

**MANAGEMENT OF PHYSICAL AND INSTRUCTIONAL
RESOURCES: ITS INFLUENCE ON STUDENTS'
ACADEMIC PERFORMANCE IN NANDI EAST
SUB-COUNTY PUBLIC SECONDARY
SCHOOLS, KENYA**

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Educational Administration

Keter Benjamin Saina

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APPROVAL SHEET

This thesis entitled *Management of physical and instructional resources: Its influence on students' academic performance in Nandi East Sub-county public secondary schools, Kenya*, written and submitted by **Benjamin Saina Keter** in partial fulfillment of the requirements for the degree of Master of Education in Educational Administration, is hereby accepted and approved.

Dr. Catherine Amimo

Date

Prof. Jesse Role

Date

Accepted in partial fulfilment of the requirements for the degree of Master of Education in Educational Administration.

Dr. Daniel Allida
School Dean

Date

Prof. Elizabeth Role
Director of Graduate Studies and Research

Date

ABSTRACT

This study sought to establish the influence of the status, utilization and management of physical and instructional resources on the academic performance of students in Public Secondary Schools in Nandi East Sub- County. The study was conducted in six Public Day Secondary Schools. Purposive sampling was used to identify the respondents. Systems Theory and Resource Based Theory guided the study. The research instruments included questionnaires, interviews and observation. Data was analyzed by use of descriptive (Frequencies, Means and Standard Deviations) and inferential statistics (Analysis of variance- ANOVA and Kruskal-Wallis). The findings showed that the schools did not have adequate physical and instructional resources and what was available was not put to maximum use; management of the resources was not in compliance with the standards set by the Ministry of Education Science and Technology, especially the preventive and emergency maintenance. There was significant difference in the use and management of physical and instructional resources classified among the fair performing, poor performing and the very poor performing schools. In all the cases the p value 0.00 was less than the set Alpha ($p < 0.05$). The study recommends that the schools should invest more in physical and instructional resources; improve the extent of use of the physical and instructional resources particularly, laboratory equipment, playground, first Aid kit, library; models, maps, computers, charts, text books; and manage the physical and instructional resources according to standards set by the Ministry of Education Science and Technology.

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DEDICATION

This work is dedicated to my wife Mary Chepkurui, our children Eunice Cherop and Amos Kiprono for their support, patience and perseverance during my study period.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA- Analysis of Variance

C.D.F – Constituency Development Fund

K.C.S.E – Kenya Certificate of Secondary Education

KNEC – Kenya National Examination Council

MOEST- Ministry of Education Science and Technology.

NACOSTI- National Commission for Science Technologies and Innovation

CHAPTER ONE

INTRODUCTION

Background of the Study

Physical and instructional resources in secondary schools play a key role in realization of academic performance. This has made most governments in the world to invest more funds in the schools' infrastructure. However, the utilization and management of these resources is becoming a major concern, especially when the promise of better performance is not realized (Savasci & Tomul, 2013). Some research has been carried out to establish the influence of resources on academic performance; particularly the way they are managed - in terms of utility, indoor air quality, temperature and humidity, lighting, building age quality and aesthetics, acoustics, class size and the environment. By and large the results indicate a positive correlation between academic performance and utilization of the physical and instructional resources. It is also evident that many schools are lacking in these resources (Schneider, 2002; Lyonns, 2002; Yator, 2010; Owoeye, 2011).

Student's population is always increasing and this leads to the need for more facilities such as: classrooms, science laboratories and computer rooms, instructional materials like text books, charts, graph papers, computers and projectors (Lyons, 2012). In cases where this has not been put into consideration, students from lower social-economic backgrounds suffer the most. In Turkey it is reported that students' social economic background status has implications on academic performance when instructional resources are taken into account. Provision of instructional resources and physical facilities at school ensures equal uptake of the curriculum, thus providing

equal opportunities for students who come from different social economic background (Savasci & Tomul, 2013).

In the United States of America a lot of funds are allocated to schools physical and instructional resources such as classrooms, laboratories, libraries, administration book stores, dining halls, staffrooms, playgrounds (Educational facilities, 2010). Uko (2015) who carried out a study on school resources in Nigeria observed that the responsibility of the principal in the management of educational facilities entails bringing the concerned people together to form a group which will control, coordinate and monitor the utilization of the school resources. The group ensures that both human and material resources allocated to education by the government are used properly by the students, in pursuit of academic performance to achieve their desired goals. The school, headed by the principal must develop or coordinate a supportive system which will equip the teachers with all the necessary skills to properly manage the available facilities.

