INFLUENCE OF MANAGEMENT OF PHYSICAL FACILITIES ON ACADEMIC PERFORMANCE OF PUBLIC SECONDARY SCHOOLS IN MUMIAS WEST SUB-COUNTY, KAKAMEGA COUNTY, KENYA

BY

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DECLARATION

This project report is my original work and has never been presented in any other university for any other award.

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This project report has been prepared by the candidate and is being submitted for examination with our approval as University Supervisors.

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DEDICATION

I dedicate this work to my family for their continued support during my studies.

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LIST OF ABBREVIATIONS AND ACRONYMS

BOM	Board of Management
CBS	Central Bureau of Statistics
EFA	Education For All
GDP	Gross Domestic Product
GoK	Government of Kenya
HR	Human Resources
KESI	Kenya Education Staff Institute
KESSP	Kenya Education Sector Support Programme
KIA	Kenya Institute of Administration
KNBS	Kenya National Bureau of Statistics
MDG	Millennium Development Goals
NACOSTI	National Commission for Science, Technology and Innovation
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
PDCA	Plan-Do-Check-Act
SDCA	Standardize-Do-Check-Act
SERCE	Second Regional Comparative Explanatory
SLDP	Senior Leadership Development Program
SPSS	Statistical Packages for Social Sciences
TDA	Training and Development Agency for Schools

ABSTRACT

Management of school facilities is important in improving quality of education in secondary schools. However, in Mumias West Sub-county, the situation different with many public secondary schools registering low grades in national examinations and transiting few students to universities with quality grades. Thus, the study assessed the influence of management of physical facilities on quality of education in public secondary schools in Mumias West Sub-county, Kakamega County, Kenya. The objectives were; to assess the influence of school facility planning, funding, supervision and evaluation strategies on quality of education in public secondary schools. The study was guided by the Broken Windows Theory. The study adopted mixed methods approach and applied concurrent triangulation research design. The study targeted 22 principals, 250 teachers and 220 members of school BOM totaling to 492 respondents. Using Central Limit Theorem, five secondary schools (30% of 22) and 120 respondents (24.39% of 492) were selected. Stratified sampling was applied to create five different strata based on the number of zones. From each zone, one principal and 10 teachers were selected using purposive sampling. Simple random sampling was applied to select 13 members of school BOM from each zone. This procedure enabled the researcher to realize a sample of five principals, 47 teachers and 66 members of school BOM. Questionnaires were used to collect data from teachers whereas interviews were used to collect data from principals and members of school BOM. Piloting was conducted amongst five teachers to establish validity and reliability. Validity was established through expert judgement whereas reliability was determined using test retest method and reliability coefficient, r = 0.761, was obtained using Pearson's Product Moment Correlation Method which indicated higher internal consistency. Qualitative data were analyzed thematically based on the objectives and presented in narrative forms whereas quantitative data were analyzed descriptively and inferentially using ANOVA using Statistical Packages for Social Sciences (SPSS 23) and presented using tables. The study established that public secondary schools adopt a variety of planning, funding, supervision and evaluation strategies for management of physical facilities. However, the effectiveness of such strategies is still wanting. Thus, the study recommends that the Ministry of Education should enrich management training programme for principals and their deputies to include strategic planning. The Ministry of Education should channel more funds for maintenance, repair and construction of new physical facilities as a way of improving quality of education offered in public secondary schools. Qualified technocrats should be hired to be members of school BOM to help school principals to share much information with education stakeholders on how to conduct effective supervision and improve school infrastructure. Schools should improve their evaluation and monitoring strategies to ensure effective and prudent use of school resources in a manner best suited to improvement of school infrastructure. School BOM should make devise austerity measures which are meant to scale up the monitoring and evaluation measures to be adopted to improve secondary school infrastructure.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The quality of education delivered by teachers and the academic achievement of students of any school is dependent on several factors of which school infrastructure is paramount. School facilities are material resources that enhance teaching and learning thereby making the process meaningful and purposeful. Cognizant of this fact, Crampton (2012) posits that management of such infrastructure is critical in determining such noble success. However, the dilapidated state of public secondary schools' infrastructure is a problem that is shared by most countries worldwide and has had negative effect on quality of secondary school education. Yet, the extent to which management of school facilities influence quality of secondary school education has not been fully explored and brought into perspective.

United Kingdom's Department of Education (2011) states that one of the roles of school management is to manage the school resources economically, efficiently and effectively for the purposes of the school. This is done through developing planning, funding, supervision and evaluation strategies. In a study conducted in Germany, Dedering and Muller (2011) revealed that school plant maintenance is critical as any work carried out on any component of the plant with a view to keeping it at good working condition. Dedering and Muller (2011) asserted that the quality and durability of a building largely depend on the type and level of servicing, repairs and the rate at which the needs and

requirement change. School facilities management involves keeping records of the facilities, supervising the facilities, planning for the facilities, motivating students and teachers to participate in facilities maintenance and evaluating the available facilities (Dedering & Muller, 2011). Consistent with these assertions, Wilson (2008), in a study carried out amongst 23 schools in the Netherlands, indicated that it is important for any country to encourage increased investment at secondary school education as well as ensure greater efficiency in managing the resources for infrastructure development in secondary schools.

Wilson (2008) further indicated that the task of providing educational facilities to support the goal of providing universal access to education is very great. These findings affirm the fact that the task of caring for school infrastructure is substantial and school management plays a key role towards the same and lack of maintenance for available facilities are major problems facing educational system. School management develops plans for the improvements of school infrastructure since an essential component of an effective school program is a well-conceived school facilities maintenance plan.

A properly implemented plan provides school administrators comfort and confidence when contemplating the future of their schools. A study conducted amongst 17 Grade VII schools in Nepal by Moore (2008) suggested that because routine and unexpected maintenance demands are bound to arise, every education organization through its BOM must proactively develop and implement a plan for dealing with these inevitabilities.

Moore (2008) indicated that a sound facilities maintenance plan helps to ensure that school facilities are, and will be, cared for appropriately, that is, negligent facilities maintenance planning can result in real problems. In Sub-Saharan Africa, most secondary schools are not devoid of challenges bordering on poor infrastructure and it is estimated that up to US$20 billion is required to address the shortfall in provision of suitable and safe learning environments (Crawley, 2009). Typically, classrooms are overcrowded, many buildings and other facilities are inadequate, sites are poorly planned and there is little maintenance. In other words, public secondary school infrastructure suffers from deplorable conditions and that seems to be a common notion which is not conducive to good teaching and learning.

In an assessment study conducted amongst schools in Oyo State in Nigeria, Ihuoma (2008) stressed that the quality and quantity of educational facilities available within an educational system positively correlates with the quality and standard of the educational system. On the same breath, Daft and Marcic (2006) examined school plant planning in relation to administrative effectiveness of secondary schools in KwaZulu Natal in South Africa and found that school management that planned, funded, supervised and evaluated improvement of school facilities had higher students' retention and is more effective than the others.

This implies that even if the educational curriculum is sound and well operated while the school facilities are in disrepair and badly managed, the result of the teaching/learning activities will be negative.

Besides, there is a positive relationship between good school environment and effective teaching and learning activities. These findings also support the findings of a study conducted by Nansereko (2010) in Uganda which revealed that schools adequately provided with the necessary facilities scored higher in their rate of utilization of instructional facilities and performance. In Kenya and Mumias West Sub-county, secondary education financing is based on Free Day Secondary Education (FDSE) Policy.

Under FDSE policy framework, the overall government roles include the professional development of teachers, teachers' remuneration in public institutions, provision of bursaries and scholarships for needy students (GoK, 2013). The responsibilities for other players such as school management include physical infrastructure development and maintenance; a function which is yet to be realized. It was against this background that the study sought to examine the influence of management of physical facilities on quality of education in public secondary schools in Mumias West Sub-county.

1.2 Statement of the Problem

Management of school facilities is very important in ensuring that quality of secondary education is delivered to learners and enable students perform well in their internal and national examinations. However, in public secondary schools in Mumias West Sub-county, the situation is quite different with quality of secondary education still being below average. For example, in 2012, wastage grades (E, D- and D) in KCSE stood at 35.7%, 2013 (37.2%) and 2014 stood at 52.0% (Mumias West Sub-county Education Report, 2017).

There has also been a decrease in percentage proportion of students transiting to universities with quality grades. As stated in the background, the UNESCO, 2008 report also casts doubt on the quality of secondary education provided to students in secondary schools. According to Fafunwa (2010), there is a big gap in quality, resulting from large number of students in crowded classrooms, using inadequate and obsolete equipment and with disillusioned teachers. These combined deficiencies perhaps constituted a major gap in the quality of learning infrastructure, thus, many challenges bear on teaching and learning that prevent the education system from getting the best out of its efforts to achieve the required level of attainment in teaching and learning activities in secondary schools and if the situation continues, the quality of secondary education may be compromised. Despite these findings, few empirical studies have interrogated the extent to which management of physical facilities influences quality of education in public secondary schools, hence the need for the study.

1.3 Purpose of the Study

The purpose of this study was to examine the influence of management of physical facilities on quality of education in public secondary schools in Mumias West Sub-county, Kakamega County.

1.4 Objectives of the Study

i. To assess the influence of school facility planning strategic on academic performance in public secondary schools in Mumias West Sub-county;

ii. To determine the influence of school facility maintenance on academic performance in public secondary schools in Mumias West Sub-county;

iii. To examine the influence of school facility supervision on academic performance in public secondary schools in Mumias West Sub-county;

iv. To establish the influence of school facility monitoring and evaluation on academic performance in public secondary schools in Mumias West Sub-county.

1.5 Research Questions

i. What is the influence of school facility planning on academic performance in public secondary schools in Mumias West Sub-county?

ii. How does school facility maintenance influence academic performance in public secondary schools in Mumias West Sub-county?

iii. To what extent does school facility supervision influence academic performance in public secondary schools in Mumias West Sub-county?

iv. What is the influence of school monitoring and evaluation on academic performance in public secondary schools in Mumias West Sub-county?

1.6 Rationale of the Study

Few studies have dealt with infrastructural improvement strategies and how they affect the general school's infrastructure. There is poor and inadequate infrastructure in Mumias West Sub County, which if not addressed would lead to poor quality education resulting from scarcity of learning facilities and poor environment.

1.7 Significance of the study

The undertaking of this study may be crucial because it sought to come up with the right answers to solving the problem of lack of and poor infrastructure in secondary schools in Mumias West Sub County. It may highlight on the way forward to ensure no more problems pertaining infrastructure are experienced in schools in the future. The study may also be of great value to the area of the study because it may greatly contribute to and on the already existing literature in this area of the study. It may also provide great ideas to the stakeholders to help develop adequate infrastructure in schools in the county. It may also help the ministry of education in understanding deeply the status of infrastructure in public secondary schools in Mumias West Sub County and how to go about developing or improving it. This study may form a foundation for academicians who may be interested to conduct a study in a similar area.

1.8 Scope of the Study

The study was conducted in public secondary schools and thus private secondary schools were out of scope. The study was carried out between May and June, 2018.

1.9 Delimitations of the Study

The study focused on school management's planning, funding, supervision and evaluation strategies as the only variables and thus; any other variable, though significant, were not considered. Data for this study were only collected from secondary school principals, teachers and members of school BOM.

1.10 Limitations of the Study

The results of the study could not be generalized to other secondary schools since there could be different strategies and dynamics which enhance improvement of school infrastructure. Some of the respondents were unwilling to volunteer factual information for fear of victimization. In this case, the researcher explained to them that the research study aimed at complementing their efforts in improving school infrastructure. The sampled respondents could not be representative of the entire population. In this case, the researcher was as inclusive as possible to guarantee maximum representation.

1.11 Assumptions of the Study

i. There were strategies put in place by school management to improve secondary school infrastructure
ii. The researcher assumed that the respondents would be competent to respond to the research questions.
iii. The researcher also assumed that the respondents would cooperate and provide the correct information.
iv. The researcher also assumed that the sample population would be a true representation of the whole population.

1.12 Operational Definition of Terms

Evaluation: is the follow up process adopted by school management to measure the extent to which funds are used for the intended task. It includes; quarterly, annual and continuous evaluation.

Funding strategy: is the strategies developed by secondary school management to provide funds to secondary schools**.** The sources include; revenue gathering, organizing fund-raising and costing

Planning strategy: is the strategy developed by secondary school management to plan for the procurement and maintenance of school infrastructure. It involves setting number of facilities required, setting deadlines and budgeting.

Quality of education: is the level of outcome obtained by secondary school students. This can be measured through completion rates, number of students transiting to universities and students' test scores in KCSE.

Supervision strategies: are means of assessing the progress of infrastructure in secondary schools. It involves assessing the work progress, surveillance and interpretation of plans.

Performance: Is the outcome of the learning process on the life of the beneficiary of the system.

1.13 Organization of the Study

The study was organized in five chapters. The first chapter consisted of background of the study, statement of the problem, purpose, objectives of the study, research questions, significance, delimitation, limitations and basic assumptions of the study. This chapter also provides definitions of significant terms. Chapter two contained the literature review based on the research objectives citing research and knowledge gaps to be filled. It also provides the theoretical and conceptual frameworks for the study. Chapter three contain the research methodology adopted. Chapter four provides the data analysis, presentation and discussions whereas chapter five provides a summary of the research findings, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on past studies in this area of study by other scholars. The researcher analyzes critically the concept of quality of secondary school education, the concept of maintenance and the influence of school management's planning, funding, supervision and evaluation strategies on quality of education in public secondary schools. It also provides the theoretical and conceptual frameworks which guided the study and a summary of research gaps identified during the review.

