IMPACT OF RESOURCE UTILIZATION IN EDUCATION
AS PERCEIVED BY TEACHERS IN SECONDARY SCHOOLS IN MATHIOYA
DISTRICT, MURANGA COUNTY, KENYA

BY

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UNIVERSITY

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DECLARATION

This research project report is my original work and has not been previously published or presented for the award of a degree or any other award in any other university.

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This research work is dedicated to my two loving daughters, Vionna and Maureen.
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ABBREVIATIONS AND ACRONYMS

BED: Bachelor of education
BOG: Board of Governors
CBE: Curriculum based establishment
DEO: District Education Officer
EFA: Education for all
FGD: Focus group discussion
FPE: Free primary education
FSE: Free secondary education
ICT: Information communication technology
KCSE: Kenya certificate of secondary education
KIE: Kenya institute of education
MED: Masters of education
MOE: Ministry of education
NGO: Non-governmental organization
OECD: Organization for Economic Co-operation and Development
PDE: Provincial Director of Education
PGDE: Post graduate diploma in education
PISA: Programme for International Student Assessment
PTA: Parents teachers association
SPSS: Statistical Package for Social scientists
STR: Students-Teacher Ratio
TSC: Teachers Service Commission
TW: Tuition Waiver
TWBA: Tuition waiver bank account

TWMT: Tuition waiver management training

UNESCO: United Nations Science and Cultural Organization

USA: United States of America

WASCE: West Africa School Certificate Examinations
ABSTRACT

Resource utilization is an integral part of the overall management of the school. Education in a school is determined by provision of resources, their maximum utilization and management. Advances in science and technology necessitates that the school manager should adopt modern methods of facilities management in order to improve the quality of teaching and learning. A direct relationship exists between the quality of school facilities, teaching and learning materials, teaching personnel and the education process. The above will eventually determine the instructional programmes and performance of the school. This study investigated the impact of resource utilization in education in secondary schools as perceived by principal and teachers in Mathioya District of Murang’a County. This included the use of instructional materials in the teaching/learning process, human resource utilization, school building design, impact of physical facilities and school size on students’ achievement. The researcher employed ex post facto research design to conduct the study. The target population consisted of all the 27 public secondary schools in the district. The sample consisted of 10 secondary schools; the principal of the sampled school was automatically included in the study while one teacher was randomly elected. The Data was collected through an interview schedule from the school principal’s and teachers by means of questionnaires. The instruments were piloted in two schools that were not included in the study. Data was analyzed using descriptive statistics using Statistical Package for Social Sciences (SPSS). The analyzed data was then represented using frequency tables, means, percentages, pie charts and bar graphs. The study found out that teaching learning resources are available in most schools and are properly utilized. In particular materials related to classroom instruction are adequate. However laboratories, libraries, computer rooms, agriculture/home science rooms are inadequate in most schools. The study established that the number of teachers in most schools was grossly inadequate. It was also found out that the physical facilities and recreational facilities were inadequate. Most teachers did not adhere to ministerial guidelines and failed to make use of professional documents in the course of their teaching. The findings of the study provided empirical data about the impact of resource utilization on instructional programmes, performance and eventually the extent of use of resources in instructional programmes. Based on these findings, the study therefore recommends that more funds be allocated to equip the laboratories, computer rooms, science rooms and agriculture rooms. Greater attention be given to support facilities, employment of more teachers and teachers should prepare and make use of professional documents. These findings may enable the government and other stake holders to take appropriate action to ensure there are enough facilities in order to improve the quality of education in secondary schools in Mathioya District.
CHAPTER ONE
INTRODUCTION

1.1 Introduction
This introductory chapter presents the background of the study, the statement of the problem, purpose of the study, research objectives, research questions, significance of the study, scope, limitations, assumptions, operational definitions of terms, theoretical and conceptual frameworks.

1.2 Background of the study
The primary purpose of education is to bring about desirable change in behaviour through acquisition of skills, attitudes, competencies, critical and creative thinking. Teaching is a complex and demanding task that requires highly specialized skills, knowledge and resources to impact significantly on student learning. Availability and utilization of resources in an organization is important in achievement of its goals and objectives. Students learning outcome is influenced by appropriate utilization of school resources. Investing in educational resources is the key to ensuring that schools become institutions where students’ work together, learn from each other and benefit from a supportive school environment, and consequently maximize student learning so that all students achieve their full learning potential (United Nations Scientific and Cultural Organization, (UNESCO), 2007).

The physical, human and financial resources invested in schools influence not only the education provided to students but also aspects of teachers and student motivation and consequently the educational outcomes. The Organization for Economic Co-operation and Development (OECD) programme for International Student Assessment (PISA) shows that resource shortages hinder instruction and lower student performance (OECD, 2007). In addition, inequalities in student’s educational performance often reflect disparities in in the resources invested in schools (OECD, 2008). In some education systems, there are concerns that schools not only lack the resources to meet the educational requirements of their students, but that schools may have fewer resources with which to provide instruction to their students (OECD, 2008). In schools, there are a wide variety of resources that are directly or indirectly related to educational outcomes.
According to Okorie (2001) student learning outcomes in schools is largely dependent on availability and appropriate utilization of resources, because the students acquire skills using these resources. These resources include buildings, furniture, play ground, compound, toilet facilities, lighting, books, teaching materials, among others. These facilities play a pivotal role in the actualization of the educational goals and objectives by satisfying the physical and emotional needs of the staff and students.

These facilities play a pivotal role in the actualization of the educational goals and objectives by satisfying the physical, emotional and cognitive needs of the staff and students. Abayomi and Olukayode (2006) states that resources in schools are important in education because learning takes place best through discovery, exploration, and interaction with the internal and external environments. As a result one of the main emphases in education today is the shift from a teacher centred approach to a more learner centred approach. This involves actually putting the learner’s needs at the centre of activities. To achieve this goal teachers need to use a wide variety of resources, which can enrich the learning environment. The adequacy of physical resources and teaching materials as well as their effective utilization has been a matter of serious concern to educators. The utilization of resources in education brings about fruitful learning outcomes since it stimulates and motivates students’ (Okorie, 2001).

According to Pearls (2000), though teachers are required to deliver formal teaching in a classroom, much of the day-to-day teaching goes on outside the classroom in the course of interaction between learners and their physical environment. Being aware of the resources available can help to enhance teaching and facilitate learning and thus make a shift to a learner centred approach. A learner centred approach involves enabling students to work with their teachers, with other students and even individually. This is particularly helpful because there are opportunities for learning in virtually every activity that the students carry out; there are not always opportunities for formal teaching events. The appropriate utilization of resources helps teachers make the shift in their approach to facilitating learning rather than delivering teaching.

Wenglinsky (2005) reports that research has consistently highlighted that appropriate utilization of resources in schools as a key determinant of students’ academic achievement. The research asserts that, in order for learning to be effective, students need an enabling environment that is
both psychologically and physically friendly to the learners. Effective schools have rigorous systems of accountability, a focus on teaching and learning, stimulating and secure learning environments. Poor academic performance is connected with poor learning environment created by a poor state of infrastructural facilities. Lyons (2012) adds that learning is a complex activity that involves interplay of students’ motivation, physical condition, teaching resources, skills of teaching and the curriculum. All these play a vital role in a student’s development. He further concluded that there is an explicit relationship between a school’s physical facilities and educational outcomes. Good maintenance, modern systems, and flexible designs are important because the physical structure can limit the learning experience. School facilities should be flexible enough to accommodate changing learning patterns and methods. Ibe-Bassey (2002) agrees with this view and adds that several studies have shown that a close relationship exists between the physical environment and the academic performance of students. Reedy (2006) adds that the availability of physical facilities and the overall atmosphere in which learning takes place bears direct relevance to the quality of education that students receive in schools.

Johan (2004) states that educational outcomes in schools are closely linked to utilization and adequacy of teaching/learning resources in different ways; poor utilization, underutilization, unqualified educators brings forth low educational achievement. The inadequacy of physical and material resources in schools is a major factor responsible for learning outcome of students. Schools that do not have adequate facilities such as workshops, laboratories, classrooms, teaching learning materials are unlikely to post good results. The principles of facilitating effective learning and teaching involves having the practical skills and putting the learners own experience into practice. They receive inputs from the external environment in form of human and material resources, process them and empty the same into the society as finished products and services. The quality of the products bears a direct relationship with the qualities of the facilities deployed in the process of production.

Provision and utilization of facilities is a responsibility of stake holders in education. The government ensures the implementation of the national policy on education by providing the enabling environment. In 2003 the government came up with various requirements for every school in order to qualify for the funds popularly known as Tuition Waiver (TW). These funds provided by the government are supposed to be utilized in purchasing resources such as
textbooks, exercise books, laboratory equipment and chemicals, teaching and learning aids
reference materials, teacher’s guides, chalk, dusters, registers and internal examinations. When
targets are reached in the purchase of the above resources, funds can be allocated to purchase of
items in other categories (Ministry of Education, 2003).

Tuition Waiver Management Training (TWMT), central province (2009) ascertains that
government, parents are also involved in purchase of resources in schools and more so in putting
up physical facilities through what is popularly referred to as parents teachers association (PTA)
projects. The ministry of education has approved that every parent contributes Ksh. 2000 every
year for P.T.A project. Provision of resources in secondary schools is also facilitated by the
private sector, the non-governmental organizations and community. With availability of extra-
funds over-crowding in classrooms can be reduced through provision of adequate furniture and
equipment to improve teaching and learning environments. This will entail building of new
classrooms and rehabilitation and maintenance of existing ones.

1.2 Statement of the Problem
Teachers, resources and the school environment have an obvious impact on education and
eventually student’s performance (UNESCO, 2007). Quality education is no doubt a function of
availability and appropriate utilization of input resources. According to Wenglinsky (2005) the
availability and utilization of human and non-human resources determines the efficiency of the
school system. Abudul-Kareen (2003) asserts that teachers require quality and adequate
resources in order to ensure school success. Glaring disparities in academic performance have
been observed in secondary schools in Mathioya District. This is despite the fact that the schools
enroll students with comparable entry behavior and receive comparable funding from the
government and other stake holders. This study intends to investigate how resource utilization is
impacting on education with a view of addressing the disparity in academic performance in
Mathioya District.

1.3 Purpose of the study
The purpose of the study was to determine the impact of resource utilization in education as
perceived by principals and teachers in secondary schools in Mathioya District, Muranga County.
1.4 Objectives of the Study
This study was guided by the following objectives.

i. To assess the availability and utilization of school resources and their impact on educational outcomes in secondary schools in Mathioya District.

ii. To assess the nature and adequacy of physical facilities and their impact on educational outcomes in secondary schools in Mathioya District.

iii. To assess the level of qualification and preparation of teachers and their impact on educational outcomes in secondary schools in Mathioya District.


1.5 Research Questions
This study sought to answer the following research questions.

i. What is the availability and utilization of school resources and their impact on educational outcomes in secondary schools in Mathioya District?

ii. What is the nature and adequacy of physical facilities and their impact on educational outcomes in secondary schools in Mathioya District?

iii. What are the levels of qualification and preparation of teachers and their impact on educational outcomes in secondary schools in Mathioya District?

iv. What are the level school resource utilization and its impact on performance?

1.6 Significance of the Study
The findings of the study will have significant implications for the future of secondary schools in Mathioya district and in the country as a whole. The findings will enlighten the Board of Governors (B.O.G) on the existing resources in their schools and how they impact on education. It will further enlighten the Board of Governors on the need to ensure adequate teaching/learning resources in secondary schools. The study will enable the Teachers Service Commission (T.S.C) get a better understanding of the number of teaching staff available in secondary schools and how this affects education. The findings of the study can be used by curriculum developer (K.I.E) to ensure that teaching-learning materials recommended for secondary schools are those that positively help to promote increasing students understanding of the curriculum leading to better K.C.S.E performance.
1.7 Scope of the Study
The study was conducted in Mathioya District, Murang’a County. The study looked at factors such as adequacy of teaching/learning resources, the extent of utilization of resources in teaching/learning and the factors that affect appropriate utilization of resources.

1.8 Limitations of the Study
One of the limitations that the study was likely to encounter is inadequate funds and time. The study therefore only covered Mathioya District in Murang’a County. For more conclusive results, all the districts in the whole county should be studied. Consequently the findings of this study cannot be generalized to areas other than Mathioya District. The students whose achievement scores were used in this study would had left school. They were not part of the respondents.

