick making, bee keeping, planting maize, dairy farming, and hiring school van increased the quality of all secondary school education by 38%, 23.1%, 36.3%, 73%, 43%, and 55.8% respectively. In this case, planting maize contributed more towards influencing quality of education compared to other predictors. The interview findings supported the questionnaire findings that IGAs had the second least contribution after physical facilities to quality of secondary education.

5.3.Conclusion

5.3.1 Entry behavior of students and quality of education in secondary schools

Most of the learners who scored less than grade C+ in KCPE secured chances for admission in secondary schools, and their weak performance influenced quality of secondary school education negatively. Although some of the students scored marks above average in KCPE, the status in schools where facilities lacked, teachers' shortages were experienced and teaching and learning facilities were inadequate which negatively influenced the quality of secondary school education. Girls performed better than boys in KCSE despite having scored lower mean points than boys in KCPE. The contribution of entry behaviour to quality of education was greater than that of IGAs and physical facilities but less than that of teaching /learning resources and teacher characteristics.

5.3.2 Physical facilities and quality of education in secondary schools

Schools with enough, and equipped facilities which were in good state assisted the students, teachers and hence improving the quality of education. Most schools had physical facilities, which were rarely in use; the failure to use the facilities could be attributed to lack of competent teachers or personnel. The school management largely influenced the status of the physical facilities. The contribution of physical facilities to the quality of secondary school education was lower compared to the contribution of entry behaviour, teaching/learning resources, teacher characteristics and IGAs.

5.3.4 Teaching/learning resources and quality of education in secondary schools

Most schools relied on parents to support them with teaching and learning resources but parents were unreliable sources because the majority had huge school fees arrears. Schools that depended on government capitation as the only source of income did not have enough teaching and learning resources. In most schools, learners and sometimes teachers had limited freedom to access and use some of the teaching and learning resources as the school management reserved access and usability, which influenced negatively the attitude and hence quality of education in those schools. Increased students enrolment increased pressure on available teaching/learning resources hence reducing benefit from such resources. The contribution of teaching /learning resources to the quality of secondary school education was higher than all other inputs except teacher characteristics.

5.3.5 Teacher characteristics and quality of education in secondary schools

Teacher qualification influenced the quality of education in schools, the level of experience of most teachers was high, and this contributed immensely in enhancing the quality of education in schools. The ability of most teachers to deliver academic content depended on teaching experience and teacher qualification low. The contribution of teacher characteristics to the quality of secondary school education was the highest among the other inputs of entry behaviour, physical facilities, teaching /learning resources and IGAs.

5.3.6 Income Generating Activities and quality of education in secondary schools

All schools engaged in IGAs but levels of engagement differed at different levels. The ever-increasing school fees arrears hindered most schools from exploring their potential in exploiting available resources in income generating activities. The community and indeed

parents played a minimal role in enhancing or supporting income generating activities in schools. The contribution of IGAs to quality of secondary education was the second lowest input after physical facilities.

5.4. Recommendations

i) Quality of secondary school education can be improved by raising the entry behavior of KCPE graduates through qualitative and quantitative resourcing of primary subsector by a combined effort of the Ministry of Education, Donors, NGOs and Parents. The strengthening of Early Childhood Education will be a fundamental requirement to improving entry behaviour. All this is necessary because KCPE performance is a good predictor of KCSE performance.

ii) The Ministry of Education, CDF, NGO's and Parents need to provide adequate physical infrastructure that are adequate and of high quality to create an enabling environment that can improve the quality of secondary school education. PEC, ADB/ADF, NGO's, World Vision, Farm based organizations can also give funds to provide physical facilities. Increased enrolments demand that more classrooms, dormitories, laboratories, workshops be constructed and water systems be expanded and upgraded.

iii) The Ministry of Education need to provide more teaching and learning resources through greater budgetary allocation for provision of textbooks, equipment, computers and libraries. Others like the National Treasury, Development Partners like World Bank, SIDA, USAID, UNICEF and World Vision assist. Adequate, relevant and reliable teaching and learning resources are integrated to provision of quality secondary school education.

iv) The Ministry of Education should resource, strengthen and restructure the operations of quality assurance and standards officers. This is necessary to enable them contribute to the achievement of quality secondary education through enhancing frequency of monitoring, enriching assessment, boosting supervision and providing guidance on effective use of resources.

v) The Teachers Service Commission should provide adequate teachers to reduce the burden of paying BOM teachers. This will also uplift the quality of secondary school education as with more teachers syllabus coverage will be more effective and since the teachers are qualified they will impart more enhanced knowledge and skills to the students that will improve performance in KCSE.

vi) Principals should venture into or expand IGAs in their schools to mobilize additional financial resources. For this to be effective, the MOE to develop a policy framework on financing, legality, planning and proper administration of IGAs. The Ministry also needs to train principals on entrepreneurial, innovation and accounting culture to enhance and sustain financial returns, this can take the form of ventures like brick-making, hiring school facilities, poultry keeping, dairy farming, horticulture, bee keeping, fish farming and maize farming. The alternative financing can be used to provide teaching/ learning resources, physical facilities, pay salaries of BOM teachers and supporting staff. This would improve the quality of secondary school education.

vii) The Ministry of Education should raise the amount allocated per student under the FSE program to boost the provision of quality physical infrastructure, learning and teaching resources. The Ministry of Education also needs to disburse the funds on a timely basis to allow effective implementation of plans.

viii) There is need to boost the bursary fund to assist students who drop out of school due to lack of fees because they come from vulnerable backgrounds. The Ministry of Education needs to play a key role so that they can assist more students and enable all deserving students to be considered. The bursary fund can be substantial if private donors such as UNICEF, USAID, Commercial Banks and World Vision to supplement FSE.

5.5 Suggestions for Further Research

The following suggestions were made for further research:-

i. The study found out that entry behaviour of the students influences the quality of secondary school education. Further research should find out what aspects of students socio-economic background in primary determine KCSE performance.

ii. The study indicated that physical infrastructure affects the quality of public secondary school education. Further research is necessary to determine the influence of physical facilities on quality of primary school education.

iii. The study found out that learning and teaching resources had an effect on performance in secondary school education. Further research would investigate the impact of teaching and learning resources on the quality of higher education.

iv. The study indicated that teacher characteristics had an influence on quality of secondary school education. Further research is necessary to find out the influence of teacher characteristics on the quality of higher school education.

v. The research found out that income generating activities had an influence on performance in KCSE. A further research can be carried out on ways of mobilizing financial resources to meet quality secondary education.

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APPENDIX A

PRINCIPAL'S QUESTIONNAIRE

Questionnaire on Influence of Institutional inputs on Quality Secondary Education in Secondary School in Migori County

1. This questionnaire is part of a study on the influence of Institutional inputs on Quality Secondary school Education in Migori County. Please fill it. Any information obtained will be treated with utmost confidentiality. Please make your answers as specific as possible. Your cooperation is highly appreciated.
2. For the Yes/No or Boxed questions or the ones with rating scales indicate your choice by ticking (√) in the appropriate place. The questions with spaces should be answered in the spaces provided. Be as sincere and as accurate as possible.
3. The information given will be treated as confidential information between you and the researcher only and will only be used for data analysis.
4. The information you will give will assist in developing ways of improving the quality of secondary school education in secondary school.
5. Your cooperation is needed in this study and do all you can to ensure that the study is a success.