2.2 The Concept of Quality of Secondary School Education

Educational quality has become a popular concept which is critical in educational outcomes. Effective understanding of educational quality addresses the aspects of students' completion rates, number of students transiting to universities with quality grades and students' test scores in KCSE. It also addresses the aspects of fairness, efficiency and responsiveness of education systems. At the level of curriculum design, quality education should not be viewed in isolation, but need to be considered as an approach that plays an important role in a much wider context.

Bandura (1986) stressed that there is need to identify and measure learning objectives and to achieve observable and measurable results. According to Fuller and Clarke (2012), there is a difference between output, outcome and impact indicators.

In a study conducted in Paris, OECD (2012) notes that output indicators are more direct outcomes of schooling. These indicators are often measured using student assessment such as a standardized achievement test. On the other hand, OECD (2012) posits that outcome indicators are of a more administrative nature such as the students' completion rates. In the same vein, impact indicators show the socio-economic status of students with certain levels of education (OECD, 2012). These findings thus affirm the fact that output and outcome indicators can be defined on the basis of the extent to which outcome measures are connected to learning content.

Cognizant of these assertions, Todd and Kenneth (2010) note that, in Mexico, establishing standards and measuring the attainment of such standards are meant to enhance educational excellence and provide the public with a means to ensure that teachers, school managers and school system are held accountable as far as educational quality is concerned. To corroborate these findings, Lavy (2011) suggests that such strategies highly regard teachers' daily classroom activities by integrating curriculum-embedded assessment into school decisions of acceptable student achievement. Such a strategy provides policymakers with a more vibrant analysis of students' performance which embraces various performance-based skills essential for future success.

In Africa, the dimensions and specific details of such collaborative evaluation strategy ought to be based on a collective process that values the views of different stakeholders (World Bank, 2012). In Nigeria, Baker, Goesling and Letendre (2012) advise that by applying collaborative method which borrows

heavily from recent advances in the field, most schools could develop a framework for accountability useful in re-positioning elaborate assessment to support, but not control school improvement. This points to the fact that the stakes related to maintaining a top-level testing strategy are too high, especially for students who are at-risk and those interested in acquiring necessary skills to be future leaders in education. In Kenya and Mumias West Sub-county in particular, availability of physical facilities has seen improved enrolment, though learning amongst students is still inadequate. However, overall performance in KCSE is still below expectations. For instance, in 2008, only a quarter of candidates scored at least a C-plus in KCSE (minimum grade for University entry).

A report by Ministry of Education (2010) indicates that secondary education expansion needs large amounts of resources regardless of the expected outcomes attributed to improved socio-economic development. In keeping with a change towards wider ideas of quality of education, there must be appreciation that classroom evaluation plays an important role in shaping views of educational quality (Uwezo, 2010). Policymakers who neglect classroom evaluation data position schools to promote inauthentic ways of learning that do little to equip students for the challenges of quality education.

Such complementary types of assessment can be applied to promote useful change within a comprehensive framework of accountability. To guarantee quality, the academic performance should be geared towards making learning more useful and effective.

For a variety of reasons, many students view education as a form of labor which discriminates them instead of enhancing their lives (Uwezo, 2010). To make education meaningful to such students, there is need that they develop a sense of education in enabling them to lead a richer and more empowered life rather than an undertaking aimed at satisfying the demands of others.

2.3 The Concept of Management of Physical Facilities

Infrastructure of educational facilities includes all building and grounds-related systems and equipment that are critical to everyday operations and support of the educational process. These systems, which include mechanical, electrical, plumbing, data, telecommunications, and lighting systems, serve as the "functional arteries" of any modern educational facility, and when properly maintained will help ensure a minimum of downtime and disruptions to educational activities. Crampton (2012) assert that maintaining these systems in an efficient manner presents a series of significant technical challenges for any maintenance administrator.

The fact that most school districts and community colleges are comprised of old, recent, and new buildings, suggests that the requirements for maintaining different infrastructure components will vary widely. In the Netherlands, Wilson (2008) posit that, as educational buildings continue to evolve and incorporate technical innovations, virtually every aspect of school facility infrastructure is likely to be affected. Wilson (2008) thus suggests that, in addition to basic checklist procedures, administrators and supervisors should put in place more specific guidelines and procedures for properly maintaining

all aspects of a facility's infrastructure. In a longitudinal conducted in the United States, Hale (2002) indicated that prudent planning and proactive measures today allow administrators to better cope with the circumstances on the horizon. Hale (2002) appreciated the fact that educational facility administrators, that is, school management, have the complex responsibility of maintaining and operating educational facilities with a diverse range of technical requirements, from general infrastructure to advanced data systems. In other words, Bryson (2010) school facilities are increasingly becoming more dependent on technical systems that directly and indirectly support the educational process. These assertions affirm the fact that school systems and infrastructure components vary in type and age and are more likely to be upgraded or replaced as a result of technical advancements and changes in the instructional processes, requires a comprehensive and rational approach to introducing technical improvements throughout individual facilities.

Bryson (2010) also believes that technical improvement plans are work practices specifically aimed at making strategic refinements to a facility's infrastructure in order to realize such tangible benefits as: meeting current and future technical needs of the facility, increasing operational efficiency, keeping current with technological advances, extending the useful life of a system and, where possible, adding value throughout the physical plant.

Given such assertions, Bello and Loftness (2010) posit that the maintenance activities of a technical improvement plan can be an integral part of any department's strategic development plan, transition plan for equipment

upgrades/replacement, energy conservation program, or modernization plan. The goal of such maintenance activities is to systematically introduce upgrades or enhancements to the facility over a specified period of time. Bello and Loftness (2010) further argue that these activities can also be undertaken as a part of routine preventive maintenance, overhaul maintenance, major repairs, and replacements. Ultimately, a major objective for implementing a technical improvement plan is to identify practical opportunities for enhancements that will have a positive and lasting effect on the physical plant, as well as the educational process (Brammer, 2010). One of the main factors in developing a technical improvement plan is to initiate a full inventory and conditions assessment of critical systems and equipment.

Documenting information such as equipment type, manufacturer, age, current condition, service history, and other relevant data would serve a number of purposes and identify priorities for introducing technical improvements. This practice is becoming more commonplace in maintenance and operations departments as a way to modernize older facility components, as well as provide better maintenance for current types of equipment.

Given the expanding size and age differences of educational physical plants at Florida's many school districts and community colleges, administrators should always maintain accurate data on the various types of equipment in their facilities and their operating condition at all times. At some facilities with buildings over 40 years old or at larger educational institutions, this process may be an arduous task (Crampton, 2012).

However, once completed, statistical and other types of useful information can be generated and used as the basis for prioritizing technical improvements, preventive maintenance programs, ordering spare parts, and generating service and work orders. Educational facilities are increasingly being built or retrofitted with specialized equipment in classrooms, laboratories, media centers, and food service areas (Drake, 2004). In addition to specialized equipment that is integral with the building itself, new types of equipment are being installed in school buildings that directly support the educational process and may also require the services of the maintenance department to keep them in good working order.

For facilities administrators and maintenance supervisors, these new features pose a number of new challenges. One of the major issues this situation creates is the increased responsibility for maintaining new building features (Dorn, 2007). This usually generates the need for additional personnel with certain technical skills or the need to outsource maintenance functions associated with certain types of equipment.

2.4 School Management Planning Strategies and Quality of Education in Public Secondary Schools

The concept of Strategic planning and Decision Making as related to schools has a long history of theoretical analysis and practical application. Naisbitt (2002) indicated that strategic planning is worthless unless first there is a strategic vision. Cognizant of this definition, Bryson (2010) argued that what is apparent throughout the research is that there is no single strategic plan or

decision-making strategy that seems to fit for every situation. In a longitudinal study conducted in Australia, Lyons (2012) revealed that in school situation, strategic planning and decision making is one of the most important aspects any member of school management needs to undertake in effective management of school infrastructure. Lyons (2012) further indicated that unless facilities maintenance planning is a component of a greater school management plan, it is doomed to failure. In the same vein, Lackney and Picus (2005), in a study conducted in Austria, asserted that an essential component of an effective school program is a well-conceived school facilities maintenance plan.

Lackney and Picus (2005) indicated that it is imperative that school management evaluate both the school's overarching goals and the day-to-day details needed to meet school targets. These findings attest to the fact that a comprehensive plan developed by school management serves both as a blueprint for the here and now and a road map to the future infrastructural progress of the school. The school management need to appreciate the fact that change takes time, and improvements in school-wide endeavors most often occur in steps.

Consistent with these assertions, Brammer (2010) in a study carried out in Venezuela amongst 110 District Schools, argued that if a school district finds itself in need of a major overhaul in its facilities maintenance management system, school management cannot expect to jump to the head of the field in one or two years.

Instead, school management as planners must institute improvements over longer time frames and accept that progress is measured relative to the school's starting point rather than by comparisons with other schools that may or may not be working under comparable circumstances. In most schools in India, most school managements have adopted collaborative planning strategies to enhance improvement of school infrastructure by bringing on board other education stakeholders within and outside schools. This view corroborates the assertions by Crawley (2009) in a study conducted in Melbourne which revealed that the process of formulating a plan establishes a forum through which interested parties have a chance to voice their opinions about the future of the schools.

Crawley (2009) posited that such an opportunity, and the dialogue and even debate that ensues, is an effective way of infusing fresh ideas and new perspectives into school management. Collaborative planning also helps stakeholders feel that their views are respected and valued (Crawley, 2009). In turn, this atmosphere of respect often fosters staff and community support for the decisions being made about the future direction of the organization and, perhaps more importantly, the day-to-day steps that must be taken to achieve goals within school's vision and mission.

In Sub-Saharan Africa, studies have revealed that strategic planning and management adopted by school management helped schools move towards achieving its goals and objectives by developing a strategy specific to the school infrastructure that takes into consideration the important factors of the

learners, community and stakeholders needs and interests. In a study conducted amongst a sample 33 secondary schools in Nigeria, Akinsolu (2004) indicated that responsible facilities maintenance planning demands that attention be given to a wide range of other issues that influence schools' budgeting, including insurance coverage, land acquisition, equipment purchases, and building construction and renovation. Akinsolu (2004) asserted that facilities maintenance plans adopted by school management should be based on a foundation of high-quality data about all school facilities. Otherwise, planners are forced to work without context, and strategic planning becomes strategic guesswork. This implies that school management must know what facilities exist, where they are located, how old they are, and their status/condition.

In Kenya, planning strategies developed by school management for maintenance enhance performance and durability as well as also reduction of wastage. In a study conducted in Bungoma County on the adequacy of educational facilities and their effect on quality of teacher preparation in emerging secondary schools, Sarah, Mutsotso and Nasongo (2013) established that most of emerging public as did private secondary schools had inadequate, obsolete and dilapidated facilities unsuitable for preparing competent teachers.

From its conceptualization, it is apparent that school facilities maintenance is a challenging function and its execution requires apposite knowledge and skills from stakeholders, in this case, the school management. Mumias West Sub-county is no exception where maintenance of educational facilities is one of the most neglected tasks in many institutions with far reaching ramifications

(Teklemarian, 2009). However, despite these revelations, little has been done to establish how different forms of planning strategies adopted by school management would guarantee improvement of school infrastructure nor does any study indicate how failure of such planning strategies would influence management of school infrastructure, thus the study.

2.5 School Management Funding Strategies and Quality of Education in Public Secondary Schools

The core business of schools is teaching and learning. As Drake (2004) and Roe (2004) confirm, schools exist so that students can learn and do central activity of school instructions. The efficiency and effective management of fiscal and physical resources can enhance instructional programs. Funding strategies adopted by school management are key to the realization of such effective management of school infrastructure. In a study conducted in the United States, Carter and Carter (2001) indicated that funding for physical infrastructure in secondary school, has over the years been part of the overall school financing.

Physical infrastructure funding involves the funds or efforts expected on building, land, physical environment, furniture and black wall either in form of repair and maintenance, construction and infrastructure management. Secondary school physical infrastructure funding has been a challenging undertaking especially due to scarcity of resources and capacity constraints (Carter & Carter, 2001). The result is that school physical infrastructure funding lags behind compared to progress in funding other areas of school

education needs. On the same breath, Bello and Loftness (2010) indicate that although school infrastructure has not enjoyed the high-profile role like school reform, budgeting for it plays a critical role in funding for education. Funding for physical infrastructure is both external and by communities the latter is only effective in cases in which the community desires to make future sacrifices to satisfy the practical needs. External help should just be a supplement (Bryson, 2010). Most school managements have adopted different funding strategies including fund raising, donors, school revenues and savings to help improve school infrastructure.

In a longitudinal study conducted in Hong Kong, Leung, Lu and Ip (2004) revealed that use of revenues and fund-raising strategies positively affect the condition of school infrastructure either by making them, sufficient or improving their quality. Poor conditions have been found to affect student access, achievement and teacher productivity. Leung, Lu and Ip (2004) indicated that the major role of school management is to create an environment in the school that will facilitate effective and successful teaching and learning. This is done through effective management of the schools' human, material and financial resources. These findings attest to the fact that without effective financial management strategies, schools may find it difficult, if not impossible, to achieve their goals, especially infrastructure.