1.9 Assumptions of the Study
The assumptions of the study were as follows
i. All respondents gave honest responses so that correct conclusions and generalizations are made.
ii. The respondents possessed the information sought in the questionnaires.

1.10 Operational Definition of Key Terms
The following terms are defined here below as they were used in the study;

 academic performance : School mean scores in K.C.S.E performance

 academic qualifications : The highest level of schooling attained by a teacher

 enrolment : Total number of pupils registered in a given school.

 free primary Education : Education provided to all children in the first cycle of a school
system i.e primary level. Pupils are not supposed to pay any levies. Uniform, food, transport and medical expenses are catered for by government

Free Secondary Education: This is education provided by the government in the second cycle of a school system i.e secondary. The government caters for tuition expenses while the parent caters for boarding expenses.

Impact: The powerful effect that something has on somebody or something

Professional qualification: A pre-service or in-service training received by the teacher

Resources: A supply of something that schools can use especially to improve their results

Resource utilization: Use of something by a school especially to improve their results

Teaching materials: Equipment and facilities that teachers use in the course of their teaching e.g textbooks, chalk, duster, charts, computer laboratory chemicals and equipment

1.11 Theoretical Framework
This study is guided by the constructivist theory. Formalization of the theory of constructivism is generally attributed to Jean Piaget, a Swiss psychologist who articulated mechanisms by which knowledge is internalized by learners. He suggested that through processes of accommodation and assimilation, individuals construct new knowledge from their experiences. When individuals
assimilate, they incorporate the new experience into an already existing framework without changing that framework. This may occur when individuals' experiences are aligned with their internal representations of the world, but may also occur as a failure to change a faulty understanding; for example, they may not notice events, may misunderstand input from others, or may decide that an event is a fluke and is therefore unimportant as information about the world. In contrast, when individuals' experiences contradict their internal representations, they may change their perceptions of the experiences to fit their internal representations. According to the theory, accommodation is the process of reframing one's mental representation of the external world to fit new experiences. Accommodation can be understood as the mechanism by which failure leads to learning: when we act on the expectation that the world operates in one way and it violates our expectations, we often fail, but by accommodating this new experience and reframing our model of the way the world works, we learn from the experience of failure, or others' failure (Ernest, 1991).

According to Floden (1994), constructivism is based on observation and scientific study about how people learn. People construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. In the classroom, the constructivist view of learning can point towards a number of different teaching practices. In the most general sense, it usually means encouraging students to use active techniques (experiments, real-world problem solving) to create more knowledge and then to reflect on and talk about what they are doing and how their understanding is changing. The teacher makes sure she understands the students' preexisting conceptions, and guides the activity to address them and then build on them. Various approaches in teaching and learning derive from constructivist theory. They usually suggest that learning is accomplished best using a hands-on approach. Learners learn by experimentation, and not by being told what will happen, and are left to make their own inferences, discoveries and conclusions.

According to Glasersfeld (1989) the responsibility of learning should reside increasingly with the learner thus emphasizes the importance of teaching learning resources in the learners environment becomes increasingly important. Learners construct their own understanding and that they do not simply mirror and reflect what they read. Learners look for meaning and will try to find regularity and order in the events of the world even in the absence of full or complete
information. The constructivist paradigm views the context in which the learning occurs as central to the learning itself (McMahon 1997). The learning environment should also be designed to support and challenge the learner's thinking (Vesta, 1987). While it is advocated to give the learner ownership of the problem and solution process, it is not the case that any activity or any solution is adequate. The critical goal is to support the learner in becoming an effective thinker.

Constructivists agree with this and emphasize that individuals make meanings through the interactions with each other and with the environment they live in. Knowledge is thus a product of humans’ interaction with the environment (Ernest 1991; Prawat and Floden 1994). McMahon (1997) agrees that learning process is greatly enhanced by improving the environment; a poor deprived environment attenuates learning while a rich environment with varied resources stimulates learning.

1.12 Conceptual Framework

Independent variables                         Extraneous variables                  Dependent variable

Teaching /learning materials
- Teaching
- Instructing
- Assignments
- Practical
- Private readings
- Accommodation
- Storage
- Evaluation
- Recreation
- Lighting

Human resources
- Teaching
- Guiding
- Mentoring
- Assessing
- Administration
- Teacher preparation

Finance
- Procurement
- Repairs
- Maintenance
- Salaries
- Registration for examinations
- In-service training

Impact in education
- Completion of assignments
- Coverage of syllabus
- Performance of practical lessons
- Comfort of the learner/teacher
- Adequate revision
- Improved KCSE

(Sources, researcher)
Figure 1.1 Model of Utilization of Resources and their Impact in education.

Figure 1.1 was developed from the literature review and the theoretical framework. It illustrates the utilization of resources namely; teaching/learning materials, human resources and finances and their impact on education. The independent variables were the availability of teaching/learning resources, levels of qualification and preparation of teachers and nature and adequacy of physical facilities which are likely to influence educational outcomes (dependent variable). However, finances are the extraneous variables that may also have impacted on educational outcomes.

The teaching/learning resources commonly used in schools include textbooks, set books, teachers’ guides, reference books, models, excursions/field trips, charts, calculators, computers and internet. Availability of the above resources ensures that the learners can work independently and with ease, assignments can also be issued and completed in good time, enriched learning environment, adequate syllabus coverage and consequently improved academic results.

Professional documents that are used in teaching and learning in schools include schemes of work, lesson plans, students’ progress records, lesson notes and class registers. The use of professional documents by teachers is a mandatory requirement by the Teachers Service Commission. These documents ensure that there is proper preparation and planning, implementation of the curriculum, follow-up and proper utilization of the available resources for the benefit of the learners. In service training is necessary in order to ensure that teachers are kept updated about the changes that affect their profession namely, new policies, procedures and curriculum changes among others. Major academic qualifications for teachers include master’s degree, B.Ed, diploma and PGDE. Highly qualified teachers are likely to be more knowledgeable, competent and confident and hence create a positive impact on students’ academic achievement.

Physical facilities in schools include desks and chairs, dormitories, dining halls, offices, laboratories, library, agriculture rooms, home science rooms, computer rooms, play grounds, stores, toilets/latrines recreational facilities, power and water supply. Some of the physical facilities help in creating a conducive learning environment while others directly affect curriculum implementation. A school that is well endowed with physical facilities is likely to realize better educational outcomes than one that is deprived of these facilities.
CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction
This chapter contains various scholarly works that have been reviewed for the purpose of this study. It focuses on the use of instructional materials in education, human resource utilization in education, school building designs and student learning, impact of physical facilities on students achievement, building age and student achievement, school size and student achievement.

2.1 Use of Instructional Materials in Education
Empirical studies done in relation to resource utilization in education have revealed that essential facilities are not always available in schools. This inadequacy of teaching resources has been of serious concern to educators. Lyons (2012), states that learning is a complex activity that involves interplay of students’ motivation, physical facilities, teaching resources, skills of teaching and curriculum demands. The process of managing and organizing resources is called resource utilization. The utilization of resources in education brings about fruitful learning outcomes since resources stimulate students learning as well as motivating them. A common way to examine the utilization of education resources is to analyze school spending. School expenditures are important to examine because they generally constitute the bulk of all resources devoted to schooling and they are tractable instruments of education policy (Meghir, 2002). Availability of school resources enhances the effectiveness of schools as these are basic things that can bring about good academic performance in the students. Maicibi (2003) observed that when the right quantity and quality of human resources is brought together, it can manipulate other resources towards realizing institutional goals and objectives. According to Raw (2003) appropriate utilization of resources in schools controls dropout rates, maintains student discipline and makes students remain motivated for longer a period. School resources including classrooms, desks, chairs, computers, textbooks, teachers, principals, school operating expenses and other instructional equipment/materials are critical in making teaching-learning more effective. They help improve access and educational outcomes since students are less likely to be absent from schools that provide interesting, meaningful and relevant experiences to them. These resources should be provided in quality and quantity in schools for effective teaching-learning process.
Instructional materials have been defined differently by various authors. Obanya (2009) viewed them as didactic material things which are supposed to make learning and teaching possible. Isola (2010) referred to instructional materials as objects or devices, which help the teacher to make a lesson much clearer to the learner. According to Nicholls (2000) exclusively oral teaching cannot be the key to successful pedagogy. To make the teaching learning process interesting the teacher has to use instructional aids. Several studies have been conducted on the impact of instructional materials on education. Momoh (2010) conducted a research on the effects of instructional resources on students’ performance in West Africa School Certificate Examinations (WASCE). He correlated material resources with academic achievements of students in ten subjects. Data were collected from the subject teachers in relation to the resources employed in the teaching. The achievements of students in WASCE were related to the resources available for teaching each of the subjects. He concluded that material resources have a significant effect on student’s achievement in each of the subjects. Instructional materials in the teaching-learning process, facilitate the learning of abstract concepts and ideas; keep the learners busy and active thus, increasing their participation in the lesson; save teachers’ energy of talking too much; illustrate the concepts clearer and better than the teachers’ words only; help overcome the limitations of the classroom by making the inaccessible accessible; help to broaden students’ knowledge, increase their level of understanding as well as discourage rote-learning; help to stimulate and motivate learners.

Recent emphasis on teaching-learning methods ensures that learners are made to have active participation. Active participation of learners increases motivation and also minimize, disruptive behavior associated with a boring curriculum overloaded with abstract concepts. Active participation is facilitated by making use of instructional materials and resources. Teaching can only be effective when adequate and relevant instructional materials are used (Falade, 2006). Many educators and researchers have reported the importance of instructional materials in teaching. Research reports have shown that availability of instructional materials is a vital determinant of educational outcomes. Oyeniran (2003) observes that students learn best if they are given the opportunity to see and to make observations of what they are taught. He said a good instructional material might be a substitute for real life objects in the classroom as against the use of exploratory methods.
Many research reports abound on the inevitability of instructional materials and resources on educational outcomes (Hassan, 2000). When instructional materials and resources are lacking or are inadequate education is compromised and this inevitably is reflected in low academic achievement, high dropout rates, problem behaviours, poor teacher motivation and unmet educational goals.

2.2 Human Resource Utilization in Education

Human resources are the people who constitute the workforce in an organization. According to Olagboye (2004), people and knowledge, skills and attitudes in them constitute resources. Okwori (2006) agreed with this assertion and added that expertise in technical, mechanical, managerial, social and other areas potentially available for utilization in social and economic institutions constitute human resources.

A secondary school as an educational institution has teaching staff, non-teaching personnel and students including their knowledge, abilities and skills as the human resources. Essentially, the personnel within the institutions and their capabilities in contributing to productivity and achievement of institutional objectives are referred to as human resources. Teachers in secondary schools are engaged in the processing of all educational inputs, students inclusive, so that the educational institutions will be able to achieve their objectives. They disseminate knowledge and skills through teaching, contribute to advancement in knowledge and engage in community services. Their availability and utilization would determine the success or failure of the educational system.

A method of determining the extent of teacher’s utilization is through the number of students assigned to them for teaching. These are referred to as Students-Teacher Ratio (STR). STR is used to determine the number of students that are to be allocated to a teacher in a given educational level. The STR shows a teacher’s workload at a particular level of education. It also helps in determining the number of teaching manpower needed for a projected student’s enrolment. Thus, it could be used to determine either teachers are over-utilized or underutilized (Afolabi, 2005).

According to Padmanabhan (2001), internal efficiency refers to the number of students who pass from one grade to the other and complete that cycle within the stipulated period of time. It shows
the relationship between input and output at a given educational level. Gupta (2001) noted that the question of internal efficiency is ultimately linked to the issue of resource allocation and utilization.

\[
\text{Student-Teachers Ratio} = \frac{\text{Total number of students at a given educational level in a year}}{\text{Total number of teachers at a given educational level in a year}}
\]

Afolabi (2005) observed that indicators of internal efficiency of an educational system are wastage rate and graduation rate. Wastage rate is caused by students who leave the school system before the completion of their cycle. Wastage may also occur between grade level, as a result of students who repeat the grade and those who drop out of the system. Wastage rate could be crude cohort wastage rate or refined-cohort wastage rate. Graduation rate refers to the percentage of the students that finally leave the system on completion of the four year cycle to the total number that enrolled in the final grade of the level. This is very vital to the work of educational planners because it enables them to compute the input-output ratio in determining the efficacy of the system. Owolabi (2000), in his study, submitted that it was unrealistic to compare examination results of schools in terms of successful completion of a particular cycle, without considering the students’ inputs, drop-outs and repetition in the institution. These are likely to have a great influence on their performance at their end of course examination.