In a research on the utilization of physical and instructional resources in secondary schools in Nigeria, Owoeye (2011) found out that when used and managed effectively, resources contribute to learning and student's ability to think critically. These facilities include buildings and instructional resources such as books, computers, chalk boards, chairs, tables and projectors; just to list a few. He further noted that poorly maintained classrooms, those with leaking roofs, missing window panes and potholes on the floors, always distort the student's concentration during instruction or while having their own studies. In cases where laboratories were ill equipped, students' performance was compromised.

In Kenya, secondary school education is becoming unstable because of the strain on the physical and instructional resources. The situation deteriorated with the

introduction of the policy on free day secondary school. It was found out that facilities were not proportional to the increased number of learners which was in the ratio of 58:1 instead of the standard ratio of 40:1 (Bakar, Likoko, & Ndinyo. 2013). This is what is happening in most Sub County Day schools. These schools do not have enough facilities to cope with the over whelming students' population (Ndinyo,2007 citing MOEST, 2005).

According to Nkanata (2013), management of resources in secondary schools rests on planning, acquisition, allocating, distribution and controlling. He observed that materials to be used need to be identified first and there after assessment of the quality in terms of need and standards. He continues to say that principals should ensure that all physical facilities in the school are available and well maintained. Such facilities are: classrooms, laboratories, libraries, staffrooms, stores, dining halls and sanitation facilities. The principal sees to it that repairs are done to the existing facilities and ensures that new ones are in place whenever need arises.

The Ministry of Education Science and Technology in Kenya observed that student textbook ratios are usually very low and especially in the rural areas and in town slums school. This made the Government to come up with a policy of providing tuition money to schools for them to purchase the instructional resources on yearly basis in order to bring the student book ratio to 1:1 (The Ministry of Education Science and Technology, 2005). Okumbe (2001) points out that principals should maintain physical facilities by ensuring that classes, laboratories, offices, dining halls are in good condition and always clean.

Statement of the Problem

Physical and instructional resources play a significant role in a student's academic performance. Schools in Nandi County are not well equipped with these

resources. There have been attempts to solve this problem through the Constituency Development Fund (CDF), but no follow up has been done to establish the current status of the management of these physical and instructional resources that some of these schools claimed to have invested in. The utilization of these resources is also in question because if they were used effectively, the schools would already be realizing better performance (Nandi East, 2017). Studies that have investigated poor performance of schools have mainly focused on students' and teachers' attitudes, management of school environment (Sugut, 2016) leaving a gap in the understanding of the extent to which the management of physical and instructional resources influence academic performance. It is also appalling that some schools equipped with enough resources still post poor results in Kenya Certificate of Secondary Education. Could this be attributed to the underutilization and mismanagement of the resources?

This study sought to establish the status, utilization, and management of physical and instructional resources and the extent to which the utilization and management of physical and instructional resources influence the performance of students in Nandi East Sub-County public secondary schools.

Research Questions

The research sought to answer the following questions:

1. What is the status of physical and instructional resources in sub- county secondary schools in Nandi East?
2. To what extent do teachers and students use the physical and instructional resources available in their schools?
3. Are the physical and instructional resources managed according to set standards by the Ministry of Education Science and Technology?

4. Is there a significant difference between a) use and b) management of physical and instructional resources among fair performing, low performing and very poor performing Secondary Schools?

Hypothesis

The following null hypothesis was tested in this study:

HO: There is no significant difference between a) the extent of management and b) use of physical and instructional resources in Secondary Schools classified according to fair performing, low performing and very poor performing.

Significance of the Study

The findings of the study were aimed at contributing to the following:

1. Administrators, among them the principal, would gain information on effective management of the physical and instructional resources in terms of their acquisition, status, use and maintenance in order to enhance students' academic performance.
2. The teachers would be sensitized on instructional benefits of particular resources and their uses
3. The students will benefit after utilizing the available resources and getting the best resources that are well managed for their better performance.
4. County Government would be sensitized on areas of instructional and physical resources where the CDF funds could be allocated for better performance of students.