In Sub-Saharan Africa, most school managements have opted for different funding strategies to improve school infrastructure (Wakeham, 2010). A study conducted in Bunda District in Tanzania by Machumu (2012) provided a

detailed look at how public elementary-secondary school systems are funded and how they provide the education and services for our nation's children. These data, released annually, provide information on revenues, spending, debt and assets of public school systems. Machumu (2012) indicated that school management can source funds through grants are available from both private and public sources to help the nation's public schools improve their infrastructure as well as improving the condition of the school buildings themselves.

In Kenya, public schools are largely funded by government where school management are required to adhere to set budgetary guidelines to acquire various school facilities. Schools are also funded through Constituency Development Fund (CDF), parents' contribution and from other donor bodies. The World Bank (2010) report on education suggested a number of broadened sources of revenue for education beyond the limits of regular government budgets which included various methods by which those who received education could pay greater share of its cost. It is with these trends that the infrastructure was somehow neglected (Sarah et al, 2013). This state of affairs was to manifest greatly with the introduction of free secondary education in Kenya in 2003.

In order to facilitate effective financial management, school management must prepare a budget. In a study carried out in Nyandarua District of Central Province, Njogu (2003) revealed that it is the school Board of Management's duty per se as the school manager to ensure that schools under their charge

formulate a budget that will address the needs of the school and facilitate the accomplishment of its goals. Njogu (2003) indicated that it is necessary to examine how the Board of Management can raise funds to meet the estimated budget. It is important to be aware of the different sources of funds for the school and whatever the amount of money that the government allocates to the school, these funds will never be enough for the school Board of Management to carry out the planned activities effectively (Njogu, 2003). It is for this reason that extra sources of funds become necessary. When resources are limited, the school management must be resourceful, hence the need to develop strategies that can be used to obtain the funds required to implement school plans and especially with regard to the infrastructure.

In Mumias West Sub-county, the role of school management in sourcing for funds to improve school infrastructure has reported some success. Though, much is yet to be achieved. This is attributed to the fact that most empirical studies have not specific funding strategies which school management need to adopt to enhance improvement of school infrastructure and this informs the focus of this study.

2.6 School Management Supervision Strategies and Quality of Education in Public Secondary Schools

Successful improvement of school infrastructure largely depends on adequate supervision of each construction of infrastructure by school management. Florida Department of Education (2004) enumerates such duties as daily project surveillance; the preparation of a daily construction diary outlining the

various disciplines of work being accomplished, weather conditions, numbers and types of mechanics on the job, materials delivered and delaying factors if any, and estimated weekly percent of completion. Consistent with these assertions, Tsang (2011), in a study conducted in India, posited that school management is responsible for interpretation of plans and specifications and interface with the architect/engineer and the project contractor; reports any and all matters requiring contract action to the purchasing agent; reviews all partial payments received from the architect/engineer and signs for payment; upon substantial completion, coordinates punch list with architect/engineer for transmittal to contractor; approves final completion payment.

To corroborate these findings, Dye (2007) indicated that school management's supervision consists of those processes performed to observe project execution so that potential problems can be identified in a timely manner and corrective action can be taken, when necessary, to control the execution of the project. The key benefit is that project performance is observed and measured regularly to identify variances from the school infrastructure management plan (Dye, 2007).

In other words, supervision includes measuring the ongoing project activities where we are, monitoring school facilities, that is, cost, effort and scope amongst others, against the management plan and the performance baseline, identify corrective actions to address issues and risks properly and also influencing the factors that could circumvent integrated change control so only approved changes are implemented.

Given this situation, Saleemi (2007), in a study conducted in India, posited that, in multi-phase school infrastructure, the supervision process also provides feedback between development phases, in order to implement corrective or preventive actions to bring the school infrastructure into compliance with the management plan. These findings affirm the fact that maintenance is an ongoing process, and it includes, continuing support of end users, correction of errors and updates of the infrastructure over time. In this stage, auditors should pay attention to how effectively and quickly user problems are resolved. Over the course of any construction project, the work scope may change. Change is a normal and expected part of the construction process (Saleemi, 2007). Changes can be the result of necessary design modifications, differing site conditions, material availability, contractor-requested changes, value engineering and impacts from third parties, to name a few.

In most countries in Sub-Saharan Africa, Xaba (2011) argued that, beyond executing the change in the field, the change normally needs to be documented to show what was actually constructed. Hence, the owner usually requires a final record to show all changes or, more specifically, any change that modifies the tangible portions of the finished work. The record is made on the contract documents-usually, but not necessarily limited to, the design drawings.

The end product of this effort is what the industry terms as-built drawings, or more simply, "as built." The requirement for providing them is a norm in construction contracts (Xaba, 2011). This can be exemplified by a scenario such as; when constructing a dormitory or the tuition block in school, there can

be change of size of the building or design. A school borehole may require change of the pump or engine. When changes are introduced to the facility, the viability of the facility has to be re-assessed. To lend credence to these views, Chaka (2008), in a study conducted in Johannesburg, revealed that it is important not to lose sight of the initial goals and targets of the school infrastructure. Chaka (2008) further indicated that when the changes accumulate, the forecasted result may not justify the original proposed investment in the school infrastructure.

Administrative activities include the archiving of the files and documenting lessons learned. In other words, this phase consists of project close which finalize all activities across all of the process groups to formally close the school infrastructure phase as well as contract closure which complete and settle each contract and close each contract applicable to the project or project phase. In Kenya and Mumias West Sub-county in particular, cases of students burning in poorly constructed dormitories, students getting severe injuries arising from unsafe school environment, embezzlement of school funds, conflicts between parents and teachers over dismal performance in national examinations have been on the rise (Mwinyipembe & Orodho, 2014). This is despite the change of supervision approach since 2003.

A study conducted by Kenya National Bureau of Statistics (2011) found that Mumias West Sub-county has experienced an increase in number of secondary students as result of internal immigrants coupled with the implementation of Free Day Secondary Education (FDSE) in 2008 which has put immense strain

to the few schools' educational facilities. However, these studies have not indicated different styles of school management's supervision strategies enhance the improvement of school infrastructure; thus, the study.

2.7 School Management Evaluation Strategies and Quality of Education in Public Secondary Schools

School Board of Management's evaluation strategies are critical on the improvement, progress and advancement of school infrastructure. Most school management apply performance appraisal evaluation to measure their effectiveness, which can help in defining and developing strategies for improvement of school infrastructure (Roe, 2004). Given this scenario, Grasmick, Hall, Collins, Maloney and Puddester (2008) contend that having a well-structured evaluation strategy put in place by school management can help determine where the problem lies. On the same breath, school management need to carry out evaluation since it helps in improving management strategies which in turn results in greater benefits.

In a study conducted in Canada to evaluate the efficacy of evaluation strategies which were organized for the bonafide members from different school board of management, Frazis and Speltzer (2005) indicated that assessing the progress of school infrastructure is one of the most important responsibilities of school management. Evaluation activities should be integrated into the overall management plan to determine how effectively the management efforts are progressing. Frazis and Speltzer (2005) intimated that among the most common types of evaluations are those that measure progress during the course

of management. Cognizant of these findings, Kingombe (2011), in a study carried out amongst 16 school managers in a teacher management institutes in Paris, France, indicated that it is necessary to have programme follow-up for school management of school infrastructure after a period of time; the evaluation comes out from feedback of their department's representatives, co-workers and the management process. The study revealed that members of BOM in different schools develop different evaluation strategies including quarterly, annual or continuous (Kingombe, 2011). However, studies have revealed that adopting annual evaluation strategies are not effective in enhancing improvement of school infrastructure since it does not allow management to make necessary changes or respond quickly to a changing internal or external environment.

Further, strategic plans tend to focus on specific departments within a school (Kingombe, 2011). For instance, major focus could be directed towards classrooms, offices whereas slight attention given to other crucial areas such as the sanitation, sports and library. A number of plans for developing infrastructure may be long term, while others are short term, some time consuming and require extensive effort from the school Board of Management.

This implies that, without the "buy in" or commitment to the plan it is doomed to fail. Grasmick et al (2008) assert that plans are ignored at all levels so there needs to be a formalized procedure for gaining commitment through the use of meetings, as research shows that contribution and commitment to the plan was higher when there was a feeling of solidarity with opportunity to voice

opinions, suggestions, and concerns. Within this commitment is the necessity for feedback and monitoring to ensure the plan remains on course and there are no dissenting opinions or issues that have not been recognized and discussed. In Sub-Saharan African countries such as Kenya, most school board of management have embraced the principles of evaluation and follow-up of the progress of school infrastructure (Naidoo, 2005). Amongst the strategies developed is one done at the end of a major school infrastructural project cycle, such as after one, two, or three years. These evaluations are often performed by a team that can spend the time to collect data, make judgments, and propose recommendations for future action (Ministry of Education, 2010).

In management of school infrastructure, all operations and issues that contribute to planning and implementation of a facility can be evaluated. This can include many items, such as, the effectiveness of the school management methods and materials used; the relevance of the management content. In a study conducted in Kakamega South District, Muthamia (2009) revealed that the reason for evaluating is to determine the effectiveness of a management program aimed at improving school infrastructure. Muthamia (2009) revealed that for school board of management which did an evaluation of the head teachers management programmes witnessed increased borrowing amongst their head teachers' clientele.

In Mumias West Sub-county, the scenario is similar with school board of management having embraced evaluations models for head teachers' management programmes with more focus on goal or objective-based vs.

systems-based models. Management evaluation has been a continual and systematic process of assessing the value or potential value of a management program, course, activity or event. Results of the evaluation are used to guide decision-making around various components of the improvement of school infrastructure such as instructional design, delivery, results and its overall continuation, modification or elimination. Despite these observations, status of school infrastructure in Mumias West Sub-county has been wanting. This is attributed to the fact that the reviewed empirical studies have not specifically identified evaluation methods are appropriate in enhancing infrastructure improvement in public secondary schools; a research gap which this study sought to address.

2.8 Theoretical Framework: The Broken Windows Theory

This study was guided by the Broken Windows Theory which was postulated by James (1982). One of the key principles of this theory is that it elucidates that if a broken window in a building is not repaired, people may be likely to assume that no one cares about the building, and soon more windows may be broken and this may easily go on, eventually it becomes acceptable to neglect the whole locality. To avoid poor infrastructure, continuous monitoring of the school facilities is the key factor to acquire improved infrastructure in schools. In our context, the broken-windows theory relates to the damage linked to the neglect and disrespect for school facilities where in this case the locality is the school. Improved infrastructure in a school shows that education has been given a higher priority hence boosts their motivation to be there as well that of

other stakeholders such as teachers. This emphasizes the importance of improving the school infrastructure. In order for the infrastructure to serve the rightful purpose and achieve the expected goal, capable managers with a capacity to put in place proper policy as well as strategies aimed at ensuring maximum utilization and maintenance of the infrastructures.

2.9 The Conceptual Framework

In this study, the conceptual framework for this study was based on management of physical facilities reflected through planning, funding, supervision and evaluation strategies which constituted independent variables for the study whereas quality education whose indicators included KCSE performance and university qualification constituted the dependent variable. Government policy and stakeholders constituted the intervening variables as shown in Figure 2.1;

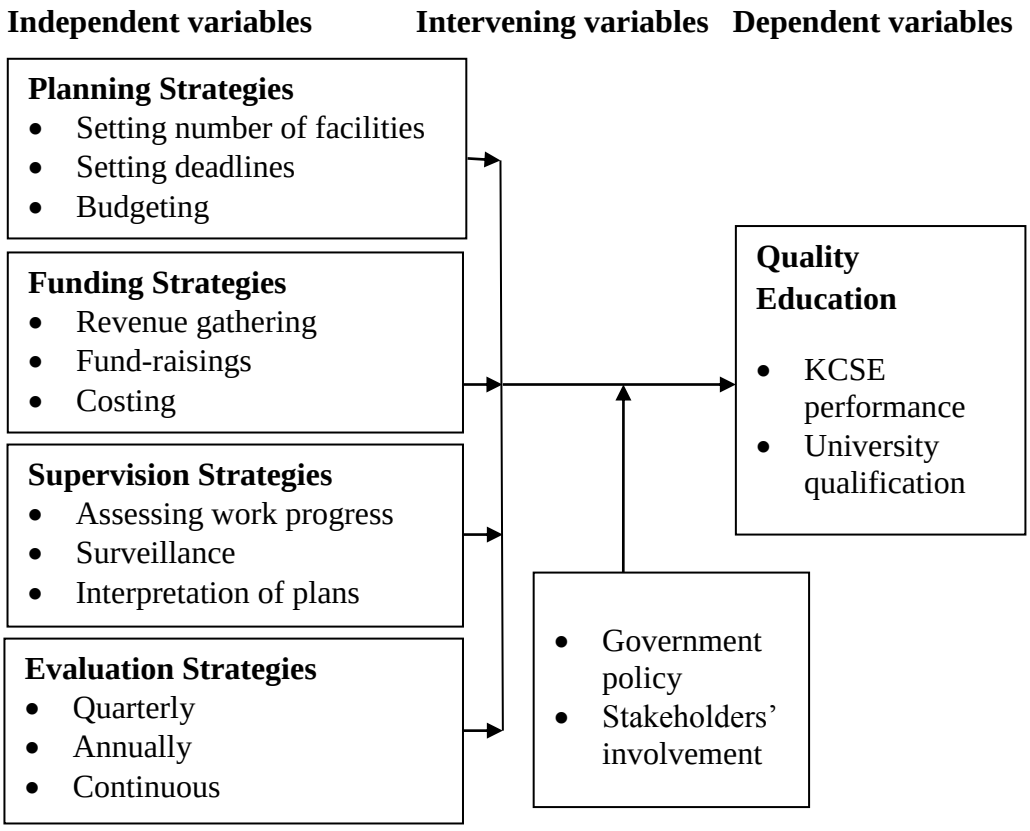

Figure 2.1: Conceptual framework showing relationship between variables

Source: Researcher (2018)

2.10 Summary of Literature Review and Research Gaps

The review has established that school management play important role in improvement of school infrastructure. However, the review has revealed numerous research and knowledge gaps. On school management's planning strategies, little has been done to establish how different forms of planning strategies adopted by school management would guarantee improvement of school infrastructure nor does any study indicate how failure of such planning strategies would influence quality of education offered in public secondary schools. On school management's funding strategies, most empirical studies have not specific funding strategies which school management need to adopt to enhance improvement of school infrastructure in order to ensure quality of education in public secondary schools.