2.3 School Building Design and Student Learning

According to Earthman (2004), Wall, Woolner, & McCaughey (2005) and Schneider (2002) high educational achievement is associated with a number of comfort factors such as; air conditioning, less noisy external environments, less graffiti and where classroom furniture are in good repair. More recent reviews have consistently found relationships between building quality and academic outcomes. These studies have also found that design criteria and building conditions related to human comfort, indoor air quality, lighting, acoustical control, and secondary science laboratories have demonstrable impact on student achievement.

Earthman (2004) rates temperature, heating and air quality the most important individual elements affecting for student achievement. Lighting ranked next in order of criteria having demonstrable effects on student learning outcomes, with daylight offering the most positive effect, potentially due to its biological effects on the human body. Tanner (2000) underscores
important recurring patterns of school design. Among the four features of his school design assessment scale which correlate with student achievement, are ‘pathways’ encouraging ease of movement and ‘positive outdoor spaces’ allowing learning to extend beyond the classroom walls. Overcrowding has been found to have a harmful effect on student learning (Earthman, 2004). Chronic noise exposure hinders cognitive functioning and impairs reading skills (Haines, 2001; Maxwell & Evans, 2000).

The quality of school buildings has also been related to student behavior, including vandalism, absenteeism, suspensions, disciplinary incidents, violence, and smoking (Schneider, 2002). Thus, reviews of research on various aspects of the physical environment tend to conclude that adequate student capacity and appropriate acoustical conditions are important factors in a school environment (Fisher, 2001; Schneider, 2002; Earthman, 2004). Students are not the only ones affected by poor quality buildings. Teacher attitudes and behaviors have also been found to be related to the quality of school facilities. Teacher retention/attrition decisions were significantly related to the quality of school facilities, even when controlling for a host of factors (Buckley, Schneider, & Shang, 2004). Factors that most directly affected the quality of teacher work life also included indoor air quality, thermal controls, noise level and acoustics, adequate classroom lighting, and the amount of natural daylight. Teachers who perceived a detrimental effect on their health due to building conditions, or who were stressed by high noise levels, poor acoustics, and lack of thermal controls were more likely to seek employment elsewhere.

2.4 Impact of Physical Facilities on Student Achievement

According to Lyons (2002) learning is a complex activity that puts students’ motivation and physical condition to the test. It has been a long-held assumption that curriculum and teaching are the only major parameters that have an impact on learning. However, it is becoming more apparent that the physical conditions in schools indeed influence student achievement. Pearls (2008) observe that design features and components of school buildings have been proven to have a measurable influence upon student learning. Among the influential features and components are those impacting temperature, lighting, acoustics and age. Researchers have found a negative impact upon student performance in buildings where deficiencies in any of these features exist. In addition, overcrowded school buildings and classrooms have been found to be a negative influence upon student performance. Particular building feature such as air
conditioning, lighting, or presence of windows to serve as variables with which to compare student achievement. The overall impact a school building has on students can be either positive or negative, depending upon the condition of the building. In cases where students attend school in substandard buildings they are handicapped in their academic achievement. Correlation studies show a strong positive relationship between overall building conditions and student achievement. Studies by Pearls (2008) regarding the number of students in schools as compared with its capacity found out that overcrowding conditions have a negative influence upon students and teachers.

2.5 Building Age and Student Achievement
Studies regarding differences in student performance based upon building condition have focused on many factors of facility quality. Research has found out that students in the modern building scored significantly higher in reading, language and mathematics than their counterparts in the older building. The age of a building can influence many of the individual factors used in evaluating the condition of an educational facility. O’Neill (2001), report that building age correlated positively with student achievement and that this correlation to be consistent with numerous other studies that linked building age with student achievement. Age of school building may not only provide hurdles for teachers and students, but older buildings have been found to actually cause the loss of instructional time.

Al-Enezi (2002) examined the relationship between the conditions of school buildings and student achievement, data was gathered and various school buildings were rated as sub-standard, standard and above-standard in the evaluation. The survey consisted of sixteen questions which rated structural building conditions and ten questions which rated cosmetic building conditions. Student achievement scores on the reading comprehension, mathematics, written expression, information, basic composition, social studies and science were compared. The study found a positive correlation between building age and academic achievement.

2.6 School Size and Student Achievement
Many factors of school design have been linked to academic success of students. As enrollment numbers climb, the issue of school size becomes relevant to the task of improving student performance. Smaller schools have shown a greater capacity to develop personal connections
among students and staffs that tend to prevent indiscipline or antisocial behaviour (Yauches, 2002). An issue related to school size is the ability for students and staff to establish personal links with one another and with the physical environment. Small classes facilitate small-group or individualized instruction. Cook (2002) found that students in smaller learning environments achieved at higher levels than their counterparts in larger schools. Smaller high schools not only provide a safer environment than their large counterparts but they also promote advanced academic achievement. The smaller schools provide more attention to and support for individual student success.

Viadero (2001) suggests that policy makers and scholars have turned a deaf ear to the debate of school size, favoring a focus on curriculum and pedagogy. This trend seems to follow suit with parents and teachers. Educators, school board members and politicians continue to promote the construction of larger schools mainly due to financial motives. Restricted funding and lack of available resources to build new schools tend to encourage the trend of expanding existing schools (Kennedy, 2001). The ability to serve more students with common facilities such as dining halls, dormitories, libraries and other physical school features makes the larger school appear much more cost efficient on a cost-per-student basis (Nathan, 2002).

Arguments other than cost efficiency exist in reluctance to build smaller schools. Some of this resistance finds its roots in more affluent communities, where research indicates that the link between school size and student achievement is not as strong (Howley & Bickel, 2002). Support for larger schools is also based upon the premise of student choice. Proponents of large schools, especially large high schools, base their position upon the assumption that larger schools provide a wide range of curricular choices (Viadero, 2001). The size and variety of course offerings also affords larger schools the luxury of employing more specialized and diverse staff members. Similar arguments for larger schools espouse the ability of large schools to support extracurricular programs such as athletic teams, theatrical productions student clubs and competitions.

The high school setting in particular has provided a number of alternative design methods that aid in establishing smaller learning communities. One such method is the schools-within-schools, where large schools are broken up into smaller groups of student and teachers assigned
to interdisciplinary teams (Raywid, 2002). Modern schools are being designed by architects in attempts to accommodate small groups such as “houses,” “families,” “clusters” and other small learning communities (Cook, 2002). Some high schools are allowing students to attend schools-within-schools arranged to fit a particular curriculum theme. Gewertz (2001) reports that smaller learning communities utilize the original school layout with renovations allowing for specialized laboratories in each smaller sub-school. While policies and funding are resisting creating smaller learning communities, educational leaders are still faced with the task of identifying physical environmental factors that impact academic achievement of their students. Within any size of school setting, it is important that students are given a clean and bright surrounding so that learning can take place in an optimal setting.

2.7 Summary
The reviewed studies indicates the impact of use of instructional materials, human resource utilization, school building design, building age, physical facilities and school size on student achievement. While there is abundant research on impact of these parameters in education, there is none with samples that include Mathioya District. Understanding the impact of instructional materials in education is important for all education stakeholders in this district in order to provide appropriate resources for effective and improved academic achievement. Mathioya District has not had any documented assessments of principals and teachers perception of resource utilization in education. The proposition examined in this study was that at least part of the explanation for the link between school resource utilization, quality and education outcomes is the mediating influence of school facilities.
CHAPTER THREE

METHODOLOGY

3.1 Introduction
This chapter describes the research design and methodology adopted in the study. It covers research design, study locale, target population, sampling design, research instruments, validity and reliability of the instruments, data collection procedures and data analysis methods.

3.2 Research Design
This study adopted an *ex post facto*, descriptive research design. The descriptive research design was used to measure the impact of resource utilization in education. Cohen (2000) defines an *ex post facto* research as one in which the independent variables have already occurred and in which the researcher starts with observation of a dependent variable or variables. This research design does not permit manipulation of the variables under investigation; therefore the independent variables were studied after they had already exerted their effect on the dependent variable. The researcher therefore studied the independent variable in retrospect for its possible relationship to, and effects on, the dependent variable. This research design was found suitable for this study because investigating the cause-and effect relationships of resource utilization cannot be manipulated by the researcher; there is no way in which some schools can be denied resources or teaching/learning facilities or restricted to utilize them in order to observe the effect on education, what can be done however is reconstruction by examining the different levels of resource adequacy and the extent to which schools were utilizing them and compare with their respective performances. The independent variables in this study were resources such as teaching/learning materials, physical facilities and teaching personnel. Education was the dependent variable. The study therefore gave an existing state of events in Mathioya district.

3.3 Location of the Study
The study was carried out in Mathioya District of Muranga County. The district has four divisions namely Gitugi, Kamacharia, Kiru and Njumbi. The academic standards in the district were low with the 2010 K.C.S.E mean score being 5.349. The main livelihood in the district is farming and the main crops grown include Maize, Beans, Potatoes and Vegetables. Dairy farming is also practiced. The researcher carried out the study in this locale because it’s easily accessible and evidence of existence of variables the researcher was interested in.
3.4 Target Population

3.4.1 Schools
The study targeted all the 27 public secondary schools in Mathioya District. There were 2 boys’ boarding schools, 3 girls’ secondary schools and 22 mixed schools in the district. Out of the 22 mixed secondary schools, there were 3 boarding schools while 19 are day schools.

3.4.2 Respondents
The study targeted 27 secondary schools, their principals and heads of departments.

3.5 Sampling Design

3.5.1 Schools
To ensure fair representation of the study population, stratified random sampling was used in selecting and distributing the 10 schools. The stratification factors are boy’s boarding, girls’ boarding and mixed schools. The researcher worked with a sample size of 37% of the schools and sampled 2 boys’ boarding secondary schools, 2 girls’ boarding secondary schools and 6 mixed secondary schools. In total 10 schools were sampled. This ensured that the sample was proportionately and adequately distributed among the three strata, i.e., boys boarding, girls boarding and mixed schools. This guaranteed that all the stratus were involved in the study. The principal of each of the sampled schools was included in the study as well as one head of department who was randomly selected.

<table>
<thead>
<tr>
<th>School category</th>
<th>Population</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys boarding</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Girls boarding</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Mixed Schools</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

3.5.2 Respondents
The researcher used a sample of 10 secondary schools, 10 principals and 10 heads of departments. This represented 37% of the population which ensured that each school category was adequately represented. According to Gays (1992) a sample size of educational research should be at least 10% of the total population. In this study the researcher found it appropriate to
sample more than 10% of the population where the population categories were small, for instance, girls boarding category had only 3 schools and boys boarding with 2 schools. The study therefore utilized a sample of 10 schools. 10 heads of departments from the same sampled schools were randomly selected and included in the study.

### 3.6 Research Instruments

The researcher used questionnaires to conduct the study; they were administered to the principals and the teachers.

#### 3.6.1 Questionnaire

Questionnaires were used to obtain information from principals and teachers in the sample schools. The researcher used close-ended questions, open-ended questions, contingency and matrix questions. Open ended questionnaires required the respondent to give direct views. Close-ended questionnaires are sometimes multiple choice questions, the respondents are given specific questions to respond to. They were easy to respond to, analyze and they took a short time. Contingency questions were follow-up questions to close ended questions. Matrix questions were a group of questions which share the same response options. Therefore the researcher developed the questionnaires and administered them.

### 3.7 Piloting

The researcher selected a sample school in the district of study where the instruments were administered. The sample school was not involved in the actual study. The purpose of piloting was to test the appropriateness of the items to respondents’ in order to improve the instruments and enhance their reliability and validity. The pilot study helped to identify any ambiguous item in the instrument. They helped the researcher to modify or rephrase the questions.