A. Background Information

i) When was the school established----------

ii) Tick (√) the type of school appropriately

Mixed ☐ Girls ☐ Boys ☐

iii) Is your school? Tick as appropriately

Mixed ☐

Girls only ☐

Boys ☐

1. Highest education level attained. Tick (√) as appropriately.

Diploma /SI ☐

B.ED ☐

BA/B.Sc./PGDE ☐

M.ED ☐

ii) What is the current grade K ☐ L ☐ M ☐ N ☐ Above N ☐

i) Experience as a principal (tick appropriately)

Years of service	Tick appropriate
Less than 5 years	
6-14 years	
15-19 years	
Over 20 years	

2. State the enrolment in your school in the last eight years.

Year	**Boys**	**Girls**	**Total percentage in increase /decrease**
2010			
2011			
2012			
2013			
2014			
2015			
2016			
2017			

INSTITUTIONAL INPUTS

A) Entry Behaviour

4. What is the average KCPE points for entry into secondary school education

Below 5 points ☐ 6 points ☐ 7 points ☐ 8 points ☐ 9 points ☐

10 points ☐ 11 points ☐ 12 points ☐

B. Physical Facilities

5 i) Does the school own land which has a title deed? Tick as appropriate

Yes ☐ No ☐

If no, why?----------

6i) Please on a scale of 1 to 5, rate the physical facilities in your school based on their money value by ticking (√) where

5= Very High at 2million and above

4= High at 1.5million to 1.9 million

3= Moderate at 1.0 to 1.4million

2 = Low at 0.5million to 0.9miilion

1 = Very low at 0.1million to 0.4million

	Very low	**Low**	**Moderate**	**High**	**Very High**
Physical facilities					
Dormitories					
Classrooms					
Furniture					
Staff Houses					
Dept. offices					
Admin. offices					
Water					
Electricity					
Dining hall					
Toilets					
Play ground					
Health bay					

ii) Explain the influence of physical resources on students academic achievement in your school.----------

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C. Teaching and Learning Resources

7 i) Please on a scale of 1 to 5, rate the teaching and learning resources in your school based on their money value by ticking (√) where

5= Very High at 2million and above

4= High at 1.5million to 1.9 million

3= Moderate at 1.0 to 1.4million

2 = Low at 0.5million to 0.9miilion

1 = Very low at 0.1million to 0.4million

	Very Low	**Low**	**Moderate**	**High**	**Very high**
Teaching /learning resources					
Equipment					
Stationery					
Agriculture /workshop					
Library					
Laboratory					
Books					
Computer lab					

ii) Do learning resources influence quality of secondary education in your school

Yes ☐ No ☐

8. Does the use of information communication and technology enhance quality education

Yes ☐ No ☐

If the response is Yes, then explain how?

9i) Kindly rate the statements given by ticking the appropriate response concerning available and quality of education in your school where 1 = Not all, 2 = Scarce, 3 = Low extent

4= Moderate extent 5 = Very high extent

Statement	**1**	**2**	**3**	**4**	**5**
Adequate provision of teachers results in good performance					
Adequate provision of textbooks improves performance in KCSE					
The use of computers in learning enhances quality of education					
A library with adequate reading materials improve performance					

ii) What is the influence of learning resources on students academic achievement in secondary school?

D. Teacher Characteristics

10. Complete the following table by stating the number of teachers by gender and qualification for the year 2014 to 2017 in your school.

	Number of Teachers					
Learning resources	**Employees**			**BOM Employees**		
Qualification/ Current grade	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Diploma /SI						
Degree						
Masters						

11. How many teachers do you need in your staff? ----------
    i) How many teachers are currently there? ----------
    ii) What is the shortfall/overstaffing?----------
12. Do teachers complete syllabus in time? Tick appropriately.

    Frequently ☐ Sometimes ☐

    Always ☐ Never ☐

Explain your response?

---

13. Is there proper management of time by teachers in class? Tick appropriately.

No ☐

Yes ☐

If the answer is NO, then suggest ways by which teachers can improve management of time.

---

14. Do all students attend all lessons regularly? Yes ☐ No ☐

If the answer is NO, then explain reasons for student absenteeism?

---

15. Do teacher attend all lessons regularly? Tick (√) appropriately

No ☐ Yes ☐

If the answer is NO, then give reasons for teacher absenteeism

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16. What is the students /teacher ratio in your school between 2011-2013.

Year	**Current student /teacher ratio**	**Recommended student /teacher ratio**
2011		
2012		
2013		
2014		
2015		
2016		
2017		

17. Identify the number of support staff in your school indicating the number required, the number existing now and the shortfall for each category for the period 2011-2015.

Title	**Number employed**	**Number supposed to be employed**	**Shortage /overstaffing**
Bursar			
Accounts clerk			
Storekeeper			
Cateress			
Librarian			
Laboratory Assistant			
Office messenger			
Driver			
Cooks			
Watchmen			
Typists			
Matron			
Artisan			
Health office			
Grounds man			

E. Income Generating Activities

18. Rate the Income Generating Activities in your school based on the amount earned from each venture by ticking (√) appropriately where;

    1 = Very low at 0.05m to 0.150m; 2= Low at 0.151m to 0.250m;

    3 =Moderate at 0.251m to 0.350m; 4 = High at 0.35m to 0.450m and

    5 = Very High above 0.450m (where m is millions of shillings)

IGAS	**Very Low**	**Low**	**Moderate**	**High**	**Very high**
Farming maize					
Keeping bees					
Poultry keeping					
Dairy farming					
Horticulture					
Brick making					
Hiring school van					

If there are no Income Generating Activities then specify sources of income for the school.--

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19. State the number of students in your school who have had difficulty in paying schools and other levies in the last eight years.

Year	**Form I**	**Form II**	**Form III**	**Form IV**	**Total**
2010					
2011					
2012					
2013					
2014					
2015					

20. How many students have dropped out of school due to fees difficulty

	Number of students who dropped out				
Year	**Form I**	**Form II**	**Form III**	**Form IV**	**Total**
2010					
2011					
2012					
2013					
2014					
2015					
2016					
2017					

ii) Explain other means why students drop out of school

---

21. Indicate the fees arrears for each of the following years.

Year	**Fees arrears**
2010	
2011	
2012	
2013	
2014	

2015	
2016	
2017	

Explain how the level of financing impact on the quality of secondary education?

F. Performance of Secondary School Education

22. State the number of students who sat KCSE in the various years and mention the school mean score for each year and indicate the number who got C+ and above give the percentage who got C+ and above as a percentage of the total entry.

Year	**Entry**	**Mean score**	**Got C+ and above**	**C + and above as a percentage of total**	**Average performance for 2010-2017**
2010					
2011					
2012					
2013					
2014					
2015					
2016					
2017					

23. Indicate the results of your students per subject in KCSE for the years 2010 to 2014 identifying the number who sat for the subject and the mean score for each subject.

Subject	**2010**		**2011**		**2012**		**2013**		**2014**		**2015**		**2016**		**2017**	
	NO	**MS**	**NO**	**MS**	**NO**	**MS**	**NO**	**MS**	**NO**	**MS**	**NO**	**MS**	**NO**	**MS**	**NO**	**MS**
English																
Kiswahili																
Mathematics																
Chemistry																
Biology																
Physics																
History &Gov																
CRE																
Business studies																
Home science																
Agriculture																
Music																
Computer																
German/ French																

Thank you for your cooperation

APPENDIX B

TEACHERS QUESTIONNAIRE

Questionnaire on Influence of Institutional inputs on Quality Secondary Education in Secondary School in Migori County.

1. This questionnaire is part of a study on the influence of Institutional inputs on Quality Secondary school Education in Migori County. Please fill it. Any information obtained will be treated with utmost confidentiality. Please make your answers as specific as possible. Your cooperation is highly appreciated.
2. For the YES/No or Boxed questions or the ones with rating scales indicate your choice by ticking (√) in the appropriate place. The questions with spaces should be answered in the spaces provided. Be as sincere and as accurate as possible.
3. The information given will be treated as confidential information between you and the researcher only and will only be used for data analysis.
4. The information you will give will assist in developing ways of improving the quality of secondary school education in secondary school.
5. Your cooperation is needed in this study and do all you can to ensure that the study is a success.