On school management's supervision strategies, reviewed research studies have not indicated different styles of school management's supervision strategies enhance the improvement of school infrastructure which, in turn, guarantee quality of secondary education. On school management's evaluation strategies, reviewed empirical studies have not specifically identified evaluation methods are appropriate in enhancing infrastructure improvement in public secondary schools as a way of improving the quality of secondary school education. These were the research and knowledge gaps which this study sought to address.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter highlights the methodology which was applied in the study. It explains the design; location of the study; population; sample size, sampling techniques and procedure; data collection instruments; methods of testing the validity and reliability of instruments; the research procedure that was followed; and the data management and analysis techniques that were used in conducting the study.

3.2 Research Methodology

The study adopted mixed research methodology and involve collecting and analyzing data by using both quantitative and qualitative methods in a single study (Creswell, 2009). Quantitative method was useful in collecting quantifiable and numeric data which were subjected to statistical analysis. Quantitative data were collected using questionnaires. Qualitative method was used to collect data largely from words of respondents using interviews.

3.3 Research design

Concurrent triangulation research design was applied to allow the researcher implement both quantitative as well as qualitative approaches at the same time with equal weight. According to Creswell (2009), this design involves the concurrent collection and analysis of quantitative and qualitative data in order to understand a research problem after which the researcher merges the two sets of data sets during analysis.

3.4 Location of Study

The study was conducted in public secondary schools in Mumias West Sub County, Kakamega County. The sub-county has an approximate population of 111, 862 persons and covers an area of 165.3 km^2, that is, a population density of 677 persons per km^2 (KNBS, 2009). The main economic activities in Mumias West sub-county include subsistence farming, sugarcane cultivation and commercial trade. However, the sub-county also has challenges with some of its residents living in abject poverty which has created challenges in the management of education sector with instances of low accessibility, high drop-out rates, low teacher–student ratio and high reported instances of dilapidated school infrastructure.

In Mumias West Sub-county, public secondary schools have registered low grades in national examinations. For example, in 2012, wastage grades (E, D- and D) in KCSE stood at 35.7%, 2013 (37.2%) and 2014 stood at 52.0% (Mumias West Sub-county Education Report, 2017). There has also been a decrease in percentage proportion of students transiting to universities with quality grades (C+ and above). On the same breath, there is a big gap in quality, resulting from large number of students in crowded classrooms, using inadequate and obsolete equipment and with disillusioned teachers. Despite these statistics, few studies have examined the influence of management of physical facilities on quality of education in public secondary hence, the choice of Mumias West Sub-county as the location of study.

3.5 Target Population

Mugenda and Mugenda (2005) define population as an entire group of individuals, events or objects having a common observable characteristic. Mumias West Sub-county has 22 public secondary schools and thus, the total target population comprised of 22 principals, 250 teachers and 220 Board of Management members all totaling to 492.

3.6 Sampling and Sampling Techniques

A sample is defined as a subset of the population (Kothari, 2005). The researcher applied Central Limit Theorem to sample of five secondary schools, that is, 30% of the targeted 22 public secondary schools were selected. The Central Limit Theorem states that, for any sample size, $N \geq 30$, sampling distribution of means is approximately a normal distribution irrespective of the population (Kothari, 2005). It thus allowed the researcher to select, $N \geq 30$ from the target population. Thus, from The Central Limit Theorem, 120 (24.39% of 492) respondents at 95% confidence interval, that is, a predetermined 5% level of confidence or significance, were sampled.

Stratified sampling was applied to create five different strata based on the number of zones in Mumias West Sub-county. From each zone, one principal and 13 members of BOM were selected using purposive sampling. The researcher then applied simple random sampling to select 10 teachers. Simple random sampling was appropriate since it helped avoid the feeling of bias amongst the respondents.

This sampling procedure enabled the researcher to realize a sample of five secondary school principals, 47 teachers and 66 school BOM members as indicated in Table 3.1:

Table 3.1: Sample Size Grid

Categories	Target Population	Sample Size
Principals	22	7
Teachers	250	47
BOM Members	220	66
Total	**492**	**120**

Source: Mumias West Sub-county Education Report (2018)

3.7 Research Instruments

The study used questionnaires and interviews to collect data from the respondents and were developed based on the study objectives.

3.7.1 Questionnaires for Teachers

A questionnaire as a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents and is often designed for statistical analysis of the response (Morse, 2000). The researcher applied a self-designed structured questionnaire to collect data from teachers. The questionnaire was divided into two sections. The first section consisted of information on respondents' demographic profiles, while the second part contained 5-point Likert type of questions based on the research objectives. The respondents were assured of confidentiality.

3.7.2 Interview Guide for School Principals and Members of BOM

An interview provides access to what is inside a person's mind and makes it possible to measure what a person knows, what a person likes or dislikes, that is, values and preferences, and what a person thinks, that is, attitudes and beliefs (Kothari, 2005). It is always helpful in gathering classified information and of personal nature about the respondents. The researcher used structured interview schedule with a set of questions on the research objectives to collect information from sampled school principals. Interviews were important for this study since they enabled the researcher to ask probing questions, develop a good rapport with the respondents and have a goal-directed attempt to obtain reliable and valid measures in the form of verbal responses from one or more interviewees.

3.8 Piloting of Research Instruments

Piloting of research instruments was conducted amongst five teachers in Mumias West Sub-county. The test items were administered twice to the same respondents. The purpose of piloting was to check on suitability and the clarity of the questions on the instruments designed, relevance of the information being sought and the language used and to test the reliability and validity of the instruments. The respondents who were involved in the piloting were not included in the final data collection for the study.

3.8.1 Validity of the Instruments

To ascertain validity of the research instruments, the researcher reviewed each statement with the help of experts, the University Supervisor and scrutiny of

peers to assess the extent to which the items were related to the topic at hand. This is because according to Creswell (2009), validity is the extent to which a research instrument measures what it is supposed to measure. The suggestions given were incorporated to validate the instruments. Where there was an agreement among the experts, the instrument was considered to be valid. Modifications were also made in the instruments based on the experts' observations.

3.8.2 Reliability of the Instruments

In order to improve the reliability of the instrument, the researcher, with the help of her supervisor, critically assessed the consistency of the responses on the piloted instruments to make a judgement on their reliability. According to Creswell (2009), reliability refers to the extent to which test items replicates similar results. The reliability of the close-ended test items in the questionnaires was established using test retest method where the researcher administered a sample of test items to a group of respondents twice. Reliability coefficient, r = 0.761, between the two sets of scores was obtained using Pearson's Product Moment Correlation Method. This indicated high internal reliability.

3.9 Data Collection Procedures

The researcher obtained an introductory letter from The Graduate School of the University of Nairobi. Upon receiving the research permits and letters of authorization, the researcher then booked appointments with the respondents to administer questionnaires and conduct interviews to collect prerequisite data for the study.

The questionnaires were administered to the respondents to collect quantitative data with the help of a research assistant who was trained for three days. The duly filled questionnaires were collected and safely stored for data analysis. The interviews were conducted in person to collect qualitative data at time convenient for the interviewees. The participants were assured of confidentiality.

3.10 Data Analysis Procedures

Data analysis is the process of data coding, data entry and other statistical procedures of information collected (Orodho, 2005). Data analysis began by identifying common themes from the respondents' description of their experiences. Relevant information was broken into phrases or sentences, which reflected a single, specific thought. The responses to the close-ended items were assigned codes and labels. Frequency counts of the responses were obtained to generate information about the respondents and to illustrate the general trend of findings on the various variables that were under investigation. Qualitative data were analyzed thematically along the study objectives and presented in narrative forms whereas the quantitative data were analyzed descriptively using and inferentially using ANOVA with the help of Statistical Packages for Social Science (SPSS Version 23) and presented using tables.

3.11 Logistical and Ethical Considerations

Ethical considerations in research involve outlining the content of research and what was required of participants, how informed consent was obtained and confidentiality ensured.

3.11.1 Confidentiality and Privacy

The researcher undertook to keep private any information given by the respondents that touches on their persons or their private life. The researcher assured the respondents that no private information would be divulged to a third party and that no identifying information about him or her would be revealed in written or other communication.

3.11.2 Anonymity

The researcher ensured and assured the respondents that their individual identities would not be revealed whatsoever. Besides, no identifying information about the individual or the institution would be revealed in written or other communication.

3.11.3 Informed Consent

The nature and the purpose of the research were explained to the respondents by the researcher. The researcher explained to the respondents the procedure to be followed during the data collection so that they could participate willingly.

3.11.4 Storage of Data Collected

The raw data collected were filed for easy reference. Once the data were analyzed, computer print-outs were filed while softcopies were stored in storage devices such as CDs and flash disks.

3.12 Operationalization of Variables

Operationalization allows variables to be expressed in measurable terms. The indicators to be measured for each variable were identified together with the measurement scale as shown in Table 3.2;

Table 3.2: Operationalization of Variables

ROs	Type of Variable	Indicators	Scales	Tools	Data Analysis
RO1	Planning Strategies	• Setting number of facilities • Setting deadlines • Budgeting	Ordinal Ratio Nominal	Questionnaire Interview guides Documentary Analysis Guide	Quantitative Qualitative
RO2	Funding Strategies	• Revenue gathering • Fund-raisings • Costing	Ordinal Ratio Nominal	Questionnaire Interviews Documentary Analysis Guide	Quantitative Qualitative
RO3	Supervision Strategies	• Assessing work progress • Surveillance • Interpretation of plans	Ordinal Ratio Nominal	Questionnaire Interviews Documentary Analysis Guide	Quantitative Qualitative
RO4	Evaluation Strategies	• Quarterly • Annually • Continuous	Ordinal Ratio Nominal	Questionnaire Interviews Documentary Analysis Guide	Quantitative Qualitative

Key: **ROs**-Research Objectives

RO1: To assess the influence of school facility planning strategic on academic performance in public secondary schools in Mumias West Sub-county;

RO2: To determine the influence of school facility maintenance on academic performance in public secondary schools in Mumias West Sub-county;

RO3: To examine the influence of school facility supervision on academic performance in public secondary schools in Mumias West Sub-county;

RO4: To establish the influence of school facility monitoring and evaluation on academic performance in public secondary schools in Mumias West Sub-county

CHAPTER FOUR

DATA ANALYSIS, PRESENTATIONS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings of the study. For clarity and chronology, it is arranged according to the four research objectives that the study sought to answer. In the first section, however, background information about the respondents is presented, because it might be pertinent in interpreting the data that they provided.

4.2 Response Rate

In this study, 47 questionnaires were administered to teachers. In return, 45 questionnaires were filled and returned. The researcher also conducted interviews amongst six principals and 60 members of school BOM. This yielded response rates shown in Table 4.1;

Table 4.1: Response Rates

Respondents	**Sampled Respondents**	**Those Who Participated**	**Achieved Return Rate (%)**
Principals	7	6	85.7
Teachers	47	45	95.7
Members of School BOM	66	60	90.9
Total	**120**	**111**	**92.5**

Table 4.1 shows that principals, teachers and members of school BOM registered a response rate of 92.5% which lends credence to the assertions of Creswell (2009) that a response rate above 75.0% and above is adequate for generalization of the study outcomes to the target population.

4.3 Respondents' Demographic Information

The research instruments solicited demographic information of the respondents. These included' gender and level of education.

4.3.1 Gender of the Respondents

Information about the distribution of the respondents by gender was collected and the results are shown in Table 4.2:

Table 4.2: Distribution of the Respondents by Gender

Gender	Principals		Teachers		Members of School BOM	
	f	**%**	**f**	**%**	**f**	**%**
Male	4	66.7	26	57.8	36	60.0
Female	2	33.3	19	42.2	24	40.0
Total	**6**	**100**	**45**	**100**	**60**	**100**

Table 4.2 indicates that two-thirds (66.7%) of the principals were male whereas a third (33.3%) were female. Slightly more than half (57.8%) of the teachers were male whereas their female counterparts constituted 42.2%. majority (60.0%) of the members of school BOM were male whereas female members constituted 40.0% of the proportion. These data reveal that that there was adequate gender disparity at all levels of the study and that the extent to which management of physical facilities influence quality of education offered in public secondary schools concerns both male and female stakeholders, that is, principals, teachers and members of school BOM.