#### 3.7.1 Validity of the Instruments

The researcher selected experts from the school of education, department of education management, policy and curriculum studies, Kenyatta University who were conversant with the area of study. They checked on the face, construct and content validity to ascertain whether the instruments accurately represent the variables under study in line with the purpose and objectives of the study. The final instruments were then developed in the light of their comments.
3.7.2 Reliability of the Instruments

Reliability of an instrument is a measure of the consistency in which the instrument will measure what it’s supposed to measure (Mugenda & Mugenda, 2000). An instrument is reliable if it gives similar results after several administrations under similar conditions. Test-re-test method was used as follows:

- The researcher administered the developed questionnaires to one secondary school not in the sample.
- The responses were scored manually.
- After a period of two weeks the same questionnaires were administered to the same people.
- The responses were analyzed manually once again.
- A correlation co-efficient between the first and second results were computed. A positive co-efficient of over 0.7 was considered alright to judge the reliability of the instrument.
- The higher the co-efficient, the more reliable the instrument.

A reliability coefficient of 0.735 and 0.725 for principals and teachers respectively were established from the results of the pilot study.

3.8 Data Collection Procedure

Before proceeding to conduct the study, the researcher obtained an introductory letter from the university graduate school. This facilitated issuance of permit from the National Council for Science and Technology (NCST) authorizing the researcher to carry out the study in public secondary schools in Mathioya District. The researcher sought consent to carry out the study from Mathioya District Education Officer (D.E.O) by booking an appointment. The researcher further visited the principals of the sampled schools to introduce herself and seek for their consent to carry out the research in their schools. The researcher then arranged when to take the questionnaires to the respondents. The researcher also made arrangements on when to interview the principals in the sample schools. The questionnaires were self administered where the respondents completed them by themselves. For accuracy and consistency of information, the respondents were given 30 minutes to fill in the Questionnaires. The researcher then collected them the same day they were filled.
3.9 Data Analysis
After data had been collected, the researcher checked the completeness of the questionnaires. The was analyzed using descriptive statistics; it was appropriately coded, scored and then keyed in the computer for analysis by Statistical Package for Social Sciences (SPSS). Data from the principals and the teachers was analyzed carefully, remarks from participants taken and conclusions drawn, to show the impact of resource utilization on education. The analyzed data was presented in form of frequency tables, pie charts graphs means and percentages.
CHAPTER FOUR
DATA ANALYSIS PRESENTATION AND DISCUSSION

4.1 Introduction
This chapter presents research findings, their interpretation and discussion. Data was collected from sampled principals and teachers in secondary schools in Mathioya District, Murang’a County in Kenya. The respondents whose responses were received included 10 principals and 10 teachers, of which 100% of the group responded. The study investigated the impact of resource utilization in instructional programmes in secondary schools. The research looked at factors such as:

- Availability of teaching/learning resources and the extent of their utilization in secondary schools in Mathioya District.
- The adequacy of physical facilities in secondary schools in Mathioya District
- Level of qualification and preparation of teachers in secondary schools in Mathioya District.

The research findings are presented using descriptive statistics.

4.2 Demographic Characteristics of Schools and Respondents
This section describes the demographic characteristics of the respondents in the study area. Such a description is important in providing a clear understanding of the respondents and institutions included in the study and which may have influenced the results based on the objectives of the study. The demographic characteristics covered in this section are teaching experience of teachers and teaching subjects category of schools, type of schools, and teaching subjects of the respondents.

4.2.1 Types of Schools
The study sought to establish the types of schools and the responses are presented in Figure 4.1.
Figure 4.1 Types of Schools

Figure 4.1 indicates that majority (60.0%) of schools were mixed day while girls boarding and boys boarding had 20.0% each.

4.2.2 Category of Schools

The research investigated the category of schools and the results are presented in Figure 4.2

Figure 4.2 Category of Schools

Figure 4.2 indicates that majority (80.0%) of the schools was district and 20.0% were provincial.

4.2.3 Number of Streams in Schools

It was important to establish the number of streams in schools and the responses are presented in Figure 4.3.

Figure 4.3 Number of Streams in Schools
Figure 4.3 indicates that majority (50%) of schools were one streamed, 30% were two streamed while 20% had four streams and above.

### 4.2.4 Schools Enrollment

The study investigated the trends in school enrollment for the last four years and the results are provided in table 4.1.

#### Table 4.1 Schools Enrollment

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
<th></th>
<th></th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>1292</td>
<td>1247</td>
<td></td>
<td>2539</td>
</tr>
<tr>
<td>2009</td>
<td>1400</td>
<td>1320</td>
<td></td>
<td>2720</td>
</tr>
<tr>
<td>2010</td>
<td>1556</td>
<td>1495</td>
<td></td>
<td>3051</td>
</tr>
<tr>
<td>2011</td>
<td>1609</td>
<td>1599</td>
<td></td>
<td>3208</td>
</tr>
</tbody>
</table>

Table 4.1 clearly indicates that the enrollment of both boys and girls had been increasing steadily over the four years under study from 2539 in 2008 to 3208 in 2011.

### 4.2.5 Teaching Experience of Principals.

The study sought to establish the teaching experience of the principals and the results in figure 4.4.

#### Figure 4.4 Teaching Experience of Principals.

The above results indicate 40.0% of the principals had 16-20 years and 0-5 years teaching experience while 10.0% had 6-10years and 10-15 years teaching experience each.
4.2.6 Teaching Experience of the Teachers

The study investigated the teaching experience of the teachers and the responses are provided in Figure 4.5.

![Figure 4.5 Teaching Experiences of the Teachers](image)

Figure 4.5 indicates that majority (51%) of teachers, had a teaching experience of 6-10 years, and this was followed by 32% who had 10-15 years. 0-5 and 16-20 years had 10% each.

4.2.7 Teaching Subjects of Respondents

The study investigated the teaching subjects of the teachers and their responses are provided in Figure 4.6.

![Figure 4.6 Teaching Subjects of Respondents (teachers)](image)

Figure 4.6 indicates that there was more science teachers (44.44%) followed by humanities (33.33%). Technical and language teachers’ accounted for 11.11% each.

4.2.8 Motivation Programmes for Teachers
The study sought to establish if schools had motivation programmes for teachers, the responses are indicated in figure 4.7.

**Figure 4.7 Motivation Programmes for Teachers.**

Figure 4.7 show that 50% of the schools did not have any motivational programmes for teachers as compared with an equal number who motivate their teachers.

The research investigated motivational programmes for teachers in schools and the findings are provided in Table 4.2.

**Table 4.2 Nature of Motivational Programmes**

<table>
<thead>
<tr>
<th>Mode of motivation</th>
<th>Frequency</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation letters</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Tokens</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Verbal appreciation</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>None</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 4.2 clearly indicates the details of motivational programmes that are applied in schools in the district. 20% of the schools write recommendation letters, 30% gave tokens, 10% appreciated the person while 40% had no form of motivation at all.

**4.2.9 KCSE Means Scores in the Years 2008-2010**

It was important to investigate the KCSE mean scores for the schools from 2008 to 2010 and the results are presented in table 4.3.
Table 4.3 KCSE Means Scores for the Years 2008-2010

<table>
<thead>
<tr>
<th>KCSE Mean score</th>
<th>Rating</th>
<th>2008 %</th>
<th>2009 %</th>
<th>2010 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4.0</td>
<td>poor</td>
<td>44.4</td>
<td>11.1</td>
<td>22.2</td>
</tr>
<tr>
<td>4.1-6.0</td>
<td>fair</td>
<td>33.3</td>
<td>66.7</td>
<td>55.6</td>
</tr>
<tr>
<td>6.1-9.0</td>
<td>good</td>
<td>22.2</td>
<td>22.2</td>
<td>22.2</td>
</tr>
<tr>
<td>9.1 and above</td>
<td>very Good</td>
<td>00.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 4.3 shows that there is gradual improvement in academic performance from 2008 to 2010. This is indicated by reduction of the low mean scores (0-4.0) and improvement in the fair mean (4.1-6.0). However the high mean scores 6.1-9.0 did not register any change for the three years under review.

4.3 Availability of Teaching/learning Resources in Schools

This section represents the findings of principals and teachers’ responses in respect to the availability of teaching learning resources and the extent of their utilization. Factors such as the pupil/textbook ratios, number of teachers in schools, average number of lessons per week, number of teachers in the school, are discussed.

4.3.1 Textbook/Pupil Ratio

The research sought to establish the pupil/text book ratios in three compulsory subjects and the results are provided in Table 4.4.

Table 4.4 Textbook/Pupil Ratio

<table>
<thead>
<tr>
<th>Textbooks/ pupil ratio</th>
<th>Frequency(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiswahili</td>
<td></td>
</tr>
<tr>
<td>1:1</td>
<td>10.0</td>
</tr>
<tr>
<td>1:2</td>
<td>70.0</td>
</tr>
<tr>
<td>1:3</td>
<td>20.0</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>1:1</td>
<td>10.0</td>
</tr>
<tr>
<td>1:2</td>
<td>80.0</td>
</tr>
<tr>
<td>1:3</td>
<td>10.0</td>
</tr>
<tr>
<td>English</td>
<td></td>
</tr>
<tr>
<td>1:1</td>
<td>20.0</td>
</tr>
<tr>
<td>1:2</td>
<td>70.0</td>
</tr>
<tr>
<td>1:3</td>
<td>10.0</td>
</tr>
</tbody>
</table>
Table 4.4 shows that between 70% and 80% of respondents indicated that the textbook/pupil ratio was 1:2 in all the three compulsory subjects. The textbook/pupil ratio of 1:2 is 70% in Kiswahili, 80% in mathematics and 70% in English. Few schools allocate one book per student however the extent of sharing books is minimal.

4.3.2 Status of Staffing in Schools

The study investigated the employment status of teachers in the district and the averages are tabulated in Table 4.5.

Table 4.5 Average Number of Teachers According to Employment Status

<table>
<thead>
<tr>
<th>Employment status</th>
<th>Average No. of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSC</td>
<td>9.4</td>
</tr>
<tr>
<td>BOG</td>
<td>3.8</td>
</tr>
<tr>
<td>Volunteers</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13.2</strong></td>
</tr>
</tbody>
</table>

Table 4.5 indicates that the average number of teachers employed by the TSC and BOG per school is 9.4 and 3.8 respectively. There are no volunteer teachers in the district.

The study also investigated the average number of lessons per week per teacher and found out that they are 24.5, this amounts to approximately 5 lessons per day per teacher. The study found that there is understaffing in schools and each school requires a additional 5 teachers to meet the staffing shortage.

It was important to investigate whether the teachers in schools were enough according to the Curriculum Based Establishment (CBE) and the responses are in Figure 4.8.

Figure 4.8 Adequacy of Teachers According to Curriculum Based Establishment
Figure 4.8 shows that majority (90%) of the schools do not have enough teachers according to the CBE only 10% of the schools were of the contrary opinion.

4.3.3 Adequacy of Physical Facilities

The study investigated several factors that indicate the adequacy of physical facilities in schools. Some of these factors are: chairs and desks, labs, library, home science rooms, latrines dining halls, dormitories, departmental offices, recreational facilities, water and power.