Justification of the Study

The researcher was interested to carry out this research because physical and instructional resources play a major role in academic performance of students as supported by Yator (2010). Sensitizing administrators, teachers and students on proper management of the physical and instructional resources is a major priority if we are to achieve equity in the uptake of the curriculum and provide equal opportunities for students who have come from different social economic backgrounds (Okumbe, 2001). Unless the management, teachers and students were sensitized on the management and use of resources, we would end up with resources that are not properly used in school. There were resources that were not used and managed properly according to the set standards. There was need to establish the status, the utilization, and the management of the physical and instructional resources in schools in Nandi East Secondary Schools because other related research done was on management of school environment which included physical and cognitive (Sugut, 2016) leaving a gap on the use of physical and instructional resources.

Theoretical Framework

The school is a system as it involves students who are raw materials, teachers, support staff who prepare students to come out of schools as final products ready for the next level of education with the principal as a manager for the system. The study was based on the Systems Theory (Bertalanffy, 1968). System Theory focuses on the interaction between component parts of a system and its external environment. Coherent interaction within the parts and the external environment contributes to unity in such a way that intended final product is realized. In an institutional system the parts include tangible facilities like the buildings, instructional resources such as computers, stationary and human resource both teachers and students. Davidson

(1983) posits that in a system, a set of elements interact and exchange material, energy, and information with the environment by way of adjusting and contributing to that environment as cited by Bush and Boyd (1999). In a secondary school situation, this can be shown by a paradigm on how the interaction takes place between the teachers, learners and the facilities.

In support of the above explanation, Mutungwa (2014) also concurs that for a system to achieve its objectives, a set of things have to interact within its environment to form a larger pattern that is different from any of the parts. This research was based on the Systems Theory because in a school system the administration, teachers, and learners do interact among themselves and with the instructional and physical resources to realize good academic performance. Teachers use the facilities both physical and instructional while teaching and implementing curriculum. Students also use the same facilities with teachers in order to enhance their performance. These facilities require acquisition, constant maintenance and management in order to be readily available for use by teachers and students.

This study also adopted Resource Based Theory (Grant, 2017) as a support of the System theory. This theory regards an organization as a set of resources which need to be managed to deliver competitive advantage. Within the frame work of this theory, the manager's role is to optimize the utilization of resources focusing on the capabilities that would bring the most economic benefit to the organization. The resource based Theory is founded on the premise that an institution's unique resources and capabilities provide the basis for strategy that allows the organization to exploit its' core resources in response to market demands.

Conceptual Framework

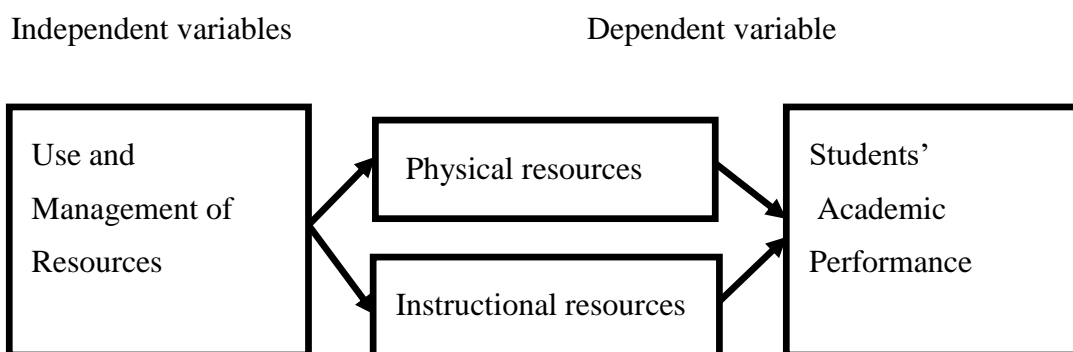


Figure 1. Conceptual framework.

The above conceptual framework is a mind picture of the variables in the study. The use and management of resources has an effect on academic performance of the students in secondary schools. The academic performance of the students depends on how physical and instructional resources are managed (Sugut, 2016). The independent variables in this study are the use and management of physical and instructional resources, while the dependent variable is students' academic performance. The physical resources that constitute to the input of this study are; offices, classrooms, laboratories, and libraries, kitchen, dining hall, playground, latrines and school gate. Instructional resources constitute a variety of media (projected and non-projected) and devices (hard and soft ware). These facilities are enablers of teaching and learning which translate into the production of better results in academic performance (Adeboyeje, 2000) cited by Asiyai and Romina (2012).

Scope of the Study

The scope of the study refers to the area to the parameter of the study. The variables considered in the study were management of physical and instructional resources, and the students' performance. The instruments used were questionnaires, observation check lists and interview schedule. The research was carried out in Sub-County Day Secondary Schools in Nandi East Sub-County. According to the Nandi

East Sub County Director of Education statistics (2016), there were twenty Mixed Public Day Secondary Schools in the Sub-County. All the twenty schools were targeted. The students, teachers, Deputy Principals, Principals, and non-teaching staff were the respondents.