General Information

1. **Gender**: Male ----------Female----------

A. Entry Behaviour

2. Do students KCPE marks used in admission to secondary school affect performance in end term (mock) exams? Tick appropriately

Very much ☐
Much ☐
Not much ☐
No effect ☐

B. Physical Facilities

3. Please on a scale of 1 to 5, rate the physical facilities in your school based on their money value by ticking (√) where

5= Very High at 2million and above

4= High at 1.5million to 1.9 million

3= Moderate at 1.0 to 1.4million

2 = Low at 0.5million to 0.9miilion

1 = Very low at 0.1million to 0.4million

Physical facilities	**Very low**	**Low**	**Moderate**	**High**	**Very High**
Worship place					
Safety of building					
School fence					
Classrooms					
Playing grounds					
Electricity					
Washing place					
Toilet privacy					
Writing board					
Wall quality					
Dormitory					
Floor quality					
School gate					

4. i) Specify any other facility that the school lacks----------

---

ii) Does lack of physical facility affect quality of KCSE performance?

Very much ☐ Much ☐

C. Teaching and Learning Resources

5. How do students share textbooks in class?

use textbooks on ratio 1:1 ☐

share textbook in ratio of 1:2 ☐

share textbook in ratio of 1:3 ☐

share textbook in ratio of 1:5 ☐

D. Teacher Characteristic

6. Tick (√) the appropriate response for teacher characteristics.

Position	**Employer**		**Experience**				
	TSC	**BOM**	**1-5**	**6-10**	**11-15**	**16-20**	**Over 21**
Teacher							
Head of Departments							
Deputy head teacher							

7. Qualification of Teacher

Diploma ☐

SI ☐

B.ED ☐

BA/B.Sc ☐

BA/BSc, PGDE ☐

8. Does teacher characteristics have an effect on mean scores in KCSE?

Very much ☐ much ☐

Not much ☐ No effect ☐

E. Income Generating Activities

9. i) Are the various sources of income to the school adequate? Tick appropriately.

Yes ☐ No ☐

ii) If the answer is no. List ways by which the school is enhancing sources of school finance----------

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Thank you for your co-operation

APPENDIX C

STUDENT QUESTIONNAIRE

Questionnaire on Influence of Institutional inputs on Quality Secondary Education in Secondary School in Migori County.

1. This questionnaire is part of a study on the influence of Institutional inputs on Quality Secondary school Education in Migori County. Please fill it. Any information obtained will be treated with utmost confidentiality. Please make your answers as specific as possible. Your cooperation is highly appreciated.
2. For the Boxed questions or the ones with rating scales indicate your choice by ticking (√) in the appropriate place. The questions with spaces should be answered in the spaces provided. Be as sincere and as accurate as possible.
3. The information given will be treated as confidential information between you and the researcher only and will only be used for data analysis.

A). Entry Behaviour

1. KCPE points ----------
2. What is the highest level of education received by your mother /father /guardian. Tick (√) as appropriate.

Level	**Parent**	**Guardian**
None		
Primary		
Secondary		
Diploma		
University		

B) Physical facilities

3. Please fill free to comment on the effect of physical facilities on the quality of education you get.

C) **Teaching and Learning Resources**

Please rate the statements given by ticking (√) the appropriate response concerning quality of education in your school where 5= Excellent, 4 = Very good, 3 = Good 1= fair 1 = Poor

Statement	**5**	**4**	**3**	**2**	**1**	**Average**
Adequate number of teachers						
Use of teaching aids						
Frequency of laboratory experiments						
Availability of well equipped laboratories						
Availability of textbooks						
Availability of stationery						
Library						

D). Teacher Characteristics

4. i) Rate the statements given about teachers by ticking (√) the appropriate score

Where 5= Excellent, 4 = Very good, 3 = Good 1= fair 1 = Poor

Statement	**5**	**4**	**3**	**2**	**1**	**Average**
Coverage of course syllabus						
Gives tests and assignments						
Teachers tests and assignments promptly						
Teachers attend class regularly						
Teacher is available for outside class consultation						
Managers time well (punctual and uses time efficiently)						
Responds property to all question asked						
Clear, relevant and accurate delivery						
Teacher is knowledgeable and uses relevant examples and illustrations						

ii) List any other difficulties you face that affect the quality of education you receive.

Thank you for your co-operation

APPENDIX D

THE SUB COUNTY QUALITY AND ASSURANCE SUPERVISORY OFFICERS QUESTIONNAIRE

Questionnaire on Influence of Institutional inputs on Quality Secondary Education in Secondary School in Migori County.

1. This questionnaire is part of a study on the influence of Institutional inputs on Quality Secondary school Education in Migori County. Please fill it. Any information obtained will be treated with utmost confidentiality. Please make your answers as specific as possible. Your cooperation is highly appreciated.
2. For the YES/No or Boxed questions or the ones with rating scales indicate your choice by ticking (√) in the appropriate place. The questions with spaces should be answered in the spaces provided. Be as sincere and as accurate as possible.
3. The information given will be treated as confidential information between you and the researcher only and will only be used for data analysis.
4. The information you will give will assist in developing ways of improving the quality of secondary school education in secondary school.
5. Your cooperation is needed in this study and do all you can to ensure that the study is a success.

A. Entry Behaviour

1. What was the average KCPE scores in Migori County?

Region /Score	**Name of Sub County**
2010	
2011	
2012	
2013	
2014	
2015	

B. Physical facilities

2. i) How well are secondary schools in the sub county equipped with physical facilities?

   Very well ☐ Well ☐

   Poorly ☐ Very poorly ☐

   ii) Comment on the provision of physical facilities in secondary schools----------

   ---

C. Teaching and Learning Resources

3. Who finances the provision of books to secondary schools?

Sources	**Excellent 75%**	**Good 50-74**	**Satisfactory 25-49**	**Poor Below 24**	**None**
Government					
Community					
NGOs					
Donors					
Parents					
Others, specify					

4. i) What is the state of ICT (computer) infrastructure in secondary schools in Migori County

   ---

   ii) Explain your answer. ----------

   ---

5. Complete the following table by stating the number of teachers by gender, by the number employed, number required and indicating any shortfalls or surpluses in number and percentages from the year 2010 to 2017.

Year			**No. of Teachers – TSC employer**			
	Male	**Female**	**Number employed**	**Number required**	**Supplies or shortages**	**Supplies /shortages**
2010						
2011						
2012						
2013						
2014						
2015						
2016						
2017						

6. Does shortage of teachers affect the quality of education in secondary schools?

   Yes ☐ No ☐

   If your answer is yes, then explain how it affects----------

   ---

7. i) What is the student /teacher ratio in secondary school in your Sub County?

Year	**Current student /teacher ratio**	**Recommended student /teacher ratio**	**Surplus shortage**
	Name of Sub county	**Name of Sub county**	**Name of Sub county**
2010			
2011			
2012			
2013			
2014			
2015			

   ii) Explain the effect of student /teacher ratio on quality of education?

   ---

8. Is the time allocated for learning enough to cover the content and scope of the course syllabus for secondary education?

   Yes ☐ No ☐

   ii) If the answer is no, then explain how it affects quality of secondary school education?

D. Income Generating Activities

9. Is the capitation provided for secondary education adequate to provide quality education

   Yes ☐ No ☐

   Explain your response----------

   ---

10. Does the rate and the timing of disbursement of funds affect students academic achievement in secondary school?

Explain your answer

---

11. In what ways does the Ministry promote income generating activities in secondary school education?

How do you deal with teacher absenteeism?