4.3.2 Respondents' Level of Education

The research instruments also elicited information on level of education of principals, teachers and members of school BOM since this variable could

influence their ability to supply credible information about the objectives and results are shown in Table 4.3;

Table 4.3: Respondents' Level of Education

Educational Qualifications	Principals		Teachers		Members of School BOM	
	f	**%**	**f**	**%**	**f**	**%**
Certificate	0	0.0	0	0.0	0	0.0
Diploma	0	0.0	12	26.7	10	16.7
Bachelors'	4	66.7	27	60.0	42	70.0
Postgraduate	2	33.3	6	13.3	8	13.3
Total	**6**	**100**	**45**	**100**	**60**	**100**

Table 4.3 indicates that two-thirds (66.7%) of the principals had Bachelors' Degrees whereas a third (33.3%) had postgraduate qualifications. In the same vein, majority (60.0%) of the teachers had Bachelors' Degrees, 26.7% had Diploma whereas 13.3% had postgraduate qualifications. Majority (70.0%) of the members of school BOM had Bachelors' Degrees, 16.7% had Diplomas whereas 13.3% had postgraduate qualifications. This information reveals that the sampled respondents met the minimum qualifications and were thus expected to be competent to respond to research questions regarding the influence of management of physical facilities on quality of education in public secondary schools.

4.4 School Management Facility Planning Strategies and Quality of Education in Public Secondary Schools

The study sought to establish the influence of planning strategies adopted by secondary schools to manage physical facilities on quality of education in

public secondary schools. Descriptive data were collected from teachers, organized and summarized and results are shown in Table 4.4:

Table 4.4: Teachers' Views on the Influence of School Planning Strategies on Quality of Education in Public Secondary Schools

Summary of Test Items	SA %	A %	U %	D %	SD %
Deciding on the number of school facilities enables school management to determine the number of school facilities repaired	71	12.3	1.3	10.1	5.3
Deciding on the number of school facilities enables school management to determine the construction of new school facilities	66.9	13.2	2.4	12.7	4.8
Setting deadlines for construction enables school management to determine the number of school facilities repaired	80.5	12.4	1.6	3.3	2.2
Setting deadlines enables school management to determine the construction of new school facilities	67.4	19.7	3.5	5.3	4.1
Budgeting has not been effective to enable school management to determine the number of school facilities repaired	69.6	13.8	1.6	10.6	4.4
Budgeting has not always been done effectively to enable school management to determine the construction of new school facilities	67.4	19.7	3.5	5.3	4.1

Table 4.4 reveals that majority (71%) of the teachers strongly agreed with the view that deciding on the number of school facilities enables school management to determine the number of school facilities repaired. At the same time, 12.3% agreed. However, only a paltry 1.3% of the teachers were undecided, 10.1% disagreed whereas 5.3% strongly disagreed. The study also revealed that a fair majority (66.9%) of the teachers strongly agreed with the

view that deciding on the number of school facilities enables school management to determine the construction of new school facilities as did 13.2% of the teachers. At the same time, 2.4% of the teachers were undecided, 12.7% disagreed whereas 4.8% strongly disagreed. These findings corroborate the assertions of Crawley (2009) that many schools have adopted collaborative planning strategies to enhance improvement of school infrastructure by bringing on board other education stakeholders within and outside schools. According to Crawley (2009), the process of formulating a plan establishes a forum through which interested parties have a chance to voice their opinions about the future of the schools.

Crawley (2009) posited that such an opportunity, and the dialogue and even debate that ensues, is an effective way of infusing fresh ideas and new perspectives into school management. These findings further lend credence to the findings of another study conducted in Nigeria in which Akinsolu (2004) established that responsible facilities maintenance planning demands that attention be given to a wide range of other issues that influence schools' budgeting, including insurance coverage, land acquisition, equipment purchases, and building construction and renovation.

Akinsolu (2004) asserted that facilities maintenance plans adopted by school management should be based on a foundation of high-quality data about all school facilities. Thus, these findings point to the fact that school management must know what facilities exist, where they are located, how old they are, and their status/condition and through effective strategic planning, schools are bale

to decide to construct new facilities on repair and maintain the existing ones as a way of improving of education offered in such secondary schools. The study also revealed that an impressive majority (80.5%) of the teachers strongly agreed with the view that setting deadlines for construction enables school management to determine the number of school facilities repaired as did 12.4% of the teachers. However, 1.6% of the teachers were undecided, 3.3% disagreed whereas 2.2% strongly disagreed. A fair majority (67.4%) of the teachers strongly agreed with the view that setting deadlines enables school management to determine the construction of new school facilities. 19.7% agreed. However, 3.5% of the teachers were undecided, 5.3% disagreed whereas 4.1% strongly disagreed.

These findings are consistent with the findings of a study carried out in Venezuela in which Brammer (2010) revealed that if a school finds itself in need of a major overhaul in its facilities maintenance management system, school management cannot expect to jump to the head of the field in one or two years. This implies that school management as planners must institute improvements over longer time frames and accept that progress is measured relative to the school's starting point rather than by comparisons with other schools that may or may not be working under comparable circumstances.

The study also revealed that a fair majority (69.6%) of the teachers strongly agreed with the view that budgeting has not been effective to enable school management to determine the number of school facilities repaired as did 13.8% of the teachers.

On the other hand, 1.6% of the teachers were undecided, 10.6% disagreed whereas 4.4% strongly disagreed. A fair majority (67.4%) of the teachers strongly agreed with the view that budgeting has not always been done effectively to enable school management to determine the construction of new school facilities. 19.7% agreed. However, 3.5% of the teachers were undecided, 5.3% disagreed whereas 4.1% strongly disagreed. These findings lend credence to the findings of a study conducted in Austria in which Lackney and Picus (2005) established that an essential component of an effective school program is a well-conceived school facilities maintenance plan. According to Lackney and Picus (2005), school management evaluate both the school's overarching goals and the day-to-day details needed to meet school targets.

These findings attest to the fact that a comprehensive plan developed by school management serves both as a blueprint for the here and now and a road map to the future infrastructural progress of the school. In other words, strategic planning strategies adopted by public secondary schools have not been effective and has thus not helped schools to move towards achieving its goals and objectives by developing a strategy specific to the school infrastructure that takes into consideration the important factors of the learners, community and stakeholders needs and interests.

This is indicative of the fact effective strategic plans for management of school facilities are yet to be fully developed and implemented as a way of improving quality of education offered in public secondary schools.

4.4.1 Inferential Findings on the Influence of School Management Planning Strategies on Quality of Education in Public Secondary Schools

To verify the possibility of difference between school management planning strategies and quality of education in secondary schools, data was collected on how often schools develop plans to construct new physical facilities and schools' KCSE performance and the number of students who transit to universities with quality grades and the results are shown in Table 4.5:

Table 4.5: Results of the Frequency of Development of Strategic Plans, KCSE Performance and the Number of Students Transiting to Universities with Quality Grades

Frequency of Development of Strategic Plans	KCSE Performance	Number of Students Transiting to Universities with Quality Grades
1	1.30	1
2	2.50	3
3	2.90	7
4	4.30	10
5	6.98	11

Table 4.5 indicates that secondary schools which often draw strategic plans for management of physical facilities have their students register good grades in KCSE and thus proceed to universities with quality grades. These results further corroborate the assertions of Akinsolu (2004) asserted that facilities maintenance plans adopted by school management should be based on a foundation of high-quality data about all school facilities. These results were subjected to ANOVA and results are indicated in Table 4.6:

Table 4.6: ANOVA Analysis of the Difference between Means of the Frequency of Development of Strategic Plans for Management of School Facilities, KCSE Performance and the Number of Students Transiting to Universities with Quality Grades

	Sum of Squares	df	Mean Square	F	Sig
Frequency of Development of Strategic Plans	84.013	4	21.003		
KCSE Performance	32.963	2	16.481	6.563	.021
Number of Students Joining Universities	20.091	8	2.511		
Total	53.054	10	5.305		
Total	137.067	14	9.791		

Grand Mean = 4.3320

From the ANOVA Statistics in Table 4.6, the processed data, which is the population parameters, had a significance level of 0.021 which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value of 0.021) is less than 5%, that is, p-value=0.021<0.05. It also indicates that the results were statistically significant and that there is significant difference between means of the frequency of preparation of strategic plans for management of school facilities, KCSE performance and the number of students who join universities with C+ and above (quality grades).

These results were consistent with the findings of a study conducted in Bungoma County by Sarah et al (2013) which generated a p-value of 0.037<0.05. These findings thus affirm the fact that facilities maintenance plans adopted by school management should be based on a foundation of high-

quality data about all school facilities. This is indicative of the fact that school management must know what facilities exist, where they are located, how old they are, and their status/condition and through effective strategic planning, schools are able to decide to construct new facilities on repair and maintain the existing ones as a way of improving of education offered in such secondary schools.

4.4.2 Thematic Analysis of Qualitative Findings on the Influence of School Management Facility Planning Strategies on Quality of Education in Public Secondary Schools

Principals and members of school BOM were also interviewed. The interviewees also responded in favor of the view that deciding on the number of school facilities enables school management to determine the number of school facilities repaired. Principal, P1, and member of school BOM, MSBOM1, affirmed,

> *"In my secondary school, we cannot purchase any school facility or construct any before deciding on the number. We buy desks, chairs, build classrooms and stock our laboratories after wide consultations with stakeholders who must decide and agree on the number of such school facilities. This is aimed at improving the quality of education though this has not been the case. Many of our students still register low academic grades in KCSE with few joining universities with C+ and above".*

Just like in quantitative findings, these views further support the assertions of Crawley (2009) that secondary schools have embraced collaborative planning strategies as a way of improving management of physical facilities. This is done by involving education stakeholders.

The interviewees further concurred with the viewpoints held by Crawley (2009) that the process of formulating a plan establishes a forum through which interested parties have a chance to voice their opinions about the future of the schools. In the same token, Crawley (2009) noted that such an opportunity, and the dialogue and even debate that ensues, is an effective way of infusing fresh ideas and new perspectives into school management. Hence, these views further point to the fact that responsible facilities maintenance planning demands that attention be given to a wide range of other issues that influence schools' budgeting, including insurance coverage, land acquisition, equipment purchases, and building construction and renovation.

In other words, strategic plans geared towards maintaining physical facilities ought to be based on a foundation of high-quality data about all school facilities. Besides, school management must know what facilities exist, where they are located, how old they are, and their status/condition and through effective strategic planning, schools are bale to decide to construct new facilities on repair and maintain the existing ones as a way of improving of education offered in such secondary schools. The principals and members of school BOM also observed,

> *"In our secondary school, we set deadlines for construction of physical facilities. This has enabled us to determine the number of facilities to be developed and ensure that we provide quality infrastructure aimed at improving quality of education in our school".*

These views also support those expressed by Brammer (2010) that if a school finds itself in need of a major overhaul in its facilities maintenance

management system, school management cannot expect to jump to the head of the field in one or two years. Just like quantitative findings, these views are indicative of the fact that strategic planning in schools for physical facility management need to entail improvements over longer time frames and accept that progress is measured relative to the school's starting point rather than by comparisons with other schools that may or may not be working under comparable circumstances.

When asked about budgeting for school facilities, the principals and members of school BOM noted that they do budget for maintenance, repair and purchase of new facilities as per the new fee guidelines policy. However, the principals decried inadequacy of finances meant for facility management. Principal, P2, admitted,

> *"Budgeting for facility management is often done and necessary plans made for procurement of new school infrastructure. However, funding is never adequate to ensure provision of relevant, suitable and quality facilities which, in turn, can guarantee provision of quality secondary education".*

In the same token, these views further corroborate the assertions of Lackney and Picus who indicated that an essential component of an effective school program is a well-conceived school facilities maintenance plan. Lackney and Picus (2005) asserted that school management evaluate both the school's overarching goals and the day-to-day details needed to meet school targets. Just like in quantitative findings, these views affirm the fact that a comprehensive plan developed by school management serves both as a blueprint for the here

and now and a road map to the future infrastructural progress of the school. Thus, these mixed findings point to the fact that strategic planning strategies adopted by public secondary schools have not been effective and has thus not helped schools to move towards achieving its goals and objectives by developing a strategy specific to the school infrastructure that takes into consideration the important factors of the learners, community and stakeholders needs and interests. From the mixed findings, effective strategic plans for management of school facilities are yet to be fully developed and implemented as a way of improving quality of education offered in public secondary schools.

4.5 School Management Facility Funding Strategies and Quality of Education in Public Secondary Schools

The study intended to find out how facility funding strategies adopted by public secondary schools influence of quality of education. Descriptive data were collected from teachers, organized into specific thoughts and results are shown in Table 4.7;

Table 4.7: Views of Teachers on the Influence of Facility Funding Strategies on Quality of Education in Public Secondary Schools

Summary of Test Items	SA %	A %	U %	D %	SD %
Collecting revenues has not been effective to enable school management to determine the number of school facilities repaired	55.9	15.1	2.8	16.8	9.4
Collecting revenues has been slow and has thus not enabled school management to determine the construction of new school facilities	59.1	23.5	2.7	5.9	8.8
Organizing fund-raising enables school management to determine the number of school facilities repaired	58.9	17.2	2.0	19.3	2.6
Organizing fund-raising enables school management to determine the construction of new school facilities	78.4	11.1	2.1	3.9	4.5

Table 4.7 reveals that slightly more than half (55.9%) of the teachers strongly agreed with the view that collecting revenues has not been effective to enable school management to determine the number of school facilities repaired. At the same time, 15.1% agreed. On the contrary, only a small proportion of 2.8% of the teachers were undecided, 16.8% disagreed whereas 9.4% strongly disagreed. The study also revealed that slightly more than half (59.1%) of the teachers strongly agreed with the view that collecting revenues has been slow and has thus not enabled school management to determine the construction of new school facilities as did 23.5% of the teachers. However, 2.7% of the teachers were undecided, 5.9% disagreed whereas 8.8% strongly disagreed.