Definition of Terms

The words that will be explained here are those that are not familiar to the readers across the world and are relevant in this research. Each word will be defined separately as follows:

Academic Performance – is the result attained at the end of the four year course in the fare performance, poor performance and very poor performance secondary school by learners after learning based on instructional resources.

Facilities - These are buildings, rooms and instructional materials used in class by students in a secondary school.

Fair Performing Schools- These are schools with a Kenya Certificate of Secondary Education Examination mean score of 5 out of 12.

Influence- It is the effect caused on academic performance either positive or negative on the physical and instructional resources are managed.

Instructional resources- These are materials used in class to facilitate learning and are used by both teachers and learners. They include printed materials such as books, charts, maps, models and boards.

Management- It is the control and operation of the school in order to realize good result at the end. It is also the process of controlling the school resources in order to perform in academics.

Nandi East – it is a sub- county in Nandi County formally known as District and it has 30 secondary schools in which 22 are day secondary schools. It is the region of study where the research is being carried out.

Physical resources- These refers to the buildings like classrooms, laboratories, libraries, latrines, administration block and staffroom, gate, kitchen, stores and dining halls.

Poor performing Schools - These are schools with a K.C.S.E mean score of 4 out of 12.

Set Standards -These are guidelines given by the Ministry of Public Works Kenya on construction of school buildings.

Standards -These are the specifications given by the government on measurements to be used in the construction of physical resources in order to construct rooms that can accommodate 40 to 45 students and specifications for special rooms like laboratories and libraries.

Status- Is the availability of physical and instructional resources in the school and in a condition that can be used by students and staff.

Utilization- is the optimum use of the existing physical and instructional resources by the students and staff.

Very Poor Performing Schools- These are schools with a K.C.S.E mean score of 3 and below out of 12.

CHAPTER TWO

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter deals with review of literature that is related to the topic and was to assist the researcher get information from past research that can help in giving direction to this study. The sources of literature include research journals, books, and internet materials. The following subtopics are discussed; types and status of physical and instructional resources, the need for facilities, use and management of physical and instructional resources and Planning and implications on performance.

Types and Status of Instructional and Physical Resources

Instructional Resources

Instructional resources are objects or devices which help the teacher to clarify the lesson (Ikirionwu, 2010). They are concrete and physical objects which provide sound, visual or both to the sense organs during teaching (Agina, 2005). These instructional resources comprise text books, charts, maps, projectors, laptops, exercise books, chalkboard and chalks. Textbooks are the mostly used instructional resources in any secondary school in the world because this is where the content of the subject being taught is found. Charts and maps play a key role in aiding the learner to conceptualize the skill being learned. Projectors and laptops are of great importance in that they display items in three dimensions while exercise books and chalkboards are where notes are recorded.

On the other hand, instructional devices comprise of the wide range of educational media and technology which include visual aids which provide children

with various experiences and make learning more stimulating, meaningful and well internalized. The devices can be acquired by purchasing or through donations. The instructional devices are available in various types such as objects and specimens, models and mockups (globes, dolls), dioramas, pictures (drawings, sketches, illustrations, photographs, paintings, posters, graphs, charts and diagrams), maps, flash cards, cartoons, comic strips, chalk boards, bulletin boards and sand table tack boards, and magnet board (Educational Facilities Manual, 2010).

Modern technology has created another variety of instructional resources in form of hard ware and software approved from the traditional printed materials in forms of books. Hard ware forms include slide projectors, film strip projector, tape recorder, radio, television, video machine, CD, VCD, DVD player, computer set and LCD projector; while soft way include slide, film strips, movies cameras, minidisk, memory stick, tape recording video tapes/CD/ VCD/DVD and computer program (Educational facilities manual, 2010).

Equipment

By definition from Education Facilities Manual (2010), equipment is a fixed or a non-consumable property that is essential in a school plant which include tools, utensils, apparatus, teaching aids, furnishings, instruments, machines and other similar property that are needed for the success of curricular and co-curricular; and administrative functions and processes (Lyons, 2001). According to Educational facilities manual (2010) other facilities such as storage and display facilities such as book cases, cupboards, cabinets, shelves and racks, science apparatus, play equipment, office equipment, and mathematics equipment/gadgets are essential for instruction.