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12. Indicate student enrolment in secondary schools in the following years

Type of school	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Total**
Public schools									
Private schools									
Girls schools									
Boys schools									
Mixed schools									
Day /Boarding									
Boarding									

13. Indicate the dropout rate in secondary school in your Sub county?

School /year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Girls /boys								

14. Indicate the number of students who sat KCSE in the various years and give the school mean score for each year and state the number of candidates who got C+ and above giving the percentage who got C+ and above as a percentage of the entry

Year	**Entry**	**Mean score**	**No. who got C+ and above**	**No. who got C+ and above as percentage of entry**
2010				
2011				
2012				
2013				
2014				
2015				
2016				
2017				

ii) Comment on student's academic achievement in Kuria East and Kuria West sub counties as shown by the KCSE scores in Kuria East and Kuria West.

Thank you for your cooperation

APPENDIX E

INTERVIEW SCHEDULE FOR SUB COUNTY QUALITY ASSURANCE AND STANDARDS OFFICER

i) What is the influence of entry behaviour of the students on students academic achievement in secondary school?

ii) Explain the influence of physical facilities on students academic achievement in secondary school?

iii) Explain the influence of teaching / learning resources on the student's academic achievement in secondary school?

iv) What is the influence of teacher characteristics on students academic achievement in secondary school?

v) What is the influence of levels of financing above FSE on students academic achievement in secondary school?

APPENDIX F
PRINCIPAL'S INTERVIEW GUIDE

1. Does the school have the required physical facilities?
2. What is the role of ICT in the promotion of student academic achievement in your school?
3. What is the influence of the school library on students academic achievement?
4. What constraints (if any) does the school have in regard to financing?
5. How can the current income sources be improved to enhance quality of secondary school education in the school?
6. What are the challenges facing the provision of quality of secondary school education in secondary schools in Kuria East and Kuria West Sub counties?

APPENDIX G
OBSERVATION GUIDE

Physical facilities	Number			State of Maintenance				Equipped		In use	
				Good		Bad					
		F	%	F	%	F	%	F	%	F	%
Land	Permanent	148	100.0	100	67.6	48	32.4	148	100.0	100	67.6
	Temporary	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Dormitories	Permanent	91	61.5	65	43.9	36	24.3	70	47.3	84	56.8
	Temporary	19	12.8	7	4.7	12	8.1	11	7.4	11	7.4
Classrooms	Permanent	134	90.5	93	62.8	41	27.3	87	58.8	100	67.6
	Temporary	14	9.5	9	6.1	5	3.4	5	3.4	4	2.7
Laboratories	Permanent	126	85.1	52	35.1	74	50.0	52	35.1	90	60.8
	Temporary	10	6.8	3	2.0	7	4.7	2	1.4	10	6.8
Workshops	Permanent	32	21.6	12	8.1	20	13.5	12	8.1	12	8.1
	Temporary	17	11.5	2	1.4	15	10.1	2	1.4	5	3.4
Furniture	Adequate	65	43.9	52	35.1	13	8.8	30	20.3	65	43.9
	Inadequate	83	56.1	13	8.8	70	47.3	10	6.8	83	56.1
Water supply & Sanitation	Constant	104	70.3	72	48.6	32	21.6	60	40.5	104	70.3
	Fluctuate	44	29.7	10	6.8	34	23.0	4	2.7	44	29.7
Light	Constant	72	48.6	48	32.4	24	16.2	48	32.4	72	48.6
	Fluctuate	76	51.4	30	20.3	46	31.1	30	20.3	76	51.4
Dining hall	Permanent	94	63.5	80	54.1	14	9.5	45	30.4	90	60.8
	Temporary	54	36.5	14	9.5	40	27.0	12	8.1	48	32.4
Toilets	Available	148	100.0	70	47.3	78	52.7	3	2.0	148	100.0
	Unavailable	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
School bus	Available	103	69.6	82	55.4	21	14.2	75	50.7	103	69.6
	Unavailable	45	30.4	0	0.0	0	0.0	0	0.0	0	0.0
Worship place	Permanent	52	35.1	40	27.0	12	8.1	24	16.2	50	33.8
	Temporary	28	18.9	6	4.1	22	14.9	2	1.4	25	16.9
Canteen	Available	76	51.4	31	20.9	44	29.7	35	23.6	70	47.3
	Unavailable	72	48.6	0	0.0	0	0.0	0	0.0	0	0.0
Stores	Permanent	120	81.1	38	25.7	82	55.4	38	25.7	52	35.1
	Temporary	28	18.9	8	5.4	20	13.5	3	2.0	10	6.8
Mower	Available	14	9.5	10	6.8	4	2.7	8	5.4	10	6.8
	Unavailable	134	90.5	0	0.0	0	0.0	0	0.0	0	0.0
Staff houses	Permanent	69	46.6	42	28.4	27	18.4	19	12.8	65	43.9
	Temporary	31	20.9	18	12.2	10	6.8	2	1.4	25	16.9
Washing places	Available	98	66.2	38	25.7	60	40.5	4	2.7	98	66.2
	Unavailable	50	33.8	0	0.0	0	0.0	0	0.0	0	0.0
School fence	Permanent	68	45.9	32	21.6	36	24.3	30	20.3	68	45.9
	Temporary	80	54.1	25	16.9	55	37.2	10	6.8	80	54.1
School gate	Permanent	140	94.6	65	43.9	75	50.7	60	40.5	140	94.6
	Temporary	8	5.4	2	1.4	6	4.1	1	0.7	8	5.4

APPENDIX H

DOCUMENT ANALYSIS GUIDE

Objectives	**Source**		**Document used**
	From the school	**From external sources**	
Entry Behaviour			KCPE result slip, Continuous Assessment Tests, Mock Examination, end term examination reports
Physical Facility			Assets records, minutes of AGM/BOM, CDF bursary records, school budget, fee structure, Audit Report.
Teaching/Learning Resources			Minutes of BOM, school budget, Fee structure, Audit Report.
Teacher characteristics			TSC information for teachers at school, Schemes of work, lesson plan, QASO
Income generating activity			School budget, AGM/BOM minutes, Sales receipts, and related accounting reports, vehicle log book

APPENDIX I

STUDENT FOCUS GROUP DISCUSSION GUIDE

Objective	Information sought	Response	Inference
Determine influence of entry behaviour of the students on quality of secondary school education	1. What is the effect of KCPE scores on internal examinations		
Influence of Physical facilities on quality of secondary school education	2. a) Discuss the availability and level of adequacy of physical facilities b) Explain if they influence quality of education		
Determine influence of teaching /learning resources on quality of secondary school education	3a) Discuss the availability and level of adequacy of teaching /learning resources. b) Explain if they influence quality of education		
Assess influence of teacher characteristics on of secondary school education	4 a) How do teacher characteristics affect the learning process. b) Discuss whether teachers regularly attend class		
Establish influence of Income Generating Activities on quality of secondary school education	5a) Discuss if there are Income Generating Activities in your school. b) Explain if they influence quality of education		