Principals were served with statements on a scale of 1-5, where 1 represented strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree. The statements were meant to determine the extent of availability of resources in schools. Their responses in % are provided in the Table 4.6.
Table 4.6 Principals Responses on the Adequacy of Resources in Schools

<table>
<thead>
<tr>
<th>Adequacy of resources in schools</th>
<th>Principal’s responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td>1 The number of desks and chairs in the staff room is adequate</td>
<td>50</td>
</tr>
<tr>
<td>2 The number of desks and chairs in the classroom is adequate</td>
<td>60</td>
</tr>
<tr>
<td>3 The capacity and resources in the library are adequate for the number of students in the school</td>
<td>-</td>
</tr>
<tr>
<td>4 The capacity and equipment in the laboratory is adequate for the number of students in the school</td>
<td>40</td>
</tr>
<tr>
<td>5 The facilities in the home science room are adequate in the number of students in the school</td>
<td>40</td>
</tr>
<tr>
<td>6 The facilities in the agriculture room are adequate to the number of students in the school</td>
<td>11.1</td>
</tr>
<tr>
<td>7 The number of latrines/toilets in the school are adequate for the number of students in the school</td>
<td>10</td>
</tr>
<tr>
<td>8 The number of offices allocated are adequate for the departments in the school</td>
<td>-</td>
</tr>
<tr>
<td>9 The capacity of the dinning hall is adequate for the number of students in the school</td>
<td>22.2</td>
</tr>
<tr>
<td>10 The capacity of the dormitories is adequate for the number of students in the school</td>
<td>33.3</td>
</tr>
<tr>
<td>11 The size of the play ground is adequate for the number of students in the school</td>
<td>30</td>
</tr>
<tr>
<td>12 The water supply to the school is reliable</td>
<td>20</td>
</tr>
<tr>
<td>13 The supply of power to the school is reliable</td>
<td>50</td>
</tr>
<tr>
<td>14 Recreational facilities e.g. TVs, Videos, Radios are adequate</td>
<td>40</td>
</tr>
<tr>
<td>15 The number of reference books in the school are adequate</td>
<td>29</td>
</tr>
<tr>
<td>16 The number of teachers guide in the school are adequate</td>
<td>10</td>
</tr>
<tr>
<td>17 Use of resource persons in the school is frequent</td>
<td>30</td>
</tr>
<tr>
<td>18 Use of field trips/excursions in the school is frequent</td>
<td>10</td>
</tr>
<tr>
<td>19 Use of computers in teaching and learning is common</td>
<td>-</td>
</tr>
<tr>
<td>20 Students have adequate number of calculators</td>
<td>10</td>
</tr>
<tr>
<td>21 Books and equipment storage facilities in the school are adequate</td>
<td>30</td>
</tr>
</tbody>
</table>

Legend: 1 - strongly disagree, 2 - disagree, 3 - neither agree nor disagree, 4 - agree, 5 - strongly agree

Table 4.6 indicates that majority (60%) of the principals strongly agreed that chairs and desks were adequate in the classroom, 50% strongly agreed that the desks and chairs in the staffroom and reliability of water supply were adequate, 40 % strongly agreed that equipment in the laboratory, home science room and recreational facilities were adequate. On the other hand 44.4% strongly disagreed that the facilities in the agriculture room and computers were adequate.
20% strongly disagreed that recreational facilities, reference books, home science room, playground, calculators, book storage facilities and reliability of water supply were adequate.

4.3.4 Teachers’ Responses on Adequacy of Resources in Schools

The study sought the teachers’ opinion on nature and adequacy of resources in schools. Teachers were served with statements on a scale of 1-5, where 1 represented strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree. The statements were meant to determine the nature and adequacy of resources in schools. Their responses in % are provided in the table 4.7.

Table 4.7 Teachers Responses on Adequacy of Resources in Schools
Table 4.7 shows that majority (75%) of the teacher respondents strongly agreed that chairs and desks were adequate in the staff room, 40% strongly agreed on the adequacy of recreational facilities, water and power supplies, while 37.5% strongly agreed that the capacity of the dining hall was adequate. 50% agreed that the facilities in home science room were adequate. On the other hand 77.8% of the respondents strongly disagreed that the desks and chairs in the classrooms were adequate, 37.5% strongly disagreed that the capacity of the dormitories was
adequate, 33.3% strongly disagreed that facilities in the home science room and capacity and resources in the library were adequate.

4.4 Extent of Utilization of Resources in Schools

The study investigated the extent of utilization of resources in schools. Resources such as number of teachers, teaching learning resources, humans resources,

4.4.1 Principals Responses on Extent of Utilization of Resources in Schools

The study investigated the extent of utilization of teaching learning resources in schools. The principals were provided with statements on a rating of 1 to 5. Such that 1 represented strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree. The percentages of these responses were computed and are provided in Table 4.8.

<table>
<thead>
<tr>
<th>Principals perception of the extent of utilization of teaching/learning resources</th>
<th>Principals Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 4 3 2 1</td>
</tr>
</tbody>
</table>
The study investigated the extent of use of teaching learning resources such as set books, textbooks, teacher’s guides, models, calculators, charts and teaching aids, type writers, copy printers, computers, facilities in the laboratory, agriculture room, and computer room among others. The responses are provided in Table 4.6. It was established that majority(70%) of the principal respondents, strongly agreed they ensured the use of set books and textbooks. 60% of the respondents strongly agreed they ensured that the playfield was used to enhance co-curricular learning. 50% of the respondents indicated that the ensured models, reference books and water supply were used. On the other hand 50% of the respondents disagreed on the use of agriculture room and home science room. Other responses are indicated in the same table.

4.4.2 Teachers Responses on extent of Utilization of Resources in Schools

The study sought to establish the extent of utilization of teaching learning resources. The teachers were provided with statements on a rating of 1 to 5. Such that 1 represented strongly
disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree. The teachers’ responses in percentage are provided in Table 4.9.

Table 4.9 Teacher’s responses on Extent of utilization of Teaching Learning Resources

<table>
<thead>
<tr>
<th>Teachers perception on the extent of utilization of Teaching Learning Resources</th>
<th>Teacher’s responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>I make use of the facilities in the laboratory in teaching</td>
</tr>
<tr>
<td>2</td>
<td>I make use of the facilities library in teaching</td>
</tr>
<tr>
<td>3</td>
<td>I make use of the facilities in the agriculture room in teaching</td>
</tr>
<tr>
<td>4</td>
<td>I make use of the facilities in the home science room in teaching</td>
</tr>
<tr>
<td>5</td>
<td>I make use of the computer room in teaching</td>
</tr>
<tr>
<td>6</td>
<td>I make use of the play field to enhance co-curricular learning</td>
</tr>
<tr>
<td>7</td>
<td>I make use of the reference books in teaching</td>
</tr>
<tr>
<td>8</td>
<td>I make use of the set books in my teaching</td>
</tr>
<tr>
<td>9</td>
<td>I make use of the text books in the teaching of subjects</td>
</tr>
<tr>
<td>10</td>
<td>I make use of the teachers guide in teaching</td>
</tr>
<tr>
<td>11</td>
<td>I make use of the models in teaching</td>
</tr>
<tr>
<td>12</td>
<td>I make use of the resource persons in teaching</td>
</tr>
<tr>
<td>13</td>
<td>I make use of the excursions/field trips in teaching</td>
</tr>
<tr>
<td>14</td>
<td>I make use of the calculators in teaching</td>
</tr>
<tr>
<td>15</td>
<td>I make use of the internet in teaching</td>
</tr>
<tr>
<td>16</td>
<td>I make use of the charts in teaching</td>
</tr>
<tr>
<td>17</td>
<td>I make use of the recreational facilities to entertain students</td>
</tr>
<tr>
<td>18</td>
<td>I make use of the discussion groups teaching</td>
</tr>
</tbody>
</table>

Legend: 1 - strongly disagree, 2- disagree, 3-neither agree nor disagree, 4- agree, 5- strongly agree

It is clear from Table 4.9 that majority (88.9%) of the teacher respondents strongly agreed on the use of text books, 62.5% agreed on the use of set books, 60% agreed on the use of teachers guide while 50% agreed on the use of calculators. 70% agreed on the use of models in teaching while 50% agreed on the use of facilities in the laboratory and playing field. On the other hand 77.8% of the respondents strongly disagreed on the use of reference books, 66.7% disagreed with the use of facilities in the home science room, 60% disagreed on the use of the internet and discussion group while 50% disagreed on the use of facilities in the agriculture room.

4.5 The Level of Qualifications and Preparation of Teachers
The study investigated the level of qualification and preparation of teachers. Factors such as academic qualification of both principals and teachers, use of professional documents enrollment for in-service training and teaching experience were studied.

4.5.1 Academic Qualification of the Principals and Teachers

The research investigated the level of education of the principals and teachers and the results are presented in Figure 4.9.

![Figure 4.9 Academic Qualifications of Principals and Teachers](image)

The academic qualifications of principals and teachers were exactly the same in respect to qualifications and the percentages. Figure 4.9 shows that majority (60.0%) of the respondents fall in the degree level of education. This is followed by 20.0% of the respondent who said that their level of education is masters. The diploma and PGDE level of education both had only 10.0% of the respondents.

4.5.2 Enrollment for In-service Training Programme

The research sought to investigate the enrollment of teachers for in-service training programmes and the results are presented in Figure 4.10.
Figure 4.10 shows that only 20% of teachers had enrolled for in-service training programmes, 80% were of the contrary opinion. These results can probably be attributed to the fact that most schools in the district are rural based and inaccessible hence teachers may not have opportunities for training since most training institutions and universities are usually in the large towns. Again most teachers have family responsibilities which may not permit them to enroll for training due to unavailability of time and resources.

4.5.3 Use of Professional Documents by Teachers
The study investigated the use of professional documents by teachers. Professional documents that are used in teaching and learning in schools include schemes of work, lesson plans, students’ progress records, lesson notes and class registers. The use of professional documents by teachers is a mandatory requirement by the Teachers Service Commission. These documents ensure that there is proper preparation and planning, implementation of the curriculum, follow-up and proper utilization of the available resources for the benefit of the learners. The teachers were provided with statements on a rating of 1 to 5. Such that 1 represented strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree. The findings of the study are provided in percentages in Table 4.11.
Table 4.10 Use of Professional Documents by Teachers

<table>
<thead>
<tr>
<th>Use of professional documents in the school</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I always prepare schemes of work for subject that I am allocated</td>
<td>-</td>
<td>-</td>
<td>60</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>2 I always make use of lessons plans in my teaching</td>
<td>30</td>
<td>30</td>
<td>10</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>3 I always keep updated students records for my subject</td>
<td>40</td>
<td>60</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4 I always keep updated lesson notes for my subject</td>
<td>30</td>
<td>50</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5 I always keep updated class register for the students in my class</td>
<td>60</td>
<td>20</td>
<td>10</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>6 I always make use of practical/experiments for the teaching of my subject</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td>-</td>
<td>30</td>
</tr>
</tbody>
</table>

Legend: 1 - strongly disagree, 2- disagree, 3-neither agree nor disagree, 4- agree, 5- strongly agree

Table 4.11 indicates that majority (60%) of the teachers kept updated class registers, 40% kept updated students records for their subjects, 60% neither agreed nor disagreed on preparation of schemes of work while 30% strongly disagreed on the use of practical’s in teaching their lessons.

4.6 Impact of Resource Utilization on the Teaching Learning Process

The study linked the availability and utilization of various resources in schools in an attempt to establish their probable impact on the teaching learning process. This research was based on the premise that where resources were adequate and highly utilized they impacted positively on the teaching/learning process. Conversely where resources were inadequate or under utilized their impact on the teaching learning process was negative. The study established that the following resources were adequate and highly utilized and therefore impacting positively on the teaching/learning process, these were; chairs and desks in the staff room, laboratory equipment, facilities in the home science room, power supply, recreational facilities, textbooks, set books, teachers’ guides, models, water supply and playfield.

On the other hand the study established that the following resources were inadequate and under utilized and could therefore be impacting negatively on the teaching/learning process. These were; resources in the library and agriculture room, latrines/toilets, departmental offices, capacity of the dining hall, capacity of the dormitories, size of the play ground, reference books, use of resource persons, use of field trips/excursions, use of calculators, use of computers and internet and discussion groups. Again the study found out that the number of teachers was inadequate;
this could be having a negative impact on the teaching learning process. The study found established that most teachers did not prepare/keep professional documents.

4.7 Discussion of Findings
This section provides the discussions of the study.

4.7.1 Availability of Teaching Learning Resources
The findings of the study indicate that the schools had invested heavily in provision of textbooks to their students. This was probably due to government funding through subsidized secondary school education. Again most schools gave priority to the core subjects of Kiswahili, mathematics and English because in these subjects assignments are given after every lesson. Hassan (2000) observes that when instructional material are lacking or inadequate the teaching/learning process is compromised and this inevitably is reflected in low academic achievement, high drop out rates, problem behaviours, poor teacher motivation and unmet educational goals.

The teachers posted by the TSC in the district were not enough and hence the BOGs intervened by employing more teachers to cater for the shortage. The ministry of education recommends a minimum of 27 lessons per teacher per week. This work is normal bearing that each school day has nine lessons; the teachers therefore have 4 free lessons each day. Probably the reasons for apparent staffing situation which indicates teachers are having less than recommended number of lessons could be due to the fact that the BOGs have employed more teachers to cater for the short fall in various departments. However there may be glaring imbalances in staffing in the various departments in schools, such that some departments may be over staffed while others are under staffed.