The Physical Resources

The Physical resources include the grounds, the buildings and all that are within the grounds and inside the school buildings (Macalino, 2014). According to Lemasters (2014) the infrastructure and instructional resources play a great role in the academic performance of students. The facilities that are needed are classrooms, offices, laboratories, libraries, staffrooms, laboratories, kitchen, gates, playgrounds and latrines. As observed by Mwiria (2004) and (Githinji, 2000) many schools in Kenya are not equipped with adequate physical and instructional resources mentioned above.

In the Philippines, educational facilities are assets that are of value to the school, which are to be given priority while procuring, developing, keeping records and accounting. They consist of buildings and other facilities that provide major support system of the school to enhance student's maximum performance in terms of skills talents, and become God fearing people and good citizens of a given country. The properties of a school range from the grounds, the buildings, fields for games and sports. It also includes school furniture and equipment (Educational Facilities manual 2010).

Blagogerich (2006) posited that for a successful teaching and learning to take place, buildings must be clean and quiet soft and comfortable, they should be properly maintained because students, staff and administrators are affected by physical environment, which comprise of the material resources, physical facilities, and human resources (Akungu, 2014). As observed by Adeboyeje (2000) cited by Asiyai and Romina (2012), the school facilities are the special enablers of teaching and learning, which translates into the production of better results. He enlists these resources as the blocks of classrooms, laboratories, workshops, latrines, equipment,

consumables, electricity, water, visual and audio-visual aids, tables, tables, chairs, playground, storages and toilets.

Institutions need more physical facilities which include grounds, buildings and equipment. Such buildings include offices, classrooms, staffrooms, staff houses, laboratories, workshops, student's dormitories, dining halls, sanitations, principal's offices and departmental offices such as guidance and counseling. Ndinyo (2007, citing MOEST, 2005) indicate that classrooms are overcrowded with student's ratio of 51:1 against the required size of 40:1. For educational facilities to be used effectively there has to be adequate provision of the essential facilities. In the United States of America, facilities are accessed in different ways; some are accessed through lease, others through rent and others through purchase of existing facilities New School Venture (Fund, 2008).

Product service

One of the product services is the kitchen and dining hall. These are where meals and snacks are taken by students. Catering is important to students and may be linked to learning because schools have a role in the provision of meals and snacks as regards to the health of students. There is a strong consistent evidence for the effect of basic physical variables like air quality, temperature and noise on hearing (Greany, 2005).

Classrooms

Earthman (2004) cited by Greany (2005) indicates that temperature, heating and air quality are the most important elements for students' achievement, and thus the importance of ventilations in a classroom has to be emphasized so that learners do not get affected during learning by getting drowsy and sleepy (Roseu&Richardson,1999). The classroom should be quiet because noise disrupts

learning. It causes annoyance or raised blood pressure (Cohen et al, 1980; cited by Greany 2005). A classroom therefore should be an environment liked by all and it should be a room that attracts all. For the classroom, day lighting is the best because it offers positive effects (Earth, 2008). Inappropriate lighting will cause headaches, eye strains and fatigue. Karpen (1993) suggests the use of non-glairing tubes and screens in class and equipment like computers.

The class room should be painted with bright colors because such colors attract individual's attention (Camgoz et al., 2003). Newly designed furniture away from the traditional chair and table improve learners' behavior based on student's height (Molenetal2003). Storage is another facility of a great concern in a secondary school because this is where accessible tools are used and later returned after use. Style of display of books and other resources will make the students frequent the storage facility because it will be welcoming to them (Dudek, 2000).

Laboratories

From Educational Facilities manual (2010) the laboratory is a special space necessary to meet the present and future standards and demands for modern technology. The laboratory should therefore have tables and chairs together with proper electric wiring and outlets, windows, doors and rooms for apparatus. It should also have a good water system and cabinets for keeping apparatus to be accessed by learners.

Library

The library is another facility that should be designed to accommodate 10% of the students' enrolment and its total area should not be less than a standard classroom. It is an innovative project aimed at uniting the school community with a reading culture such that learners will develop love and habit of reading. In the U S A, schools

are encouraged to have at least one library hub (Educational Facilities manual, 2010).

The manual continues to outline the main features in a library which are;

Shelves, furniture, plastic bins, at least two computers and an administrative office.