APPENDIX J
RAW DATA ON KCPE AND KCSE EXAMINATIONS

	Gender	KCPE pts	KCPE grd	KCPE mks	KCSE pts	KCSE grd
1	Girl	7.8	C+	278	10.20	B+
2	Girl	11.0	A-	377	8.10	B-
3	Girl	10.3	B+	351	9.60	B
4	Girl	9.4	B	327	6.80	C
5	Girl	12.0	A	402	10.50	B+
6	Boy	4.0	D+	203	3.20	D
7	Boy	4.3	D+	212	5.00	C-
8	Boy	4.7	D+	214	5.90	C-
9	Boy	4.2	D+	212	5.00	C-
10	Boy	4.6	D+	217	5.00	C-
11	Boy	4.8	D+	212	5.00	C-
12	Boy	5.0	C-	233	5.00	C-
13	Boy	5.0	C-	235	5.00	C-
14	Boy	5.0	C-	232	5.00	C-
15	Boy	5.0	C-	236	5.00	C-
16	Girl	5.0	C-	233	5.00	C-
17	Girl	5.0	C-	232	5.00	C-
18	Girl	5.0	C-	235	5.00	C-
19	Girl	5.0	C-	232	1.70	E
20	Girl	5.0	C-	232	5.80	C-
21	Boy	5.0	C-	235	5.50	C-
22	Boy	5.0	C-	237	5.40	C-
23	Boy	5.0	C-	237	5.00	C-
24	Boy	4.2	D+	217	5.00	C-
25	Boy	4.5	D+	217	5.00	C-
26	Boy	5.0	C-	238	5.00	C-
27	Boy	5.0	C-	240	5.30	C-
28	Boy	5.0	C-	237	5.00	C-
29	Boy	5.0	C-	242	5.00	C-
30	Boy	5.0	C-	243	5.40	C-
31	Boy	5.0	C-	237	5.00	C-
32	Boy	5.0	C-	235	5.00	C-
33	Boy	5.0	C-	232	5.00	C-
34	Boy	5.0	C-	236	1.80	E
35	Boy	5.0	C-	233	5.00	C-
36	Boy	5.0	C-	232	1.30	E
37	Boy	5.0	C-	235	5.00	C-
38	Boy	5.0	C-	232	5.00	C-
39	Girl	5.0	C-	232	5.00	C-
40	Girl	5.0	C-	235	5.00	C-

41	Girl	5.0	C-	237	4.00	D+
42	Girl	5.0	C-	237	5.00	C-
43	Girl	5.0	C-	240	5.00	C-
44	Boy	5.0	C-	226	1.30	E
45	Boy	2.6	D-	170	5.00	C-
46	Boy	5.0	C-	235	5.00	C-
47	Boy	5.0	C-	232	4.00	D+
48	Boy	5.0	C-	236	1.30	E
49	Boy	5.0	C-	233	5.00	C-
50	Boy	5.0	C-	232	5.00	C-
51	Boy	5.0	C-	235	5.00	C-
52	Boy	5.0	C-	232	5.50	C-
53	Boy	5.0	C-	232	5.20	C-
54	Boy	5.0	C-	235	5.30	C-
55	Boy	5.0	C-	237	5.00	C-
56	Boy	5.0	C-	237	5.00	C-
57	Boy	5.0	C-	235	5.60	C-
58	Boy	5.0	C-	232	1.70	E
59	Boy	5.0	C-	236	5.00	C-
60	Boy	5.0	C-	233	5.00	C-
61	Boy	6.0	C	251	6.00	C
62	Boy	6.0	C	253	6.00	C
63	Girl	5.0	C-	232	5.00	C-
64	Girl	5.0	C-	232	5.00	C-
65	Girl	5.0	C-	235	4.20	D+
66	Girl	5.0	C-	237	3.60	D
67	Girl	5.0	C-	237	1.00	E
68	Girl	5.0	C-	240	5.00	C-
69	Boy	5.0	C-	241	2.10	D-
70	Boy	5.4	C-	228	5.40	C-
71	Boy	3.6	D	175	5.30	C-
72	Boy	5.0	C-	228	5.00	C-
73	Boy	5.9	C-	228	5.00	C-
74	Boy	3.2	D	176	5.10	C-
75	Boy	5.0	C-	238	5.00	C-
76	Boy	2.9	D-	150	5.00	C-
77	Boy	5.0	C-	235	5.00	C-
78	Boy	5.0	C-	232	5.00	C-
79	Boy	5.0	C-	236	4.30	D+
80	Boy	5.0	C-	233	2.50	D-
81	Boy	5.0	C-	238	5.00	C-
82	Boy	5.0	C-	235	5.00	C-
83	Boy	5.0	C-	232	5.00	C-

84	Boy	5.0	C-	232	5.10	C-
85	Boy	5.0	C-	235	5.00	C-
86	Boy	5.0	C-	237	5.00	C-
87	Boy	5.0	C-	237	5.40	C-
88	Boy	5.0	C-	244	5.50	C-
89	Boy	5.0	C-	237	5.00	C-
90	Boy	5.0	C-	235	5.40	C-
91	Boy	5.0	C-	238	5.20	C-
92	Boy	5.0	C-	235	2.90	D-
93	Boy	5.0	C-	232	5.00	C-
94	Boy	5.0	C-	236	5.00	C-
95	Boy	5.0	C-	233	5.00	C-
96	Boy	6.0	C	251	6.00	C
97	Girl	5.0	C-	235	5.00	C-
98	Girl	5.0	C-	232	5.00	C-
99	Girl	5.0	C-	232	5.00	C-
100	Girl	5.0	C-	235	5.00	C-
101	Girl	5.0	C-	237	5.00	C-
102	Girl	5.0	C-	237	5.00	C-
103	Girl	5.0	C-	244	1.30	E
104	Girl	5.0	C-	237	5.00	C-
105	Girl	5.0	C-	235	4.40	D+
106	Girl	5.0	C-	238	5.70	C-
107	Girl	5.0	C-	228	5.00	C-
108	Boy	5.0	C-	233	5.50	C-
109	Boy	5.3	C-	233	5.00	C-
110	Boy	2.8	C-	233	5.00	C-
111	Boy	3.7	C-	233	5.00	C-
112	Boy	5.0	C-	233	5.00	C-
113	Boy	5.0	C-	233	5.00	C-
114	Boy	5.0	C-	233	4.00	D+
115	Boy	5.0	C-	233	5.00	C-
116	Boy	5.0	C-	233	5.00	C-
117	Boy	5.0	C-	233	5.00	C-
118	Boy	5.0	C-	233	5.00	C-
119	Boy	5.0	C-	233	5.20	C-
120	Boy	5.0	C-	233	5.00	C-
121	Boy	5.0	C-	233	5.00	C-
122	Boy	5.0	C-	233	2.70	D-
123	Boy	5.0	C-	233	5.00	C-
124	Girl	5.0	C-	233	5.00	C-
125	Girl	5.0	C-	233	5.00	C-
126	Girl	5.0	C-	233	3.30	D

127	Girl	5.0	C-	233	5.00	C-
128	Girl	5.0	C-	233	5.00	C-
129	Girl	5.0	C-	233	5.00	C-
130	Girl	5.0	C-	233	5.80	C-
131	Boy	6.0	C	251	5.00	C-
132	Boy	6.0	C	252	5.00	C-
133	Boy	6.0	C	253	6.00	C
134	Boy	6.0	C	254	5.00	C-
135	Boy	6.0	C	255	6.00	C
136	Boy	6.0	C	265	6.00	C
137	Boy	6.0	C	253	6.00	C
138	Boy	6.0	C	256	6.00	C
139	Boy	6.0	C	258	6.90	C
140	Boy	6.0	C	264	6.00	C
141	Girl	6.0	C	266	6.00	C
142	Girl	6.0	C	263	6.00	C
143	Girl	6.0	C	259	6.00	C
144	Girl	6.0	C	258	6.00	C
145	Girl	6.0	C	255	7.00	C+
146	Boy	6.0	C	249	6.00	C
147	Boy	6.0	C	249	6.00	C
148	Boy	6.0	C	249	6.00	C
149	Boy	6.0	C	249	6.00	C
150	Boy	6.0	C	249	6.00	C
151	Boy	6.0	C	249	6.00	C
152	Boy	6.0	C	249	6.60	C
153	Girl	6.0	C	249	6.00	C
154	Girl	6.0	C	249	6.00	C
155	Girl	6.0	C	249	6.00	C
156	Girl	6.0	C	249	6.00	C
157	Girl	6.0	C	249	6.00	C
158	Girl	6.0	C	249	6.00	C
159	Girl	6.0	C	249	6.00	C
160	Girl	6.0	C	249	7.00	C+
161	Boy	6.0	C	254	6.00	C
162	Boy	6.0	C	254	6.00	C
163	Boy	6.0	C	254	6.00	C
164	Boy	6.0	C	254	6.30	C
165	Girl	6.0	C	254	6.00	C
166	Girl	6.0	C	254	6.00	C
167	Girl	6.0	C	254	6.00	C
168	Girl	6.0	C	254	6.00	C
169	Girl	6.0	C	254	6.00	C