4.7.2 Extent of Utilization of Resources
The study investigated the extent of use of instructional materials such as set books, textbooks, teacher’s guides, models, calculators, charts and teaching aids, type writers, copy printers, computers, facilities in the laboratory, agriculture room and computer room. The responses of the principals and teachers on the extent of use of set books in teaching were 62.5% and 70% respectively for those who strongly agreed with this statement. On the use of textbooks the respondents who strongly agreed were 88.9% and 70% for both the teachers and principals respectively. This indicates that textbooks are used widely in teaching and learning in schools.
On the use of teachers’ guides, 40% of the principals and 60% of the teachers strongly agreed with the statement. This indicated that teachers’ guides are used to enhance teaching and learning. The responses for the principals and the teachers on the extent of use of models were 50% and 70% respectively. Thus both principals and teachers agreed that models were used in their schools. 50% of the teachers agreed that calculators are used in teaching and learning. The study investigated the extent of use of charts, teaching aids, models, type writers, copy printers and computers in teaching and learning. The responses of the principals and teachers who strongly agreed were 30% and 40% respectively which meant that there was minimal use of these facilities. The research investigated the extent of use of facilities in the laboratory, agriculture room and computer room. The teachers who strongly agreed were 10% as compared with 30% of the principals.

Books, set books, textbooks, teachers’ guides, models, calculators, charts and teaching aids, are an essential requirement for coverage of the syllabus in preparation for national examinations. They also enhance revision and completion of assignments. Therefore academic achievement cannot be attained unless there is proper and extensive use of these books. Type writers, copy printers, computers help in preparation of instructional materials, which implies that when they are not being fully utilized, learning is compromised. The dismal use of facilities in the laboratory, agriculture room and computer room may be attributed to the fact that these rooms are poorly equipped and therefore teachers may find them to have little relevance in improving the mode of lesson delivery. Again most schools have put their priorities in purchase of textbooks, set books and teachers’ guides at the expense of other instructional materials. Grant (1978) asserts that teaching and learning can not be effective without adequate and relevant use of instructional materials. Schramm (1977) referred to instructional materials as basic channel of communication (of ideas and concepts) in the classroom for the purpose of bringing about effective teaching and learning. According to Abimbade (1997) instructional resources in teaching and learning make students to learn more and retain better what they have been taught and that it also promotes and sustains students’ interest. It also allows the learners to discover themselves and their abilities and consequently provides them with an opportunity to realize their full potential.
The study investigated the extent of use of resource persons. The responses of the principals had and teachers were 20% strongly agreed. In schools, resources persons usually included KCSE examiners, motivational speakers and counsellors. The examiners equip the learners with skills to answer questions in national examinations while the motivational speakers are largely meant to guide the students on methods of study, developmental challenges, discipline, drug and substance abuse, relationships, among others. Resource persons play a key role in helping schools achieve their goals, in particular academic achievement. They teachers were not expected to respond to this item because the cost implication demands the approval of the principal.

On the extent of use of excursion/field trip the study found out that the responses of the principals and teachers were 40% and 50% disagreed with frequent use of. This could be partly due to the fact that most schools do not have buses; hence excursions would entail hiring some means of transport which would be too expensive. The high cost of fuel witnessed in the past few years is also making traveling expensive even for those schools that own buses or vans. Excursions and field trips involve a lot of time in terms of preparation and actual study which may interfere with the formal school timetable. Excursions and field trips enhance learning because they make classroom learning real and break monotony and create interest. This agrees with the findings of Oyeniran (2003) who observed that students learn best if they are given the opportunity to see and to make observation of what they are taught.

The responses on the frequent use of discussion groups for the principals and the teachers were 40%each, 60% of the teachers strongly disagreed. Discussion groups encourage interaction, peer teaching and development of students social skills. They are therefore a very important component in the teaching learning process. It is encouraging that most schools have embraced this approach in their instruction. Abimbade (1997) observes that discussion groups allows the learners to discover themselves and their abilities and consequently provides them with an opportunity to realize their full potential. Schramn (1977) reinforces this view and adds that discussion groups enrich learners’ knowledge and reinforce verbal instruction.

The research sought the responses on the use of water and power in schools. The responses of the principals who strongly agreed that water was reliable were 50% while 30% agreed that power
was reliable. This shows that they ensured that power and water are only marginally reliable. Reliability of water and power is essential for the general comfort and welfare of the learners within the institution. When the students are made comfortable their concentration span is improved, disruption to school programmes is minimized, hygiene is improved, interaction with the teachers is maintained and studies can be undertaken any time of the day or night. Earthman (2004) rates temperature, heating and air quality the most important individual elements affecting for student achievement. Lighting ranked next in order of criteria having demonstrable effects on student learning outcomes, with daylight offering the most positive effect.

The study sought to investigate the extent of playfields and recreational facilities in schools. The responses for the use of playfields were 60% for principals 30% for teachers indicating the respondents agreed that they use the facilities to enhance co-curricular learning. The percentages of teachers and principals who strongly agreed on the use of recreational facilities to entertain students were 22.2% and 20% respectively. Recreation facilities and field events are important to a school because they help to nurture talent, develop social skills, reduce stress and as whole help in development of an all rounded learner. However these results indicate that although schools are putting a lot of emphasis in the playfield activities little emphasis is being put in other recreational facilities. This could be due to the fact that field activities are a requirement of the ministry of education, PE lesson is provided for in the timetable, field events help in marketing the school and students are actually charged levies for field activities. On the other hand recreational events within the school are left to the individual schools to decide and allocate funds. Perhaps this is the reason why recreational events are seemingly neglected in most schools.

4.7.3 Adequacy of resources in schools
The respondents’ who strongly agreed on adequacy of chairs and desks in staffroom were 50% for the principals and 75% for the teachers, indicating that majority of the respondents agreed that the number of chairs and desks were adequate. This indicates that most schools have invested in provision of staffroom furniture. Adequacy in staffroom furniture means that the teachers are comfortable and can better prepare for lessons.
When asked about the adequacy of chairs and desks in classrooms, 60% of the principals strongly agreed on their adequacy while 77.8% of teachers disagreed. These results indicated that the schools had not given priority to the comfort of learners which is essential for good academic performance. Learners who are uncomfortable easily get bored and tired and hardly concentrated in class. The research by Cash (1993) on effect of physical facilities on learning found out that the condition of classroom furniture correlated with students’ achievement at a significant level when controlling for social economic status of students.

On adequacy of capacity and resources in library the principals and teachers who agreed were 11.1% for both. This indicated that most schools had invested little in development of their libraries. This is probably due to the fact that most schools focus more on provision of classroom textbooks which have a direct relation to the curriculum. Textbooks that are directly related to the syllabus content are usually issued to the students and only supplementary reading materials and reference books were provided for in most school libraries. This probably also indicates that schools lacked a variety of textbooks and other reading materials, perhaps schools only purchased recommended course books only which were kept in the custody of the students. Pearls (2000) states that although teachers are required to deliver formal teaching in a classroom, much of the day to day teaching goes on outside the classroom in the course of interaction between learners and the environment. A well equipped library can help to enhance teaching and facilitate learning and thus make a shift to a learner centered approach.

On adequacy of capacity and equipment in the laboratory, home science room and agriculture room the principals and teachers who strongly agreed were: 40% and 30%, 40% and 50%, 11.1% and 14.3% respectively. These results show that most schools did not allocate enough resources to equip their laboratories, home science rooms and agriculture rooms. This was probably because laboratory equipment, home science room and agriculture room facilities are expensive and are required in large quantities since the two areas of study are taken by a large number of students. Laboratory, home science rooms and agriculture rooms provide students with an opportunity to see and make observation of what they are taught (Oyeniran, 2003). Propst (1972) adds that learning takes place best through discovery exploration and interaction with the internal external environment.
The study investigated the adequacy number of latrines/toilets, capacity of dining hall, capacity of dormitories, water supply and power supply to schools. The responses for the principals and the teachers respectively were, latrines/toilets 60% disagreed 30%, capacity of dining hall 22.2% and 37.5% strongly agreed, capacity of dormitories 33.3% agreed while 37.5% of the teachers strongly disagreed, water supply 20% and 40% strongly agreed, power supply 50% and 40% strongly agreed, size of the playground 30% and 40% agreed and recreational facilities 40% each strongly agreed. These results indicated that the schools did not prioritize issues that seemed not to be directly related to tuition. Facilities such as water supply, dining hall, dormitories, latrines/toilets, playground and recreational facilities more or less address student welfare and therefore their adequacy was sometimes overlooked. The increased enrollment could be resulting in congestion and thus straining these facilities. Again the cost of putting up these facilities is met by the parents, who are sometimes economically handicapped and fail to provide resources in time. Consequently expansion and renovation of these facilities is somehow neglected. According to Stoner, Freeman and Gilbert (1996) there exists a close relationship between the physical environment and academic performance of students. Nwanu (1978) and Ogunsaju (1980) observed that the quality of education that students receive bears direct relevance to the availability or lack thereof of physical facilities including toilet facilities, dormitories and dining halls.

When the principals and teachers were asked about the adequacy of reference books the responses of the principals and teachers who agreed were 60% and 55.3% respectively. Both the principals and the teachers agreed that the reference books were adequate. These results indicated that majority of schools in the district have allocated enough funds towards the purchase of reference books. Reference books are important resources in teaching and learning because they help in enhancing clarity of content and they give the learners and the teachers a wider scope.

The principals and the teachers’ responses who agreed on adequacy of teachers’ guides were 50% and 60% respectively. This indicated that the number of teachers guides were fairly adequate. Perhaps some schools did not take teachers guides as very important and therefore failed to purchase them. It is possible that teachers also overlook the importance of the guides, they perhaps rely more on textbooks and reference books in preparation of their teaching.
Cronbac (1989) summarizes the usefulness of instructional materials in the teaching learning process as follows; facilitate learning of abstract concepts and ideas; keep the learners busy and active thus increasing their participation in the lesson; save teachers energy of talking too much; illustrates the concepts clearer and better than the teachers words only; helps overcome the limitations of the classroom by making the inaccessible accessible; helps to broaden students knowledge; increase their level of understanding as well as discourage rote learning and helps to stimulate and motivate learners.

The responses on use of computers by both the principals and the teachers indicated that 44.4% disagreed. This implied that most schools in the district had not embraced the use of ICT in teaching, learning and management of schools. This was probably be due to inadequate funds to purchase computers, employ computer instructors and train teachers. The few schools that have managed to buy computers have been assisted by the CDF. Computers are important instructional aids in the teaching/learning process. Appropriate use of instructional aids helps keep learners interested and improves academic performance. According to (Nicholls, 2000; Raw, 2003) exclusively oral teaching cannot be the key to successful pedagogy. To make the teaching learning process interesting the teacher has to use instructional aids.

Again when the respondents were asked about the use of calculators in their schools, both the principals 70% and the teachers 10% agreed. Whereas the principals out rightly agreed, the teachers disagreed about the issue. Perhaps the difference in opinion was because the teachers being the ones in class may be more in touch with the extent of use of this facility. It is also possible that students who don’t have calculators may borrow from one another during specific lessons. Therefore it is apparent that the shortage of this facility may not necessarily be evident in during lesson time. Calculators are a mandatory requirement in teaching/learning and are allowed during internal and national examinations since it makes computations easier, accurate and faster.

On the adequacy of books and equipment stores the principals and the teachers’ responses 30% both. This was probably brought about by limitations of funds necessary for construction and the challenge of having trained personnel to run the stores, on the other hand. Books are normally
issued to the learners and collected at the end of the year; consequently, putting up of book stores was not a priority in most schools.

4.7.4 Level of qualification and preparation of teachers

On preparation of schemes of work 60% of teachers neither agreed nor disagreed while 30% strongly agreed that they prepare lesson plans. 40% strongly agreed to keeping updated students records for subjects, 30% strongly agreed to making lesson notes, 60% strongly agreed to keeping updated registers and 20% strongly agreed in making use of practical lessons in their teaching. Professional documents are important in the teaching learning process since they ensure that proper planning, set the pace and scope for work coverage and help in evaluation. Therefore it is extremely important that teachers adhere to their preparation and use. Some of the professional documents in schools include schemes of work, lesson plans, record of work and class registers.

The high number of teachers who had B. Ed level of qualifications was probably due to the fact that most universities have opened up opportunities for further learning such as school based programmes at an affordable cost. This has provided the diploma teachers with an opportunity to join the ranks of the B.Ed teachers. Again most of the diploma teachers training colleges have been upgraded to university campuses and therefore very few diploma teachers are annually employed by the TSC. A substantial number of teachers were comfortable with the B.Ed level of qualification hence do not find the need to pursue masters degrees. This was perhaps due to the fact that they perceived masters programme to be quite expensive and time consuming and after all not accompanied by a substantial pay hike.