Playground

Educational facilities manual (2010) indicates that physical education activities requires a safe place where the activity will take place and this area is the playground which has to be determined by standard dimensions with about six square meters of space per student. It should be located in a safe place free of debris and broken glasses or any object that might hurt the students while they are playing. Cemented areas must not be slippery. The ground should slope slightly from the center towards the sides for good drainage. It should have short grass with the necessary equipment; for example, goal posts. It should also allow for the elliptical circles marked for athletics of 400 meters track. It should also allow for the soccer football field measuring 90-120 long by 45-90 meters wide.

School Gate

The Educational Facilities Manual (2010) continues to elaborate more on the facilities by adding the importance of a school gate- which shall have an entrance gate and service gate which should swing inside the direction of the school property or within the school property. This gate should serve both the students and school personnel for exit. It should be located and not only for visual effect, but for safety. The service gate should swing outside the direction of the school property for emergencies in case of fire. Pointed sharp tops which could be dangerous to students should be avoided. A recommended drive way for vehicles is welcomed and well-marked showing car park. Whistles for the watchmen are small items that cannot be over looked.

School Fence

Another important facility according to Educational Facilities Manual (2010) is the school fence, which should be strong and built around the school site to secure the school against the straying animals and against the villagers. Life fence can be planted safe for the front part and be trimmed to a certain convenient height for beauty. There is also the flag pole which should occupy a permanent place in front of the main building. We also have the sign board written in a language that is understandable by many or in the official language. The letters should be big enough to be read by all.

Sanitary Facilities

The Educational Facilities Manual (2010) continues to add there should be sanitary facilities such as latrines and drainage canal - wide enough, covered with man hole for safety. Sanitation septic tank must be located at least two meters away from any source of water supply to avoid contamination.

School Furniture and Equipment

Apart from the buildings and the fixed facilities that once put up may not brake or be consumed, there are small facilities that have to be procured, but take a shorter period of time like say two to five years and they lose their effectiveness and efficiency; and thus require replacement. Such are furniture which is design to give comfort and beauty for our students. Much of these handmade components have been made to facilitate learning (Educational Facilities manual, 2010). Since comfort is essential for the facilitation of learning and teaching performance, all school furniture shall be designed to suit the body movement of the users (Lyons, 2001). Uko (2001) categorizes school equipment are in the following order: administrative facilities

which include filing cabinets, typing machines, duplicating machines, photocopying machines and telephones among others.

Teaching equipment which include: projectors, cameras, monitors and laptops. Games on the other hand have sports equipment, boots, football, tennis balls, jerseys and rackets. General service equipment will include grass mowers, grass cutters, catering, first aid kit, fire extinguishers, sanitary, water supply, refuse disposal, catering services and health care delivery services; garbage cans. Toilet paper, shovels, hoes, disinfectants, and. Fittings - small accessories that are standardized and form parts of a building such as electrical switches and convenient door knobs and hinges.

Need for the Facilities

According to Asiabaka (2008), facilities are materials required to be used for a specific purpose. In the school system there are various facilities that facilitate teaching and learning. These facilities are used to illustrate concepts while teaching in class for the learners to understand. They are also used to provide firsthand information and experiences. They are used by teachers to carry out demonstrations and experiments both in classroom situation and laboratory room. Such facilities will allow the learners and teachers to do scientific investigations and discovery. They are also used in diversity of thoughts and design. At the end of it all, facilities should protect the individual and also provide comfort.

Facilities such as offices, cafeteria, acoustics toilets, laundry, mowers, residential rooms, cleaning materials ground and similar items satisfy individuals physical and emotional needs (Asiabaka, 2008). These will translate to the increase in instructional effectiveness by the teacher; especially if they improve the general school outlook in terms of cleanliness and orderliness- which eventually reduces the

operational cost and life cycle of the building. A survey by the National centre for educational statistics, found out that existing facilities in public schools in the U.S.A have either permanent or portable on site buildings.

The portables are temporary. A survey by National Center for Educational Statistics revealed that about 99% of the schools had permanent buildings and 31% had temporary buildings (National Centre for Educational Statistics (2012)- citing Alexander & Lewis, 2014). Lyons (2001) points out his concern on how the physical conditions and the general outlook of the facility shape the learners experience. He observes that today's parents may find little time to experience the physical conditions of their children's schools because during parents-teachers days they concentrate more on the child's learning achievement and progress and not the school physical and learning resources. News about this environment only appears in the media.