170	Girl	6.0	C	254	6.00	C
171	Girl	6.0	C	254	7.00	C+
172	Boy	6.0	C	260	6.00	C
173	Boy	6.0	C	260	6.00	C
174	Boy	6.0	C	265	6.00	C
175	Boy	6.0	C	265	6.00	C
176	Boy	6.0	C	265	6.00	C
177	Boy	6.0	C	265	6.00	C
178	Boy	6.0	C	265	6.00	C
179	Boy	6.0	C	265	6.00	C
180	Boy	6.0	C	265	6.00	C
181	Boy	6.0	C	265	6.10	C
182	Girl	6.0	C	265	6.00	C
183	Girl	6.0	C	265	6.00	C
184	Girl	6.0	C	265	6.00	C
185	Girl	6.0	C	265	6.00	C
186	Girl	6.0	C	265	6.00	C
187	Girl	6.0	C	265	7.00	C+
188	Boy	6.0	C	261	6.00	C
189	Boy	6.0	C	262	6.00	C
190	Boy	6.0	C	265	6.00	C
191	Boy	6.0	C	270	6.00	C
192	Boy	6.0	C	270	6.50	C
193	Boy	6.0	C	270	6.80	C
194	Boy	6.0	C	270	6.00	C
195	Girl	6.0	C	270	6.00	C
196	Girl	6.0	C	270	6.00	C
197	Girl	6.0	C	266	6.00	C
198	Girl	6.0	C	268	6.00	C
199	Girl	6.0	C	270	6.00	C
200	Girl	6.0	C	270	6.00	C
201	Girl	6.0	C	269	6.00	C
202	Girl	6.0	C	270	7.00	C+
203	Boy	6.0	C	270	6.00	C
204	Boy	6.0	C	266	6.00	C
205	Boy	6.0	C	270	6.00	C
206	Boy	6.0	C	270	6.00	C
207	Girl	6.0	C	270	6.00	C
208	Girl	6.0	C	266	6.00	C
209	Girl	6.0	C	265	6.00	C
210	Boy	6.0	C	265	6.00	C
211	Boy	6.0	C	261	6.00	C
212	Boy	6.0	C	262	6.00	C

213	Boy	6.0	C	265	6.00	C
214	Boy	6.0	C	270	6.00	C
215	Boy	6.0	C	270	6.00	C
216	Boy	6.0	C	270	6.00	C
217	Boy	6.0	C	270	6.50	C
218	Girl	6.0	C	270	6.00	C
219	Girl	6.0	C	270	6.00	C
220	Girl	6.0	C	266	6.00	C
221	Girl	6.0	C	268	6.00	C
222	Girl	6.0	C	269	6.00	C
223	Boy	6.0	C	260	6.00	C
224	Boy	6.0	C	270	6.20	C
225	Girl	6.0	C	266	6.00	C
226	Girl	6.0	C	268	6.00	C
227	Boy	7.0	C+	292	6.10	C
228	Boy	7.0	C+	292	6.00	C
229	Boy	7.0	C+	292	6.00	C
230	Boy	7.0	C+	292	6.60	C
231	Boy	7.0	C+	292	6.00	C
232	Girl	7.0	C+	292	7.00	C+
233	Girl	7.0	C+	292	7.00	C+
234	Girl	7.0	C+	292	7.00	C+
235	Girl	7.0	C+	292	8.00	B-
236	Girl	7.0	C+	292	8.00	B-
237	Girl	7.0	C+	292	8.00	B-
238	Boy	7.0	C+	292	6.00	C
239	Boy	7.0	C+	299	6.50	C
240	Boy	7.0	C+	297	6.90	C
241	Boy	7.0	C+	297	6.00	C
242	Girl	7.0	C+	297	7.00	C+
243	Girl	7.0	C+	297	7.00	C+
244	Girl	7.0	C+	297	7.00	C+
245	Girl	7.0	C+	297	7.00	C+
246	Girl	7.0	C+	297	8.00	B-
247	Girl	7.0	C+	297	8.00	B-
248	Boy	7.0	C+	302	6.00	C
249	Girl	7.0	C+	302	7.00	C+
250	Boy	7.0	C+	307	6.00	C
251	Boy	7.0	C+	307	6.40	C
252	Boy	7.0	C+	307	6.30	C
253	Girl	7.0	C+	307	7.00	C+
254	Girl	7.0	C+	307	7.00	C+
255	Girl	7.0	C+	307	7.00	C+

256	Girl	7.0	C+	307	8.00	B-
257	Boy	7.0	C+	313	6.00	C
258	Boy	7.0	C+	317	6.10	C
259	Boy	7.0	C+	313	6.80	C
260	Boy	7.0	C+	317	6.30	C
261	Boy	7.0	C+	313	6.00	C
262	Boy	7.0	C+	315	6.00	C
263	Boy	7.0	C+	313	6.50	C
264	Boy	7.0	C+	315	6.40	C
265	Girl	7.0	C+	313	7.00	C+
266	Girl	7.0	C+	316	7.00	C+
267	Girl	7.0	C+	313	7.00	C+
268	Girl	7.0	C+	314	7.00	C+
269	Girl	7.0	C+	313	7.00	C+
270	Girl	7.0	C+	314	7.00	C+
271	Girl	7.0	C+	317	7.00	C+
272	Girl	7.0	C+	313	8.00	B-
273	Girl	7.0	C+	313	8.00	B-
274	Boy	8.0	B-	323	7.00	C+
275	Boy	8.0	B-	318	7.70	C+
276	Boy	8.0	B-	320	7.30	C+
277	Girl	8.0	B-	319	8.00	B-
278	Girl	8.0	B-	318	9.00	B
279	Boy	8.0	B-	323	7.00	C+
280	Boy	8.0	B-	325	7.00	C+
281	Girl	8.0	B-	325	8.00	B-
282	Girl	8.0	B-	328	9.00	B
283	Girl	8.0	B-	328	9.00	B
284	Boy	8.0	B-	329	7.50	C+
285	Boy	8.0	B-	331	7.00	C+
286	Boy	8.0	B-	329	7.00	C+
287	Boy	8.0	B-	330	7.00	C+
288	Girl	8.0	B-	329	8.00	B-
289	Girl	8.0	B-	333	8.00	B-
290	Girl	8.0	B-	329	9.00	B
291	Girl	8.0	B-	332	9.00	B
292	Girl	8.0	B-	329	9.00	B
293	Boy	8.0	B-	334	7.00	C+
294	Boy	8.0	B-	334	7.00	C+
295	Boy	8.0	B-	334	7.80	C+
296	Boy	8.0	B-	334	7.00	C+
297	Boy	8.0	B-	334	7.00	C+
298	Boy	8.0	B-	336	7.40	C+