4.7.5 Impact of resource utilization on teaching learning process

The chairs and desks in the staff room were adequate and this implies that the teachers were comfortable and therefore could stay longer in school and be available to the students. This could result in a greater student/teacher interaction and therefore a positive impact on the teaching/learning process. Capacity of equipments in the laboratory and home science rooms was found to be impacting positively on the teaching learning process since they were indicated as adequate. These facilities ensure practical lessons are carried out with a lot of ease and hence enrich the teaching learning process. Individual learners are prepared to handle practical papers
and also help the learners to link theory with practice. Power supply ensures appropriate lighting, security, use of electrical equipments such as computers. Reliable power supply ensures timely and adequate provision of examinations, revision materials and handouts. On the other hand reliable water supply may enhance sanitation and hygiene in the school environment and therefore averts infections that would otherwise disrupt the teaching learning process. Recreational facilities and playfields helps in making the school environment more interesting, helps to prevent the build up of stress among students as well nurturing talents through co-curricula learning. Textbooks, set books, teachers’ guides and models are essential in implementation of the curriculum. Textbooks and set books ensure that students can do their private reading, complete assignments in time and conduct group discussions. Textbooks and set books can also be used as reference materials to supplement the teachers’ instruction. Teachers’ guides give the teachers direction on how to introduce and deliver content in various subject areas. Models make the lessons meaningful and enhance students’ understanding of concepts.

Inadequacy of physical facilities such as latrines/toilets, departmental offices, capacity of the dining hall, capacity of the dormitories and size of the play ground brings about congestion, restricts working and space, poor sanitation and may negatively affect the entire school environment. The use of resource persons and field excursion helps in varying the teaching/learning approaches instills relevance and raises the students’ motivation; unfortunately this is lacking in most schools and may be contributing to de-motivated students hence low mean score. Inadequate computers means that the students and their teachers are not exposed to e-learning and therefore cannot access the vast electronic library. Their sources of teaching and reading materials are restricted. Lack of discussion groups’ means that the students are not provided with opportunities to learn from one another, peer instruction and express themselves hence face difficulties in handling examinations this may impact negatively on their academic performance. Inadequacy in use of calculators’ means that the learners borrow from one another thus they are slow in completing assignments and some may end up copying from their classmates. Inadequacy of resources in the library and agriculture room means that learning gaps may occur in these subject areas resulting in low mean grades in national examinations. Inadequacy of reference books means the students reading material are restricted to a few classroom textbooks and this may lead to high dependence on the teachers who may not be always available. The study established that most schools are poorly endowed with teaching
learning resources such as laboratories, home science rooms agriculture rooms, desks and chairs, reference books and computers.
CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction
This study aimed at finding out the impact of resources utilization in secondary schools in Mathioya District, Muranga County. The study was guided by the following objectives; to assess the availability of teaching learning resources and the extent of their utilization, to assess the nature and adequacy of the physical faculties and to assess the level of qualification and preparation of teachers. Two questionnaires were used to collect the needed data from the principals and the teachers. This chapter therefore presents the summary of major findings, conclusions reached as well as the recommendations. Areas warranting further research are also highlighted.

5.2 Summary of major findings
5.2.1 Availability of teaching learning resources and the extent of their utilization.
The study established the textbook/pupil ratio as 1:2 for Kiswahili (70%), mathematics (80%) and English (70%) of the schools. Few schools allocated one book per student; however the extent of sharing books is minimal. The average number of teachers employed by the TSC and BOG per school was 9.4 and 3.8 respectively. There were no volunteer teachers in the district. The study found out that the average number of lessons per week per teacher was 24.5, this amounted to approximately 5 lessons per day per teacher. The study also found out that there was understaffing in schools and each school required an additional 5 teachers to meet the staffing shortage. 90% of the schools did not have enough teachers according to the CBE, only 10% of the schools were of the contrary opinion.

5.2.2 Nature and adequacy of physical facilities
The study established that the chairs and desks in schools were adequate. The respondents who strongly agreed on adequacy of chairs and desks in the staffroom was 50% for the principals and 75% for the teachers, indicating that majority of the respondents agreed that the number of chairs and desks were adequate. When asked about the adequacy of chairs and desks in the classrooms, 60% of the principals strongly agreed on their adequacy while 77.8% of teachers disagreed. On adequacy of capacity and resources in the library the principals and teachers who agreed were both 11.1%, while on capacity and equipment in the laboratory, home science room and
agriculture room the principals and teachers who strongly agreed were: 40% and 30%, 40% and 50%, 11.1% and 14.3% respectively. On the adequacy of the number of latrines/toilets, capacity of dining hall, capacity of dormitories, water supply and power supply to schools the study established that except for the latrines all the other facilities were inadequate. The responses for the principals and the teachers respectively were, latrines/toilets 60% disagreed 30%, capacity of dining hall 22.2% and 37.5% strongly agreed, capacity of dormitories 33.3% agreed while 37.5% of the teachers strongly disagreed, water supply 20% and 40% strongly agreed, power supply 50% and 40% strongly agreed, size of the play ground 30% and 40% agreed and recreational facilities 40% each strongly agreed. These results indicated that the schools did not prioritize issues that seem not to be directly related to tuition.

When the principals and teachers were asked about the adequacy of reference books the responses of the principals and teachers who agreed was 60% and 55.3% respectively. Both the principals and the teachers agreed that the reference books were adequate. The principals and the teachers’ responses who agreed on adequacy of teachers’ guides were 50% and 60% respectively. This indicated that the number of teachers guides were fairly adequate. The responses on use of computers by both the principals and the teachers indicated that 44.4% disagreed. This implies that most schools in the district have not embraced the use of ICT in teaching, learning and management of schools. When the respondents were asked about the use of calculators in their schools, both the principals 70% and the teachers 10% agreed. Whereas the principals out rightly agreed, the teachers disagreed about the issue. On the adequacy of books and equipment stores the principals and the teachers’ responses 30% both.

The study found out that most schools in the district used set books, textbooks and teachers guides in teaching and learning. The responses of the principals and teachers were 62.5% and 70% respectively for those who strongly agreed with the use of set books. On the use of textbooks the respondents who strongly agreed were 88.9% and 70% for the teachers and principals respectively. On the use of teachers’ guides, 40% of the principals and 60% of the teachers strongly agreed with the statement. The responses for the principals and the teachers on the extent of use of models were 50% and 70% respectively. 50% of the teachers agreed that calculators were used in teaching and learning. On the extent of use of charts, teaching aids, type writers, copy printers and computers in teaching and learning, the responses of the principals and
teachers who strongly agreed were 30% and 40% respectively which meant that there was minimal use of these facilities. The extent of use of facilities in the laboratory, agriculture room and computer room, 10% of the teachers strongly agreed as compared with 30% of the principals.

The study established that most schools rarely made use of resource persons, excursions/field trips and discussion groups in teaching/learning. Only 20% of the principals and 20% teachers strongly agreed to the use of resource person in their schools. On the extent of use of excursion/field trip the study found out that 40% and 50% of the principals and teachers respectively disagreed with their frequent use. The responses on the frequent use of discussion groups for the principals and the teachers were 40% each, 60% of the teachers strongly disagreed.

The study found out that water in most schools was reliable while power supply was unreliable. The responses of the principals who strongly agreed that water was reliable were 50% while 30% agreed that power was reliable. This shows that they ensured that power and water are only marginally reliable. On the extent of playfields and recreational facilities in schools the study found out 60% for principals 30% for teachers agreed, indicating that they used the facilities to enhance co-curricular learning.

5.2.3 Academic qualifications and preparation of teachers

The study established that most teachers in the district had degree level of academic qualification and only a few teachers had enrolled for in-service training. 60.0% of the respondents had B.Ed level of education, followed by 20.0% of the respondent who headmasters level of education. The diploma and PGDE level of education both had only 10.0% of the respondents. The research found that only 20% of teachers had enrolled for in-service training programmes, 80% were of the contrary opinion.

It was established that most teachers in the district kept updated class registers but were reluctant to make use of other professional documents. 60% of the teachers kept updated class registers, 40% updated students records for their subjects, 60% were non-committal on preparation of schemes of work while 30% strongly disagreed on the use of practical’s in teaching their lessons. 30% strongly agreed that they prepare lesson plans. 40% strongly agreed to keep updated students records for subjects, 30 % strongly agreed they made lesson notes.
5.3 Conclusion
Based on the research findings the following conclusions can be made.

i. The teaching learning resources are available in most schools and are properly utilized. In particular materials related to classroom instruction are adequate, however laboratories, libraries, computer rooms, agriculture/home science rooms are inadequate in most schools.

ii. The number of latrines/toilets, capacity of dining hall, capacity of dormitories; water supply and power supply to schools as well as recreational facilities such as playfields were inadequate. The number of teachers in most schools was grossly inadequate; however the BOGs have taken measures to employ teachers to cater for the short fall.

iii. Most principals and teachers had B.Ed level of education. Most teachers failed to adhere to make professional documents related to their work.

5.4 Recommendations
Based on the findings and conclusions of this study, the following recommendations can be made:-

i. The Ministry of Education should allocate more funds to equip the laboratories, computer rooms, science rooms and agriculture rooms

ii. The heads of institutions should give more weight to support facilities such as toilets latrines/toilets, capacity of dining hall, capacity of dormitories; playfields water supply and power supply.

iii. The TSC should employ more teachers to cater for the short fall observed in most schools. Also in-service training programmes should be initiated to address specific man power needs for teachers.

iv. The principals should ensure that teachers prepare and make use of professional documents.

v. Schools should put in place motivational programmes for teachers so as to encourage them.

5.5 Suggestions for further research
From the findings of the study, further investigations can be conducted. Therefore the following are suggested for further research.
i. A study can be conducted to determine how ICT can be integrated to cater for the teacher shortage. It would be important to carry out a needs assessment survey on the use of e-learning in high schools.

ii. A study can also be conducted on methods that can be used to improvise teaching learning materials at the school level.
REFERENCES


Grant, M 1978.*schools methods with Younger Children*. Ibadan. Evans Brothers(Nig.) Ltd.


http://www.sterioso41188eci.htm


Management New Delhi: Prentice Hall


**APPENDIX 1**

**PRINCIPAL’S QUESTIONNAIRE**
My name is Shelmith Ngure, a teacher in Kiriti girls secondary and a post-graduate student at Kenyatta University. The questions below seek to find out the impact of resource utilization on teaching learning process. Your school has been chosen and you are requested to respond to the question as honestly as possible. The researcher would like to assure you that the information you provide will be highly confidential and will be used for research purposes only.

Section A: Background information:
Please tick appropriately in box □ or provide information as necessary

1. What is your teaching experience (years)

- 0-5 □
- 6-10 □
- 10-15 □
- 16-20 □
- over 20 □

2. Please indicate below your academic qualifications.

- Masters in Education □
- B.E.D □
- P.G.D.E □
- Diploma □
- Untrained □
- Other □

3. (a) Indicate the type of your school

- Mixed day □
- Mixed boarding □
- Girls boarding □
- Boy’s boarding □

b) Under which category does your school fall?

- District □
- Provincial □
- National □

c) Indicate the number of streams in your school

- 1 □
- 2 □
- 3 □
- 4 above and above □
2. Give the number of teachers in your school as follows
   4 By T.S.C __________
   5 By B.O.G __________
   6 Volunteers __________

4. What is the average number of lessons that a teacher in your school is allocated per week? __________

5. (a) Are the teachers in your school enough according to the C.B.E?

   Yes □ No □
   (b) If your answer in (a) above is no, by how many teachers is your school understaffed?

6. Indicate the enrolment in your school in the following years

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrolment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Do you have a motivation programme for teachers?
   Yes □ No □
   If yes give details
   ...................................................................................................................
   ...................................................................................................................
   ...................................................................................................................

8. Give the school KCSE mean score in the years provided in the table below (tick once applicable)

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-4.0</td>
</tr>
<tr>
<td>2008</td>
<td></td>
</tr>
</tbody>
</table>
Section B: Availability of resources and school mean score

9. What are the textbook/pupil ratios for each of the following subjects in your school?

<table>
<thead>
<tr>
<th>Subject</th>
<th>No. of pupils per text book</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiswahili</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td></td>
</tr>
</tbody>
</table>

10. This question consists of statements with a scaling of 1 to 5 in a grid, please tick ( √ ) the response that most closely approximates your opinion about the statement.