Akomolafe and Adesua (2016) do explain that physical facilities such as the building do not only protect the students from rain, sun's heat, and cold and wind or cold, play an important role in providing space for seats , laboratory and internet facilities which will enhance the learners motivation to learn. It is therefore necessary to put up such facilities in district schools through funding from the state (Ralstone, 2003) cited by McGowen, 2001). According to DC report on facilities in secondary schools in the United State of America and United Kingdom, there should comfortable furniture in the classroom. There are different arrangements that can be made in the classroom environment to serve different purposes so that learning can take place well, thus a classroom should not be rigid in terms of furniture arrangement. A more flexible arrangement helps to save time for learning. A classroom makes students and teachers to own space and equipment. The physical

elements in classroom exist in order to improve comfort, wellbeing, and attitude and eventually improve achievement.

Administrative Facilities

Educational facilities manual (2010) continues to say that the aim of administrative office is to serve. Thus it has to be planned well in order to be easily accessible by all that is students, teachers, subordinate staff, parents and visitors. The model should comprise of receiving area, working area of the staff, supply store room, board rooms, teachers' rooms, production room, toilers and bath. Its formative and equipment should be well arranged to achieve maximum efficiency.

The School Environment

Lyons (2002) highlights the importance of clean school environment His study shows that students studying in a classroom that is well ventilated and had a well-designed adjustable skylight that diffused daylight throughout the room had reduced glee, improved learning as compared to students in more traditional classrooms. Lyons' study revealed that there is a relationship between the physical characteristics of a school building and educational outcomes. Classrooms should be cleaned and arranged in order all the time. The desks, tables and lockers and instructional tools and equipment like computers books magazines should be used properly and well displayed.

Use and Management of Facilities

According to the Education Facilities Manual (2010), there are extra uses of the ground and educational facilities that can have effect on students' learning. Such activities must be approved by the government agent through the principal. Examples are holding civil service examinations in the school, conducting literacy classes, poling activities like national, local and county elections and registrations of

voters. Religious services conducted in school that are beneficial to students may be allowed. Civic and educational activities on community program, schools may act as evaluation centers in the case of calamities.

As indicated in the Educational Bureau report on the government of Hong Kong special administrative region, there should be policies on the use of school resources (Effective use of Resources in Schools 2013). The student and the staff should join hands together in order to implement the made policies in order to use resources effectively and avoid wastage; For instance, for economy of paper, one should print on both sides, minimize photocopies, reuse envelopes, communicate within and without school through E-mail and encourage students to keep their old exercise books for recycling instead of burning (environmental campaign committees- <http://www.ecc.org.hk>).

For economic use of electricity lighting, there is a recommendation on the use of florescent tubes which are more efficient than traditional lamp tubes; it also helps to modify group lighting switches to individual switches. On air conditioning, keep windows and doors closed when air conditioners are running to minimize air infiltration. Conserve water by shutting off taps properly after use. Switch on computers, projectors while only on use (Effective use of resources in schools, 2013; file //d. / proposal effective use of resources teaching and learning).

Management and Maintenance of Physical and Instructional Resources

Management and Maintenance

According to Sapre (2002), management is a set of activities which are geared towards effective and efficient use or utilization of school facilities so that one can achieve the objectives of the school and its goals in the school. Glater (1979) on the

other hand gives a different definition that factors management as the interaction of the Principal with the governing bodies and the school community. Bush (1999) argues that educational management has to be concerned with the aims of education. It is therefore necessary to bring in levels of planning, acquiring, Installing and maintenance of facilities as part of management to realize the aims of education.

As observed by Wango (2009) organizational goals are progressively achieved by organizing, staffing, directing, coordinating, reporting, and budgeting.

Management involves effective delegation of duties and responsibilities. According to MacMillan English dictionary for advance learners (2007), management is the control of business or organization including the heart of effective communication. It is the process of controlling or managing something. The effective management of school facilities has shifted from the administrative principal ship, managerial perspective to that of instructional leadership; where the principal acts as a leader in all areas of school curriculum, imparting and enforcing on the intellectual and emotional development of teachers. The Principal makes the instructional climate of the school suitable by affecting and transforming the attitude of learners and teachers. The democratic approach works best (Okumbe, 2006; Hargreaves, Ear, Moore, & Minning, 2011).

The principal plays a supervisory role in the management of school resources. Okumbe (2004) posits that, supervision is an administrative activity whose strategy is to stimulate instructional effectiveness. It is therefore necessary to have major supervisory activities monitored in the management of facilities in the school. Unfortunately, Research indicates that school administrators have little or no training concerning techniques that are associated with ascertaining and maintaining school facilities - in areas that focus on issues such as safety, plant maintenance and school

cite. Teachers are usually posted direct from college to school and later appointed to administrative positions (Keith 1991). It is therefore important for teacher education curriculum to address facilities management or planning issues (Lane et al, 2003). In Finland, Building Information Modeling (BIM) has been introduced to assist the Principals in the management of facilities (Korpela et al., 2015).