299	Boy	8.0	B-	339	7.20	C+
300	Boy	8.0	B-	337	7.00	C+
301	Girl	8.0	B-	334	8.00	B-
302	Girl	8.0	B-	339	8.00	B-
303	Girl	8.0	B-	337	8.00	B-
304	Girl	8.0	B-	334	9.00	B
305	Girl	8.0	B-	339	9.00	B
306	Girl	8.0	B-	334	9.00	B
307	Boy	8.0	B-	339	7.30	C+
308	Boy	8.0	B-	339	7.00	C+
309	Boy	8.0	B-	340	7.00	C+
310	Boy	8.0	B-	339	7.90	C+
311	Boy	8.0	B-	340	7.00	C+
312	Boy	8.0	B-	339	7.70	C+
313	Boy	8.0	B-	341	7.20	C+
314	Boy	8.0	B-	341	7.00	C+
315	Girl	8.0	B-	343	8.00	B-
316	Girl	8.0	B-	344	8.00	B-
317	Girl	8.0	B-	339	8.00	B-
318	Girl	8.0	B-	342	9.00	B
319	Girl	8.0	B-	339	9.00	B
320	Girl	8.0	B-	339	9.00	B
321	Girl	8.0	B-	343	9.00	B
322	Girl	8.0	B-	339	9.00	B
323	Boy	9.0	B	345	7.40	C+
324	Boy	9.0	B	347	7.00	C+
325	Boy	9.0	B	345	8.00	B-
326	Boy	9.0	B	346	8.00	B-
327	Boy	9.0	B	345	8.00	B-
328	Boy	9.0	B	346	8.00	B-
329	Boy	9.0	B	345	8.00	B-
330	Boy	9.0	B	349	8.00	B-
331	Girl	9.0	B	345	9.00	B
332	Girl	9.0	B	345	9.00	B
333	Girl	9.0	B	345	10.00	B+
334	Girl	9.0	B	345	10.00	B+
335	Girl	9.0	B	345	10.00	B+
336	Girl	9.0	B	345	10.00	B+
337	Girl	9.0	B	345	10.00	B+
338	Boy	9.0	B	355	7.90	C+
339	Boy	9.0	B	355	8.00	B-
340	Girl	9.0	B	355	9.00	B
341	Girl	9.0	B	355	10.00	B+

342	Boy	9.0	B	360	8.00	B-
343	Boy	9.0	B	360	8.00	B-
344	Boy	9.0	B	360	8.00	B-
345	Boy	9.0	B	360	8.00	B-
346	Boy	9.0	B	360	8.00	B-
347	Girl	9.0	B	360	10.00	B+
348	Girl	9.0	B	360	10.00	B+
349	Girl	9.0	B	360	10.00	B+
350	Girl	9.0	B	360	11.00	A-
351	Boy	9.0	B	366	7.00	C+
352	Boy	9.0	B	366	12.00	A
353	Boy	9.0	B	366	8.00	B-
354	Boy	9.0	B	366	8.00	B-
355	Boy	9.0	B	366	8.00	B-
356	Boy	9.0	B	366	8.00	B-
357	Girl	9.0	B	366	9.00	B
358	Girl	9.0	B	366	10.00	B+
359	Girl	9.0	B	366	10.00	B+
360	Girl	9.0	B	366	10.00	B+
361	Girl	9.0	B	366	10.00	B+
362	Boy	10.0	B+	369	9.00	B
363	Boy	10.0	B+	368	9.00	B
364	Girl	10.0	B+	369	11.00	A-
365	Girl	10.0	B+	366	11.00	A-
366	Boy	10.0	B+	369	8.00	B-
367	Boy	10.0	B+	359	9.00	B
368	Boy	10.0	B+	350	9.00	B
369	Boy	10.0	B+	368	9.00	B
370	Girl	10.0	B+	369	11.00	A-
371	Boy	10.0	B+	369	9.00	B
372	Boy	10.0	B+	350	9.00	B
373	Girl	10.0	B+	368	11.00	A-
374	Girl	10.0	B+	369	11.00	A-
375	Boy	11.0	A-	388	9.00	B
376	Girl	11.0	A-	390	11.00	A-
377	Boy	11.0	A-	391	9.00	B
378	Boy	11.0	A-	389	9.00	B
379	Boy	11.0	A-	374	10.00	B+
380	Boy	11.0	A-	375	10.00	B+
381	Boy	12.0	A	419	10.00	B+
382	Girl	7.0	C+	289	11.80	A-
383	Boy	12.0	A	407	10.00	B+
384	Boy	12.0	A	403	10.00	B+

APPENDIX K

RESEARCH AUTHORIZATION LETTERS

MASENO UNIVERSITY
SCHOOL OF GRADUATE STUDIES

Office of the Dean

Our Ref: PG/PHD/00013/11

Private Bag, MASENO, KENYA
Tel:(057)351 22/351008/351011
FAX: 254-057-351153/351221
Email: sgs@maseno.ac.ke

Date: 26th February, 2018

TO WHOM IT MAY CONCERN

RE: PROPOSAL APPROVAL FOR FREDRICK ALOO NDEGE — PG/PHD/00013/2011

The above named is registered in the Doctor of Philosophy Degree programme in the School of Education, Maseno University. This is to confirm that his research proposal titled "Influence of Institutional Inputs on the Quality of Secondary School Education in Kenya" has been approved for conduct of research subject to obtaining all other permissions/clearances that may be required beforehand.

MASENO UNIVERSITY
26 FEB 2018
DEAN SCHOOL OF GRADUATE STUDIES
P. O. Box PRIVATE BAG, MASENO

Prof. J.O. Agure
DEAN, SCHOOL OF GRADUATE STUDIES

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/18/22883/23324**

Date: **17th July, 2018**

Fredrick Aloo Ndege
Maseno University
Private Bag
MASENO.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Influence of institutional inputs on the quality of secondary school education in Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **all Counties** for the period ending **17th July, 2019.**

You are advised to report to **the County Commissioners and the County Directors of Education, all Counties** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioners
All Counties.

The County Directors of Education
All Counties.

RESEARCH PERMIT

CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No.A 19456

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MR. FREDRICK ALOO NDEGE
of MASENO UNIVERSITY, 313-40405 URADI,has been permitted to conduct research in *All Counties*