5  Strongly agree
4  Agree
3  Neither agrees nor disagrees
2  Disagree
1  Strongly disagree

Example

<table>
<thead>
<tr>
<th>The supply of water to the school reliable</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>

In this case the respondent indicates that the supply of water to the school is very erratic.
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The number of desks and chairs in the staff room is adequate</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>The number of desks and chairs in the classroom is adequate</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>The capacity and resources in the library are adequate for the number of students in the school</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>The capacity and equipment in the laboratory is adequate for the number of students in the school</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>The facilities in the home science room are adequate in the number of students in the school</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>The facilities in the agriculture room are adequate to the number of students in the school</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>The number of latrines/toilets in the school are adequate for the number of students in the school</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>The number of offices allocated are adequate for the departments in the school</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>The capacity of the dinning hall is adequate for the number of students in the school</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>The capacity of the dormitories is adequate for the number of students in the school</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>The size of the play ground is adequate for the number of students in the school</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>The water supply to the school is reliable</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>The supply of power to the school is reliable</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Recreational facilities e.g. TVs, Videos, Radios are adequate</td>
<td></td>
</tr>
</tbody>
</table>

**Use of teaching/learning resources in the school**

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>The number of reference books in the school are adequate</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>The number of teachers guide in the school are adequate</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Teaching resources such as manilas, dusters, plasticine, chalk, models, charts, are adequate</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Use of resource persons in the school is frequent</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Use of field trips/excursions in the school is frequent</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Use of computers in teaching and learning is common</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Students have adequate number of calculators</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Books and equipment storage facilities in the school are adequate</td>
<td></td>
</tr>
</tbody>
</table>

---

62
11. This question investigates extent of resource utilization in secondary schools; consist statements with a scaling of 1 to 5 in a grid, please tick (\(\sqrt{\phantom{1}}\)) the response that most closely approximates your opinion about the statement.

5  Strongly agree  
4  Agree  
3  Neither agrees nor disagrees  
2  disagree  
1  Strongly disagree

Example

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>I ensure that laboratory in teaching of sciences.</td>
<td>(\sqrt{\phantom{1}})</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this case the respondent indicates that he/she frequently uses the laboratory in teaching.
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>I ensure the facilities in the laboratory are used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>I ensure the facilities in the library are used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>I ensure the facilities in the agriculture room are used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>I ensure that the facilities in the home science room are utilized for teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5</strong></td>
<td>I ensure that the computer room is used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6</strong></td>
<td>I ensure the play field is used to enhance co-curricular learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7</strong></td>
<td>I ensure of the reference books are properly utilized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8</strong></td>
<td>I ensure the set books are used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>9</strong></td>
<td>I ensure that text books are used in the teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10</strong></td>
<td>I ensure that teacher guides are used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11</strong></td>
<td>I ensure that teachers make use of the models in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>12</strong></td>
<td>I ensure that resource persons are invited to the school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13</strong></td>
<td>I ensure that excursions/field trips are organized and financed by the school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>14</strong></td>
<td>I ensure that calculators are used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>15</strong></td>
<td>I ensure that the teachers have access to the internet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>16</strong></td>
<td>I ensure that charts, teaching aids and models are used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>17</strong></td>
<td>I ensure that recreational facilities are used to entertain students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>18</strong></td>
<td>I ensure that discussion groups are used in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>19</strong></td>
<td>I ensure that type writers, copy printers, computers are well utilized for teaching.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>20</strong></td>
<td>I ensure that water supply to the school is reliable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>21</strong></td>
<td>I ensure that power supply to the school is reliable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 2

TEACHERS QUESTIONNAIRE:

My name is Shelmith Ngure, a teacher in Kiriti girls’ secondary a post-graduate student at Kenyatta University. The questions below seek to find out the impact of resource utilization on teaching learning process. Your school has been chosen and you are requested to respond to the question as honestly as possible. The researcher would like to assure you that the information you provide will be highly confidential but used for research purposes only.

SECTION A: Teacher’s Qualifications and workload Information

Please tick appropriately in the box □ provide additional information if necessary

1. What are you’re your teaching subjects ____________________________

2. what is your Teaching experience (years)
   0-5 □  6-10 □  10-15 □  16-20 □  over 20 □

3. Please indicate below your level of education
   Masters in Education □
   B.E.D □
   P.G.D.E □
   Diploma □
   Untrained □
   Other □

4 (i) Have you ever enrolled in a an in service training programme in the past one year
   Yes □  No □

   2  If yes, did you find the training relevant to your career? Please explain.
      ……………………………………………………………………………………………………………………………
      ……………………………………………………………………………………………………………………………

SECTION B: Physical facilities and teaching learning resources

5. This question consist statements with a scaling of 1 to 5 in a grid, please tick ( √ ) the response that most closely approximates your opinion about the statement.

5  Strongly agree
4 Agree
3 Neither agrees nor disagrees
2 disagree
1 Strongly disagree

Example

|  |  |  |  |  |  |
|---|---|---|---|---|
|  |  |  |  |  |  |
|  |  |  |  |  | √ |
| The supply of water to the school is reliable |

|  |  |  |  |  |  |
|---|---|---|---|---|
|  |  |  |  |  |  |
| 1 | The number of desks and chairs in the staff room is adequate |
| 2 | The number of desks and chairs in the classroom is adequate |
| 3 | The capacity and resources in the library are adequate for the number of students in my class |
| 4 | The capacity and equipment in the laboratory is adequate for the number of students in my class |
| 5 | The facilities in the home science room are adequate for the number of students in my class |
| 6 | The facilities in the agriculture room are adequate for the number of students in my class |
| 7 | The number of latrines/toilets in the school are adequate for the number of students in the school |
| 8 | The number of offices allocated are adequate for the departments in the school |
| 9 | The capacity of the dinning hall is adequate for the number of students in the school |
| 10 | The capacity of the dormitories is adequate for the number of students in the school |
| 11 | The size of the playground is adequate for the number of students in the school |
| 12 | The water supply to the school is reliable |
| 13 | The supply of power to the school is reliable |
| 14 | Recreational facilities eg TVs, Videos, Radios are adequate |

**Use of teaching/learning resources in the school**

<p>| | | | | | |
|  |  |  |  |  |  |
|---|---|---|---|---|
| 15 | The number of reference books in the school are adequate |
| 16 | The number of teachers guide in the school are adequate |
| 17 | Teaching resources such as manilas, dusters, plasticine, chalk, models, charts, |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Use of resource persons in the school is frequent</td>
</tr>
<tr>
<td>19</td>
<td>Use of field trips/excursions in the school is frequent</td>
</tr>
<tr>
<td>20</td>
<td>Use of computers in teaching and learning is common</td>
</tr>
<tr>
<td>21</td>
<td>Students have adequate number of calculators</td>
</tr>
<tr>
<td>22</td>
<td>Book and equipment storage facilities in the school are adequate</td>
</tr>
</tbody>
</table>

### Use of professional documents in the school

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>I always prepare schemes of work for subject that I am allocated</td>
</tr>
<tr>
<td>24</td>
<td>I always make use of lessons plans in my teaching</td>
</tr>
<tr>
<td>25</td>
<td>I always keep updated students records for my subject</td>
</tr>
<tr>
<td>26</td>
<td>I always keep updated lesson notes for my subject</td>
</tr>
<tr>
<td>27</td>
<td>I always keep updated class register for the students in my class</td>
</tr>
<tr>
<td>28</td>
<td>I always make use of practical/experiments for the teaching of my subject</td>
</tr>
</tbody>
</table>

6. This question investigates extent of resource utilization in secondary schools; consist statements with a scaling of 1 to 5 in a grid, please tick ( √ ) the response that most closely approximates your opinion about the statement.

5  Strongly agree
4  Agree
3  Neither agrees nor disagrees
2  disagree
1  Strongly disagree

Example

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>I often make use of laboratory in my teaching of my sciences.</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this case the respondent indicates that he/she frequently uses the laboratory in teaching.
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I make use of the facilities in the laboratory in teaching</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>I make use of the facilities library in teaching</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I make use of the facilities in the agriculture room in teaching</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I make use of the home science room in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I make use of the computer room in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I make use of the play field to enhance co-curricular learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I make use of the reference books in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I make use of the set books in my teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I make use of the text books in the teaching of subjects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I make use of the teachers guide in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I make use of the models in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I make use of the resource persons in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I make use of the excursions/field trips in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I make use of the calculators in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I make use of the internet in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I make use of the charts in teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I make use of the recreational facilities to entertain students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I make use of the discussion groups teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 3

LETTER OF AUTHORITY TO CARRY OUT RESEARCH

Shelmith Ngure
P.O. Box 75
Gikoe

DEO Mathioya District
P.O. Box 75
Kiriani

REF: REQUEST FOR PERMISSION TO CARRY OUT AN EDUCATION RESEARCH AS A STUDENT OF KENYATTA UNIVERSITY M.ED PROGRAMME

I wish to request to be granted permission to carry out a research in secondary schools in Mathioya District. I feel the outcome of the research will enable me contribute to improvement of education resource utilization in the district.

Yours faithfully

S. M NGURE

CC: Dean of Academics Kenyatta University
     PDE Central province
     All Secondary Schools Principals Mathioya District
# APPENDIX 4
## RESEARCH BUDGET

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>Quantity</th>
<th>Unit price(kshs)</th>
<th>Total cost Kshs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typing expenses</td>
<td>3 drafts</td>
<td>800</td>
<td>2,400</td>
</tr>
<tr>
<td>Printing final proposal</td>
<td>4 copies</td>
<td>1000</td>
<td>4000</td>
</tr>
<tr>
<td>Stationeries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Foolscaps</td>
<td>2 realms</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>(ii) Pens</td>
<td>5</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Piloting expenses</td>
<td>2 days</td>
<td>1500</td>
<td>3000</td>
</tr>
<tr>
<td>Data collection expenses</td>
<td>15 days</td>
<td>600</td>
<td>9000</td>
</tr>
<tr>
<td>Data processing and analysis</td>
<td>15 days</td>
<td>800</td>
<td>12000</td>
</tr>
<tr>
<td>Final research reports</td>
<td>7 copies</td>
<td>1500</td>
<td>10500</td>
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<tr>
<td>Miscellaneous</td>
<td></td>
<td></td>
<td>6000</td>
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<tr>
<td><strong>Grand total</strong></td>
<td></td>
<td></td>
<td><strong>47,800</strong></td>
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## APPENDIX 5
### WORK PLAN

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<tbody>
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<td>Proposal Writing</td>
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<td>Proposal presentation</td>
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<td>Proposal collection</td>
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<td>Submission For defense</td>
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<td></td>
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<td>Data Collection</td>
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<td>Report Writing</td>
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<tr>
<td>Report Submission</td>
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<td>Report defense</td>
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</tbody>
</table>
APPENDIX 6
RESEARCH AUTHORIZATION. KENYATTA UNIVERSITY

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
       dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

Our Ref: E55/CE/14284/09 Date: 12th March 2012

The Permanent Secretary,
Ministry of Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS. NGURE SHELMITH MUGURE - REG. NO. E55/CE/14284/09

I write to introduce Ms. Ngure Shelmith Mugure who is a Postgraduate Student of this University. She is registered for an M.Ed degree programme in the Department of Educational Management, Policy & Curriculum Studies in the School of Education.

Ms. Mugure intends to conduct research for a thesis project entitled, “Impact of Resource Utilization on Teaching/Learning Process as Perceived by Head Teachers, Teachers in Secondary Schools in Mathioya, Murang’a County, Kenya.”

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

LNM/fwk
APPENDIX 7
RESEARCH CLEARANCE PERMIT

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref. NCST/RCD/14/012/362

Shelmith Mugure Ngure
Kenyatta University
P.O.Box 43844
Nairobi.

Date: 19th April 2012

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Impact of resource utilization on teaching/learning process as perceived by head teachers, teachers in secondary schools in Mathioya, Muranga County, Kenya,” I am pleased to inform you that you have been authorized to undertake research in Mathioya District for a period ending 31st May, 2012.

You are advised to report to The District Commissioner and the District Education Officer, Mathioya District before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR. M. K. RUGUTT, PhD, DSC
DEPUTY COUNCIL SECRETARY

Copy to:

The District Commissioner
The District Education Officer
Mathioya District.