These findings are consistent with the findings of a study conducted in Hong Kong in which Leung, Lu and Ip (2004) established that use of revenues and fund-raising strategies positively affect the condition of school infrastructure either by making them, sufficient or improving their quality. This implies that secondary schools have adopted different funding strategies including fund raising, donors, school revenues and savings to help improve school infrastructure. This affirms the fact that, when resources are limited, the school management must be resourceful, hence the need to develop strategies that can be used to obtain the funds required to implement school plans and especially with regard to the infrastructure.

Similarly, slightly more than half (58.9%) of the teachers strongly agreed with the view that organizing fund-raising enables school management to determine the number of school facilities repaired as did 17.2% of the teachers. However, 2.0% of the teachers were undecided, 19.3% disagreed whereas 2.6% strongly disagreed. The study also established that a record majority (78.4%) of the teachers strongly agreed with the view that organizing fund-raising enables school management to determine the construction of new school facilities as did 11.1% of the teachers. However, 2.1% of the teachers were undecided, 3.9% disagreed whereas 4.5% strongly disagreed.

These findings also corroborate the assertions of Leung et al (2004) that use of revenues and fund-raising strategies positively affect the condition of school infrastructure either by making them, sufficient or improving their quality. This attests to the fact that, without effective financial management strategies,

schools may find it difficult, if not impossible, to achieve their goals, especially infrastructure. In other words, school management can source funds from various outlets to help secondary schools improve their infrastructure as well as improving the condition of the school buildings themselves.

4.5.1 Inferential Findings on the Influence of School Management Facility Funding Strategies on Quality of Education in Public Secondary Schools

To verify the possibility of difference between school facility funding strategies and quality of education in secondary schools, data were collected on financial allocations for school facilities, KCSE performance and number of students taken to universities with C+ and above and the results are shown in Table 4.8:

Table 4.8: Results of the Financial Allocations for School Facilities, KCSE Performance and the Number of Students Transiting to Universities with Quality Grades

Financial Allocations for School Facilities	KCSE Performance	Number of Students Transiting to Universities with Quality Grades
231, 000	1.30	1
346, 000	2.50	3
376, 000	2.90	7
533, 000	4.30	10
632, 000	6.98	11

Table 4.8 indicates that secondary schools which allocate more funds for maintenance, repair and purchase of new physical facilities have their students perform well in KCSE with many transiting to universities with quality grades

(C+ and above). These findings further corroborate the assertions of Leung, Lu and Ip (2004) that secondary schools have adopted different funding strategies including fund raising, donors, school revenues and savings to help improve school infrastructure. These results were subjected to ANOVA and results are indicated in Table 4.9:

Table 4.9: ANOVA Analysis of the Difference between Means of the Financial Allocations for Physical Facilities, KCSE Performance and the Number of Students Transiting to Universities with Quality Grades

		Sum of Squares	df	Mean Square	F	Sig
Financial Allocations for Physical Facilities		53.907	4	13.477		
	KCSE Performance	102.923	2	51.461	10.242	.006
	Number of Students Joining Universities	40.198	8	5.025		
	Total	143.120	10	14.312		
Total		197.027	14	14.073		

From the ANOVA Statistics in Table 4.9, the processed data, which is the population parameters, had a significance level of 0.006 which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value of 0.006) is less than 5%, that is, p-value=0.006<0.05. It also indicates that the results were statistically significant and that there is significant difference between means of the secondary schools' financial allocations for physical facilities, KCSE performance and the

number of students who join universities with C+ and above (quality grades). These results were consistent with the findings of a study conducted in Hong Kong by Leung et al (2004) which generated a p-value of 0.046<0.05. Hence, secondary schools adopt different funding strategies including fund raising, donors, school revenues and savings to help improve school infrastructure. Besides, when resources are limited, the school management must be resourceful, hence the need to develop strategies that can be used to obtain the funds required to implement school plans and especially with regard to the infrastructure. In other words, without effective financial management strategies, schools may find it difficult, if not impossible, to achieve their goals, especially infrastructure. Thus, by allocating more funds towards management of physical facilities, secondary schools seek to improve quality of education offered in such secondary schools.

4.5.2 Thematic Analysis of Qualitative Findings on the Influence of School Management Facility Funding Strategies on Quality of Education in Public Secondary Schools

The principals and members of school BOM who were interviewed echoed similar sentiments. The interviewees also responded in favor of the view that collecting revenues has not been effective to enable school management to determine the number of school facilities repaired.

The principals and members of school BOM affirmed,

> *"Our school relies heavily on school fees as the main source of revenues which has also reduced as per the new fee guidelines. We do not have farms from which we can do some farming and other income-generating activities to supplement the annual disbursements from the Ministry. This makes it difficult to allocate adequate funds for repair, maintenance and provision new physical facilities".*

Just like quantitative findings, these views lend credence to the assertions of Leung et al (2004) that use of revenues and fund-raising strategies positively affect the condition of school infrastructure either by making them, sufficient or improving their quality. The views of principals and members of school BOM further affirm that secondary schools need to adopt different funding strategies including fund raising, donors, school revenues and savings to help improve school infrastructure.

The interviewees concurred with the view that organizing fund-raising enables school management to determine the number of school facilities repaired. Principal, P3, and member of school BOM, MSBOM3, noted,

> *"In our school, fund-raising has been the main source of funds for repair, maintenance and purchase of new physical facilities. We hold fund-raisings almost every year to get more funds to improve our school infrastructure".*

These views further corroborate the viewpoints held by Leung et al (2004) that use of revenues and fund-raising strategies positively affect the condition of school infrastructure either by making them, sufficient or improving their quality. These mixed findings thus point to the fact that, without effective financial management strategies, schools may find it difficult to realize its

educational objectives. this further implies that secondary schools can source funds from various outlets to enable them improve the conditions of the school buildings themselves.

4.6 School Management Facility Supervision Strategies and Quality of Education in Public Secondary Schools

The study intended to find out how supervision strategies adopted by secondary schools influence quality of education. Descriptive data were collected from teachers and organized into specific thoughts and results are shown in Table 4.10;

Table 4.10: Teachers' Views on the Influence of Physical Facilities' Supervision Strategies on Quality of Education in Public Secondary Schools

Summary of Test Items	SA %	A %	U %	D %	SD %
School management rarely assess work progress to determine the number of school facilities repaired and construction of new physical facilities	58.8	21.6	4.1	10.4	5.1
School management do not often carry out surveillance on school infrastructure to determine the number of school facilities repaired	61.6	17.7	3.9	10.5	6.3
School management rarely carry out surveillance on school infrastructure to determine the construction of new school facilities	59.9	19.8	2.5	12.2	5.6
School management is slow in interpreting management plans to determine the number of school facilities repaired and construction of new physical facilities	65.9	13.4	3.7	10.3	6.7

Table 4.10 reveals that slightly more than half (58.8%) of the teachers strongly agreed with the view that school management rarely assess work progress to determine the number of school facilities repaired and construction of new physical facilities. At the same time, 21.6% agreed. On the contrary, only a small proportion of 4.1% of the teachers were undecided, 10.4% disagreed whereas 5.1% strongly disagreed. These findings are consistent with the findings of a study conducted by Kenya National Bureau of Statistics (2011) which established supervision strategies adopted by secondary schools influence positively or negatively improvement of physical facilities.

The study also revealed that a fair majority (61.6%) of the teachers strongly agreed with the view that school management do not often carry out surveillance on school infrastructure to determine the number of school facilities repaired as did 17.7% of the teachers. However, 3.9% of the teachers were undecided, 10.5% disagreed whereas 6.3% strongly disagreed. Similarly, slightly more than half (59.9%) of the teachers strongly agreed that school management rarely carry out surveillance on school infrastructure to determine the construction of new school facilities as did 19.8% of the teachers. However, 2.5% of the teachers were undecided, 12.2% disagreed whereas 5.6% strongly disagreed.

These findings are consistent with the assertions of Florida Department of Education (2004) that supervision duties include daily project surveillance; the preparation of a daily construction diary outlining the various disciplines of work being accomplished, weather conditions, numbers and types of

mechanics on the job, materials delivered and delaying factors if any, and estimated weekly percent of completion. This implies that successful improvement of school infrastructure largely depends on adequate supervision of each construction of infrastructure by school management. Majority (65.9%) of the teachers strongly agreed with the view that school management is slow in interpreting management plans to determine the number of school facilities repaired and construction of new physical facilities as did 13.4% of the teachers. However, 3.7% of the teachers were undecided, 10.3% disagreed whereas 6.7% strongly disagreed.

These findings further corroborate the findings of another study conducted in India in which Tsang (2011) established that school management is responsible for interpretation of plans and specifications and interface with the architect/engineer and the project contractor; reports any and all matters requiring contract action to the purchasing agent; reviews all partial payments received from the architect/engineer and signs for payment; upon substantial completion, coordinates punch list with architect/engineer for transmittal to contractor; approves final completion payment.

This points to the fact that supervision includes measuring the ongoing project activities where schools are, monitoring school facilities, that is, cost, effort and scope amongst others, against the management plan and the performance baseline, identify corrective actions to address issues and risks properly and also influencing the factors that could circumvent integrated change control so only approved changes are implemented.

4.6.1 Inferential Findings on the Influence of Facility Supervision Strategies on Quality of Education in Public Secondary Schools

To verify the possibility of difference between facility supervision strategies and quality of education in public secondary schools, data were collected on how often schools supervise facility management, KCSE performance and the number of students transiting to universities with quality grades and the results are shown in Table 4.11:

Table 4.11: Results of the Frequency of Facility Supervision, KCSE Performance and the Number of Students Transiting to Universities with Quality Grades

Frequency of Facility Supervision (Days Per Year)	KCSE Performance	Number of Students Transiting to Universities with Quality Grades
91	1.30	1
183	2.50	3
274	2.90	7
292	4.30	10
365	6.98	11

Table 4.11 indicates that secondary schools which ensure frequent supervision of maintenance and repair of facilities have their students perform well in KCSE and take many students to universities with quality grades. These findings further corroborate the assertions of Kenya National Bureau of Statistics (2011) which established supervision strategies adopted by secondary schools influence positively or negatively improvement of physical facilities. These results were subjected to ANOVA and results are shown in Table 4.12:

Table 4.12: ANOVA Analysis of the Difference between Means of the Frequency of Facility Supervision, KCSE Performance and the Number of Students Transiting to Universities with Quality Grades

		Sum of Squares	df	Mean Square	F	Sig
Frequency of Supervision of School Facilities		16778.253	4	4194.563		
	KCSE Performance	185676.136	2	92838.068	26.294	.000
	Number of Students Transiting to Universities	28245.851	8	3530.731		
	Total	213921.987	10	21392.199		
Total		230700.240	14	16478.589		

Grand Mean = 83.6653

From the ANOVA Statistics in Table 4.12, the processed data, which is the population parameters, had a significance level of 0.000 which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value of 0.000) is less than 5%, that is, p-value=0.000<0.05. It also indicates that the results were statistically significant and that there is significant difference between means of the frequency of supervision of repair and maintenance of physical facilities, KCSE performance and the number of students who join universities with C+ and above (quality grades).

These results were consistent with the findings of a study conducted by Kenya National Bureau of Statistics (2011) which generated a p-value of 0.022<0.05. These findings attest to the fact that supervision strategies adopted by secondary schools influence positively or negatively improvement of physical

facilities. Thus, supervision includes measuring the ongoing project activities where we are, monitoring school facilities, that is, cost, effort and scope amongst others, against the management plan and the performance baseline, identify corrective actions to address issues and risks properly and also influencing the factors that could circumvent integrated change control so only approved changes are implemented.

4.6.2 Thematic Analysis of Qualitative Findings on the Influence of Facility Supervision Strategies on Quality of Education in Public Secondary Schools

Qualitative data was also collected using interviews. During the interviews, principals and members of school BOM noted that school management rarely assess work progress to determine the number of school facilities repaired and construction of new physical facilities. Just like quantitative findings, these views further corroborate the views expressed by Kenya National Bureau of Statistics (2011) which also noted that supervision strategies adopted by secondary schools influence positively or negatively improvement of physical facilities. The interviewees further noted,

> *"In our secondary school, we rarely carry out surveillance on school infrastructure to determine the number of school facilities repaired and construction of new physical facilities".*

These views also support the assertions of Florida Department of Education (2004) that supervision duties include daily project surveillance; the preparation of a daily construction diary outlining the various disciplines of work being accomplished, weather conditions, numbers and types of

mechanics on the job, materials delivered and delaying factors if any, and estimated weekly percent of completion. From these views, it is also evident that supervision of the conditions and daily maintenance and repair of physical facilities is important in ensuring quality of education provided in secondary schools. This affirms that supervision includes measuring the ongoing project activities where schools are, monitoring school facilities, that is, cost, effort and scope amongst others, against the management plan and the performance baseline, identify corrective actions to address issues and risks properly and also influencing the factors that could circumvent integrated change control so only approved changes are implemented.