on the topic: *INFLUENCE OF INSTITUTIONAL INPUTS ON THE QUALITY OF SECONDARY SCHOOL EDUCATION IN KENYA*

for the period ending:
17th July,2019

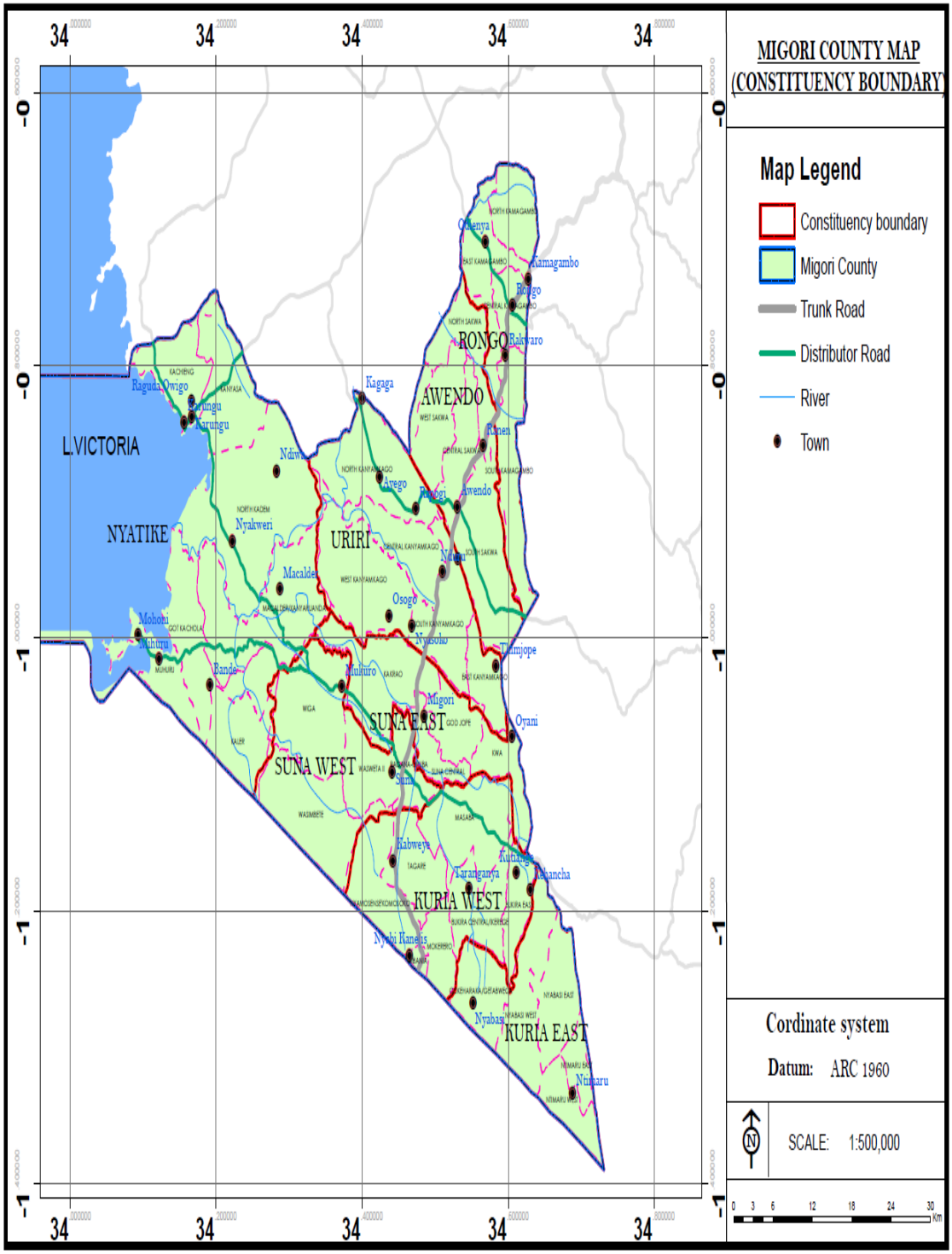
Permit No : NACOSTI/P/18/22883/23324
Date Of Issue : 17th July,2018
Fee Recieved :Ksh 2000

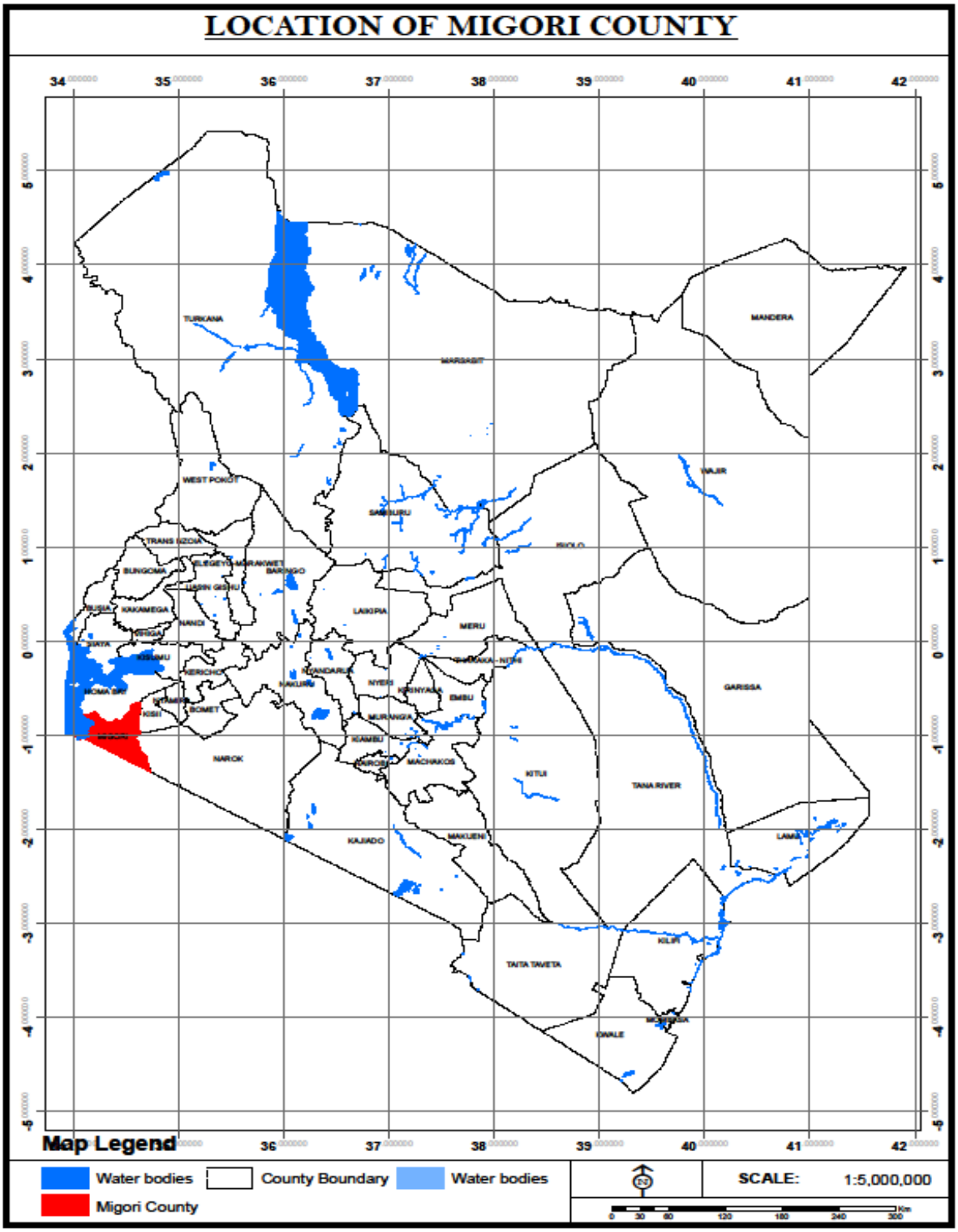
.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

APPENDIX L

MAP OF MIGORI COUNTY




LOCATION OF MIGORI COUNTY
34
35
36
37
38
39
40
41
42
5
4
3
2
1
0
-1
-2
-3
-4
-5
TURKANA
MARSABIT
MANDERA
WAJIR
WEST POKOT
SAMBURU
ISIOLO
TRANS NZOIA
BUNGOMA
ELGEYO MARAKWET
BARINGO
UASIN GISHU
BUSIA
KAKAMEGA
NANDI
LAIKIPIA
MERU
THARAKA - NITHI
KISUMU
KERICHO
NAKURU
NYERI
KIRINYAGA
EMBU
GARISSA
HOMA BAY
KISII
BOMET
MURANGA
NAROK
KAJIADO
KIAMBU
MACHAKOS
KITUI
TANA RIVER
MAKUENI
LAMU
KILIFI
TAITA TAVETA
KWALE
Map Legend
Water bodies
County Boundary
Water bodies
Migori County
SCALE:
1:5,000,000
0
30
60
120
180
240
300
Km