4.7 Evaluation Strategies and Quality of Education in Public Secondary Schools

The study intended to establish the influence of facility evaluation strategies on quality of education in public secondary schools. Descriptive data were collected from teachers, organized into specific thoughts and results are shown in Table 4.13;

Table 4.13: Teachers' Views on the Influence of Facility Evaluation Strategies on Quality of Education in Public Secondary Schools

Summary of Test Items	SA %	A %	U %	D %	SD %
School management rarely adopt quarterly evaluation to determine the number of school facilities repaired	69.1	19.4	1.1	6.9	3.5
School management do not often assess work progress to determine the construction of new school facilities	71.4	17.9	2.3	5.2	3.2
School management do not always adopt annual evaluation to determine the number of school facilities repaired and construction of new facilities	75.1	12.7	2.7	6.1	3.4
School management rarely adopt continuous evaluation to determine the construction of new school facilities and construction of new facilities	67.4	13.0	2.1	7.3	10.2

Table 4.13 reveals that a fair majority (69.1%) of the teachers strongly agreed with the view that school management rarely adopt quarterly evaluation to determine the number of school facilities repaired. At the same time, 19.4% agreed. On the contrary, only a small proportion of 1.1% of the teachers were undecided, 6.9% disagreed whereas 3.5% strongly disagreed. The study also revealed that majority (71.4%) of the teachers strongly agreed with the view that school management do not often assess work progress to determine the construction of new school facilities as did 17.9% of the teachers. However, 2.3% of the teachers were undecided, 5.2% disagreed whereas 3.2% strongly

disagreed. These findings lend credence to the assertions of Grasmick, Hall, Collins, Maloney and Puddester (2008) that having a well-structured evaluation strategy put in place by school management can help determine where the problem lies. On the same breath, school management need to carry out evaluation since it helps in improving management strategies which in turn results in greater benefits. These findings attest to the fact that evaluation strategies are critical on the improvement, progress and advancement of school infrastructure. Besides, many secondary schools adopt performance appraisal evaluation to measure their effectiveness, which can help in defining and developing strategies for improvement of school infrastructure, though this has not been the case in many schools in Mumias West Sub-county.

The study also found out that majority (75.1%) of the teachers strongly agreed with the view that school management do not always adopt annual evaluation to determine the number of school facilities repaired and construction of new facilities as did 12.7% of the teachers. However, 2.7% of the teachers were undecided, 6.1% disagreed whereas 3.4% strongly disagreed.

Majority (67.4%) of the teachers strongly agreed with the view that school management rarely adopt continuous evaluation to determine the construction of new school facilities and construction of new facilities as did 13.0% of the teachers. However, 2.1% of the teachers were undecided, 7.3% disagreed whereas 10.2% strongly disagreed. These findings lend credence to the assertions of Frazis and Speltzer (2005) who noted that among the most common types of evaluations are those that measure progress during the course

of management. In the same vein, these findings also support the findings of a study conducted in Paris, France in which Kingombe (2011) established that it is necessary to have programme follow-up for school management of school infrastructure after a period of time; the evaluation comes out from feedback of their department's representatives, co-workers and the management process. This is indicative of the fact that evaluations are conducted to collect data, make judgments, and propose recommendations for future action. In management of school infrastructure, all operations and issues that contribute to planning and implementation of a facility can be evaluated. This can include many items, such as, the effectiveness of the school management methods and materials used; the relevance of the management content.

4.7.1 Inferential Findings on the Influence of Facility Evaluation Strategies on Quality of Education in Public Secondary Schools

To verify the possibility of difference between facility evaluation strategies and quality of education in public secondary schools, data were collected on the frequency of school facility evaluation, KCSE performance and the number of students transiting to universities with quality grades (C+ and above) and the results are shown in Table 4.14:

Table 4.14: Results of the Frequency of Evaluation, KCSE Performance and the Number of Students Transiting to Universities with Quality Grades

Frequency of Evalaution	KCSE Performance	Number of Students Transiting to Universities with Quality Grades
1	1.30	1
2	2.50	3
3	2.90	7
4	4.30	10
5	6.98	11

Table 4.14 indicates that secondary schools which ensure frequent evaluation of maintenance and repair of facilities have their students perform well in KCSE and take many students to universities with quality grades. These findings further corroborate the assertions of Kingombe (2011) established that it is necessary to have programme follow-up for school management of school infrastructure after a period of time; the evaluation comes out from feedback of their department's representatives, co-workers and the management process. These results were subjected to ANOVA and results are shown in Table 4.15:

Table 4.15: ANOVA Analysis of the Difference between Means of the Frequency of Facility Evaluation, KCSE Performance and the Number of Students Transiting to Universities with Quality Grades

		Sum of Squares	df	Mean Square	F	Sig
Frequency of Evalaution		84.013	4	21.003		
	KCSE Performance	32.963	2	16.481	6.563	.021
	Number of Students Transiting to Universities	20.091	8	2.511		
	Total	53.054	10	5.305		
Total		137.067	14	9.791		

Grand Mean = 4.3320

From the ANOVA Statistics in Table 4.15, the processed data, which is the population parameters, had a significance level of 0.021 which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value of 0.021) is less than 5%, that is, p-value=0.021<0.05. It also indicates that the results were statistically significant and that there is significant difference between means of the frequency of facility evaluation, KCSE performance and the number of students who join universities with C+ and above (quality grades).

These results were consistent with the findings of a study conducted in Paris, France by Kingombe (2011) which generated a p-value of 0.037<0.05. These findings attest to the fact that among the most common types of evaluations are

those that measure progress during the course of management. Thus, it is necessary to have programme follow-up for school management of school infrastructure after a period of time; the evaluation comes out from feedback of their department's representatives, co-workers and the management process. This indicates that evaluations are conducted to collect data, make judgments, and propose recommendations for future action. In management of school infrastructure, all operations and issues that contribute to planning and implementation of a facility can be evaluated.

4.7.2 Thematic Analysis of Qualitative Findings on the Influence of Facility Evaluation Strategies on Quality of Education in Public Secondary Schools

During the interviews, the principals and members of school BOM however, indicated that school management does evaluation of school facilities. Principal, P4, and member of school BOM, MSBOM4, noted,

> *"Our secondary school always undertake different strategies to conduct evaluation of the physical facilities. We undertake quarterly, annual and continuous evaluations in order to assess the maintenance, repair and construction of new school facilities".*

Just like quantitative findings, these views are consistent with the viewpoints held by Grasmick et al (2008) that having a well-structured evaluation strategy put in place by school management can help determine where the problem lies. This implies that evaluation strategies are critical on the improvement, progress and advancement of school infrastructure. Besides, many secondary schools adopt performance appraisal evaluation to measure their effectiveness, which

can help in defining and developing strategies for improvement of school infrastructure, though this has not been the case in many schools. Besides, evaluations are conducted to collect data, make judgments, and propose recommendations for future action. In management of school infrastructure, all operations and issues that contribute to planning and implementation of a facility can be evaluated. This can include many items, such as, the effectiveness of the school management methods and materials used; the relevance of the management content.

CHAPTER FIVE
SUMMARY OF FININGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the main research findings, conclusions, recommendations and suggestions for further research as discussed under the research objectives.

5.2 Summary of Findings

This section provides a summary of the findings of the research objectives which included; investigating the influence of facility planning, funding, supervision and evaluation strategies on quality of education in public secondary schools.

5.2.1 School Management Facility Planning Strategies and Quality of Education in Public Secondary Schools

The study established that secondary schools adopt a variety of planning strategies for management of physical facilities. These include collaborative planning strategies as a way of improving management of physical facilities. However, the effectiveness of such planning strategies is still wanting. This affirms that responsible facilities maintenance planning demands that attention be given to a wide range of other issues that influence schools' budgeting, including insurance coverage, land acquisition, equipment purchases, and building construction and renovation. Strategic plans geared towards maintaining physical facilities ought to be based on a foundation of high-quality data about all school facilities.

Besides, school management must know what facilities exist, where they are located, how old they are, and their status/condition and through effective strategic planning, schools are bale to decide to construct new facilities on repair and maintain the existing ones as a way of improving of education offered in such secondary schools. These findings point to the fact that strategic planning strategies adopted by public secondary schools have not been effective and has thus not helped schools to move towards achieving its goals and objectives by developing a strategy specific to the school infrastructure that takes into consideration the important factors of the learners, community and stakeholders needs and interests. Hence, effective strategic plans for management of school facilities are yet to be fully developed and implemented as a way of improving quality of education offered in public secondary schools.

5.2.2 School Management Facility Funding Strategies and Quality of Education in Public Secondary Schools

The study also established that public secondary schools rely on funding from a variety of sources which include government, sponsors, donors and fund-raising. It is evident that many public secondary schools rely on school fees as the main source of revenues which has also reduced as per the new fee guidelines. Other sources such as income-generation activities to supplement the annual disbursements from the Ministry are not dependable. This makes it difficult to allocate adequate funds for repair, maintenance and provision new physical facilities.

This implies that use of revenues and fund-raising strategies positively affect the condition of school infrastructure either by making them, sufficient or improving their quality. In other words, without effective financial management strategies, schools may find it difficult to realize its educational objectives. This further implies that secondary schools can source funds from various outlets to enable them improve the conditions of the school buildings themselves.

5.2.3 School Management Facility Supervision Strategies and Quality of Education in Public Secondary Schools

The study also established that supervision strategies adopted by secondary schools influence quality of education. However, school management rarely assess work progress to determine the number of school facilities repaired and construction of new physical facilities. This points to the fact that supervision of the conditions and daily maintenance and repair of physical facilities is important in ensuring quality of education provided in secondary schools. This affirms that supervision includes measuring the ongoing project activities where schools are, monitoring school facilities, that is, cost, effort and scope amongst others, against the management plan and the performance baseline, identify corrective actions to address issues and risks properly and also influencing the factors that could circumvent integrated change control so only approved changes are implemented.

5.2.4 Evaluation Strategies and Quality of Education in Public Secondary Schools

The study also established that facility evaluation strategies influence quality of education in public secondary schools. Secondary schools adopt different forms of evaluation strategies. These include; quarterly, annual or continuous. However, these forms of evaluations are yet to see improvement of physical facilities in public secondary schools. This affirms that having a well-structured evaluation strategy put in place by school management can help determine where the problem lies. Evaluation strategies are critical on the improvement, progress and advancement of school infrastructure.

This further points to the fac that many secondary schools adopt performance appraisal evaluation to measure their effectiveness, which can help in defining and developing strategies for improvement of school infrastructure, though this has not been the case in many schools. Hence, evaluations are conducted to collect data, make judgments, and propose recommendations for future action. In management of school infrastructure, all operations and issues that contribute to planning and implementation of a facility can be evaluated.

5.3 Conclusions

Drawing from the above findings, it is evident that public secondary schools adopt a variety of planning strategies for management of physical facilities. These include collaborative planning strategies as a way of improving management of physical facilities. However, the effectiveness of such planning strategies is still wanting.

This affirms that responsible facilities maintenance planning demands that attention be given to a wide range of other issues that influence schools' budgeting, including insurance coverage, land acquisition, equipment purchases, and building construction and renovation. From the study findings, it is also evident that public secondary schools rely on funding from a variety of sources which include government, sponsors, donors and fund-raising. Many public secondary schools rely on school fees as the main source of revenues which has also reduced as per the new fee guidelines. Other sources such as income-generation activities to supplement the annual disbursements from the Ministry are not dependable. This makes it difficult to allocate adequate funds for repair, maintenance and provision new physical facilities.

Supervision strategies adopted by secondary schools influence quality of education. However, school management rarely assess work progress to determine the number of school facilities repaired and construction of new physical facilities. This points to the fact that supervision of the conditions and daily maintenance and repair of physical facilities is important in ensuring quality of education provided in secondary schools. It is also evident that facility evaluation strategies influence quality of education in schools.

Secondary schools adopt different forms of evaluation strategies. These include; quarterly, annual or continuous. However, these forms of evaluations are yet to see improvement of physical facilities in public secondary schools. This affirms that having a well-structured evaluation strategy put in place by school management can help determine where the problem lies.

5.4 Recommendations

The researcher makes the following recommendations;

i. On strategic planning, Ministry of Education should enrich management training programme for principals and their deputies to include strategic planning. This will enable secondary school principals to acquire skills to be in a position to draw schools' strategic plans for management of physical facilities.

ii. On findings strategies, Ministry of Education should channel more funds for maintenance, repair and construction of new physical facilities as a way of improving quality of education offered in public secondary schools. Secondary schools should also embark on activities geared towards generation of more funds to improve the conditions of physical facilities.

iii. On supervision strategies, qualified technocrats should be hired to be members of school BOM to help school principals to share much information with education stakeholders on how to conduct effective supervision and improve school infrastructure. Such expert knowledge will assist them to detect any form of pilferage and inflation of material costs meant for secondary school infrastructure.

iv. On evaluation strategies, public secondary schools should improve their evaluation and monitoring strategies to ensure effective and prudent use of school resources in a manner best suited to improvement of school infrastructure.

School BOM should make improve austerity measures which are meant to scale up the monitoring and evaluation measures to be adopted to improve secondary school infrastructure.

5.4.1 Suggestions for Further Research

i. A study should be conducted to examine the influence of secondary school principals' facility management training on quality of education in public secondary schools.

ii. A study should be carried out to assess the influence of members of school BOM on physical facility management in public secondary schools.

iii. A study could be conducted to examine influence of staff attitude towards school physical facilities on quality of education in public secondary schools.

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APPENDIX I

LETTER OF INTRODUCTION

May, 2018

Dear Sir/Madam,

RE: PERMISSION TO CONDUCT RESEARCH IN YOUR SCHOOL

I am a student taking a course in Master of Education in Project Planning and management at the University of Nairobi. I am required to submit as parts of my research work assessment, a research project on "**Influence of Management of Physical Facilities on Quality of Education in Public Secondary Schools in Mumias West Sub-county, Kakamega County, Kenya**". To achieve this, your secondary school has been selected to participate in the study. I kindly request the respondents, that is, the principals, BOM members and teachers to participate in the study. This information would be used purely for academic purpose and your name will not be mentioned in the report. Findings of the study, shall upon request, be availed to you.

Your assistance and cooperation will be highly appreciated.

Thank you in advance.

Yours faithfully,

Josephat Shikutwa

APPENDIX II

QUESTIONNAIRE FOR TEACHERS

Dear respondent,

The researcher is a student undertaking a course in Master of Education in Project Planning and Management of the University of Nairobi carrying out a study on the **Influence of Management of Physical Facilities on Quality of Education in Public Secondary Schools in Mumias West Sub-county, Kakamega County, Kenya**. The information you provide will be treated with confidentiality and entirely used for purposes of this study.

Section A: Background Information

1. Gender: Male [ ] Female [ ]
2. Level of Education

   Diploma [ ]

   Bachelors [ ]

   Masters [ ]

   Postgraduate [ ]

Section B: Quality Education

1. Please, indicate how your secondary school has registered the following qualities of education for the last five years

Years	KCSE (No. of Candidates)	KCSE Performance	No. of Students Transiting to Universities
2013			
2014			
2015			
2016			
2017			

Section C: School Management Facility Planning Strategies and Quality of Education in Public Secondary Schools

1. Tick aspects planning strategies adopted by school management

   Setting number of school facilities [ ]

   Setting repair/construction deadlines [ ]

   Budgeting [ ]

2. Rate the extent to which you agree with the following statements on the influence of school management facility planning strategies on quality of education in your secondary school

   Key: **SA**-Strongly Agree **A**-Agree **U**-Undecided **D**-Disagree **SD**-Strongly Disagree

Test Items	**SA**	**A**	**U**	**D**	**SD**
	5	**4**	**3**	**2**	**1**
Deciding on the number of school facilities enables school management to determine the number of school facilities repaired					
Deciding on the number of school facilities enables school management to determine the construction of new school facilities					
Setting deadlines enables school management to determine the number of school facilities repaired					
Setting deadlines enables school management to determine the construction of new school facilities					
Budgeting enables school management to determine the number of school facilities repaired					
Budgeting enables school management to determine the construction of new school facilities					

Section D: School Management Facility Funding Strategies and Quality of Education in Public Secondary Schools

1. Tick funding strategies adopted school management

   Collecting revenues [ ]

   Organizing fund-raising [ ]

   Others (Specify)……...

2. Rate the extent to which you agree with the following statements on the influence of school facility funding strategies on quality of education in your secondary school

   Key: **SA**-Strongly Agree **A**-Agree **U**-Undecided **D**-Disagree **SD**-Strongly Disagree

Test Items	**SA**	**A**	**U**	**D**	**SD**
	5	**4**	**3**	**2**	**1**
Collecting revenues enables school management to determine the number of school facilities repaired					
Collecting revenues enables school management to determine the construction of new school facilities					
Organizing fund-raising enables school management to determine the number of school facilities repaired					
Organizing fund-raising enables school management to determine the construction of new school facilities					

Section E: School Management Facility Supervision Strategies and Quality of Education in Public Secondary Schools

1. Mark supervision strategies adopted by school management to enhance improvement of infrastructure

   Assessing work progress [ ]

   Surveillance [ ]

   Interpretation of plans [ ]

   Others (Specify)…….

2. Rate the extent to which you agree with the following statements on the influence of relationship between school management facility supervision strategies on quality of education in your secondary school

   Key **SA**--Strongly Agree **A**--Agree **U**--Undecided **D**--Disagree **SD**--Strongly Disagree

Test Items	**SA**	**A**	**U**	**D**	**SD**
	5	**4**	**3**	**2**	**1**
School management assess work progress to determine the number of school facilities repaired					
School management assess work progress to determine the construction of new school facilities					
School management carry out surveillance on school infrastructure to determine the number of school facilities repaired					
School management carry out surveillance on school infrastructure to determine the construction of new school facilities					
School management interpret management plans to determine the number of school facilities repaired					
School management interpret management plans to determine the construction of new school facilities					

Section F: School Management Facility Evaluation Strategies and Quality of Education in Public Secondary Schools

1. Tick evaluation strategies adopted by school management to improve school infrastructure

   Quarterly [ ]

   Annually [ ]

   Continuous [ ]

2. Rate the extent to which you agree with the following statements on the influence of evaluation strategies on quality of education in your secondary school

   Key **SA**--Strongly Agree **A**--Agree **U**--Undecided **D**--Disagree **SD**--Strongly Disagree

Test Items	**SA**	**A**	**U**	**D**	**SD**
	5	**4**	**3**	**2**	**1**
School management adopt quarterly evaluation to determine the number of school facilities repaired					
School management assess work progress to determine the construction of new school facilities					
School management adopt annual evaluation to determine the number of school facilities repaired					
School management adopt annual evaluation to determine the construction of new school facilities					
School management adopt annual evaluation to determine the number of school facilities repaired					
School management adopt continuous evaluation to determine the construction of new school facilities					

Thank you,

Josephat Shikutwa

APPENDIX III

INTERVIEW GUIDE FOR PRINCIPALS AND MEMBERS OF SCHOOL BOARD OF MANAGEMENT

Dear respondent,

The researcher is a student undertaking a course in Master of Education in Project Planning and Management of the University of Nairobi carrying out a study on **Influence of Management of Physical Facilities on Quality of Education in Public Secondary Schools in Mumias West Sub-county, Kakamega County, Kenya**. The information you provide will be treated with confidentiality and entirely used for purposes of this study.

Section A: Background Information

1. Gender:…….
2. State your highest level of education……...
3. State your position in school administration…….....

Section B: Quality of Education

1. What is your KCSE performance and the number of students who have transited to universities with quality grades from your secondary school for the last five years?

   ……

Section C: School Management Facility Planning Strategies and Quality of Education in Public Secondary Schools

1. Explain the conditions of your school infrastructure

   ……

   ……

2. State your planning strategies you adopt to enhance improvement of school infrastructure

   ---

   ---

3. Explain how planning strategies adopted by your school has improved infrastructure of your school

   ……

   ……

4. What is the extent to which planning strategies which you adopt to manage school facilities influenced quality of education in your secondary school?

   ……

   ……

Section D: School Management Facility Funding Strategies and Quality of Education in Public Secondary Schools

1. State funding strategies you adopt for improvement of school infrastructure

   ……

   ……

2. Explain how your funding strategies enhance improvement of secondary school infrastructure

   ……

   ……

3. How have facility funding strategies influenced quality of education in your secondary school?

……

……

Section E: School Management Facility Supervision Strategies and Quality of Education in Public Secondary Schools

1. Explain how often you supervise infrastructural improvement in your school

……

2. Explain how your strategies for supervision enhance improvement of school infrastructure

……

……

3. What is the influence of facility supervision strategies on quality of education in your secondary school?

……

……

Section F: School Management Facility Evaluation Strategies and Quality of Education in Public Secondary Schools

1. Explain how often you evaluate infrastructural improvements in your school

……

2. Explain how your evaluation strategies enhance improvement of school infrastructure

……

3. How have facility evaluation strategies influenced quality of education in your secondary school?

   ……

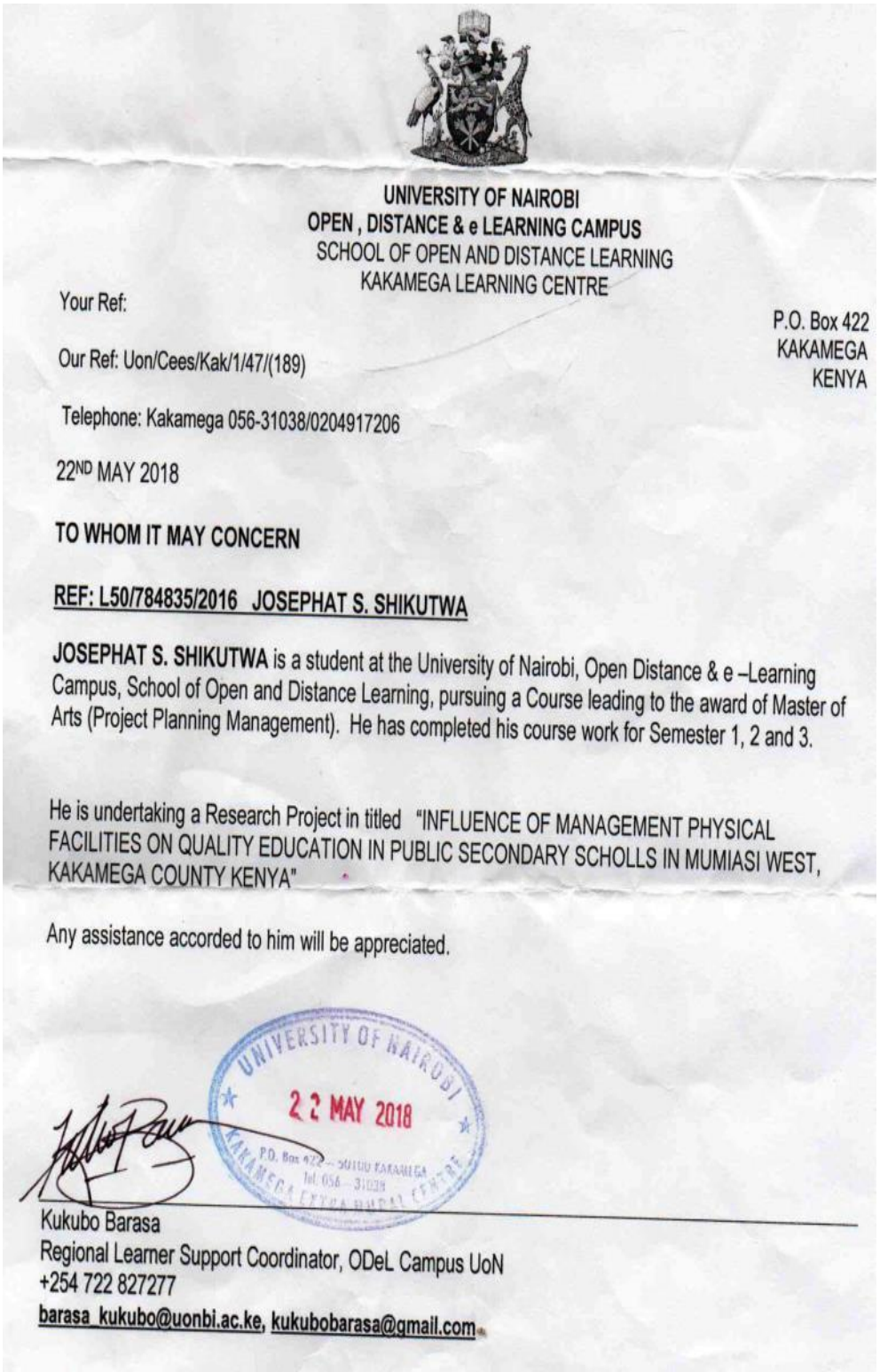
   ……

   Thanks,

   Josephat Shikutwa

APPENDIX IV

INTRODUCTION LETTER FROM THE GRADUATE SCHOOL OF THE UNIVERSITY OF NAIROBI



UNIVERSITY OF NAIROBI
OPEN , DISTANCE & e LEARNING CAMPUS
SCHOOL OF OPEN AND DISTANCE LEARNING
KAKAMEGA LEARNING CENTRE

Your Ref:

P.O. Box 422
KAKAMEGA
KENYA

Our Ref: Uon/Cees/Kak/1/47/(189)

Telephone: Kakamega 056-31038/0204917206

22ND MAY 2018

TO WHOM IT MAY CONCERN

REF: L50/784835/2016 JOSEPHAT S. SHIKUTWA

JOSEPHAT S. SHIKUTWA is a student at the University of Nairobi, Open Distance & e –Learning Campus, School of Open and Distance Learning, pursuing a Course leading to the award of Master of Arts (Project Planning Management). He has completed his course work for Semester 1, 2 and 3.

He is undertaking a Research Project in titled "INFLUENCE OF MANAGEMENT PHYSICAL FACILITIES ON QUALITY EDUCATION IN PUBLIC SECONDARY SCHOLLS IN MUMIASI WEST, KAKAMEGA COUNTY KENYA"

Any assistance accorded to him will be appreciated.

UNIVERSITY OF NAIROBI
22 MAY 2018
P.O. Box 422 – 50100 KAKAMEGA
Tel. 056 – 31038
KAKAMEGA LEARNING CENTRE

Kukubo Barasa
Regional Learner Support Coordinator, ODeL Campus UoN
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APPENDIX V

THE MAP OF MUMIAS WEST CONSTITUENCY

Source: Independent Electoral and Boundaries Commission (2012)