Facilities Management and Maintenance

Facilities management and maintenance is the process of managing and guiding the acquisition, the use, and the disposal of real estate facilities in order to obtain maximum service delivery and also manage risks and costs over the life time of these facilities (Furld, 2008). Asiabaka (2008) categorizes maintenance into three areas; preventive, routine, emergency repairs and predictive maintenance. Preventive maintenance is carried out on school facilities to avoid breakdown and ensure optimal performance of the facility. It saves cost and time. Routine maintenance on the other hand is that kind of maintenance which is carried out periodically example after three months one year five years depending on the agreed time in the plan.

Emergency repair is where urgent measures or steps are taken where a facility breaks down and does not have to wait for collective decision making because of limited time. In some instances, the breakage may cause a total over haul of facility if emergency maintenance is not taken. Lastly is the predictive maintenance is where the use of computers software is employed to predict equipment failure based on age over demands or performance.

According to Educational facilities manual (2010) and Uko (2015) it is the responsibility of the school head to undertake the maintenance and minor repair of the school buildings. This requires expertise, commitment and routine checks by the school head. As observed by Musihau (2010), the major problem in schools is

insufficient routine maintenance. The untidy walls, leaking roofs, overgrown compound attest to this. Facilities tend to wear out and depreciate as soon as they are put into use. In reference to Nigeria, (Asiabaka 2008) observed that several school buildings stay for many years without renovation. As Adeboyeje (2002) advises it is necessary to have a routine maintenance through repairs and maintenance in order to increase performance and durability and avoid wastage, breakages and the shutting down of services.

The facility maintenance should always put into consideration routine repair. Repairs can be in two classifications; minor and major repairs Minor repairs entail the replacement of components that cost less than ten percent (10%) of the cost of the standard unit; for example, replacement of windows, doors and partitions. Minor repairs will keep building in fit condition for use without alterations of its capacity it only add value as an asset. Major repair entails the replacement of school building components which are usually subjected to greater loads. The estimated cost for this is 10% and above of the total cost of the unit such as roof, frames, posts, wall set which when done will extend the useful life of the building (Educational Facilities Manual(2010).

Since facilities are at the center of interest in the management style of the principal and his team in the institution, Uko (2001) advises that it is necessary for the Principal to set required objectives for supervision of facility usage; formulate plans for procurement and ensure actual management and supervision of the available facilities such as the buildings, grounds, flower gardens, pavements, paths, assembly ground, play grounds and its surroundings.

For the maintenance and management of these facilities the school manager who is the principal has to provide janitorial services which include maintaining clean

facilities which has to be done immediately and regularly. Lane (2000) emphasizes that repair and maintenance work has to be done in time (regularly)-major and minor. Minor repairs have to be done on regular basis so that efficiency and effectiveness is maintained. This will help the school not to deter its programs in terms of time and breaking of planned exams, tests and practical lessons that use facilities such as projectors and laptops.

The Principal has to put in place safety programs and security measures so that no harm is done to the machines and the learners when the machines, buildings are in use. The learner's safety is also emphasized by making the learners aware of safety while using or operating a machine. When students feel that they are working in a safe environment, their morale in learning and studying will go up and thus performance will be good.

Rehabilitation, Renovation and Restoration of Facilities

Sometimes the facility is affected by natural calamities like floods, hurricanes or earthquakes. This may require some input to bring it back to its original conditions which may require a total overhaul of the whole building; this is called rehabilitation (Educational Facilities Manual, 2010). Renovation means making the school building look or appear new again. The old buildings are improved in aesthetics, utility and value to restore their original conditions (Educational facilities manual, 2010). Other areas that can be looked into in maintenance of school facilities are alterations or remodeling which involves total changes in its architectural design structure. For example changes in the roof structure or modifying its exterior walls.

The existing spaces and facilities can also be updated or moderated to enhance their utility; examples- audio visual aids, slides, films, radio recording and television or the installation of computer based circuits T.V, language laboratories to conform

with information technology (Educational facilities manual, 2010). In addition there should be a satisfactory system for getting repairs done. The principal should arrange for someone among the members of the support staff to ensure that such repairs are done effectively. Where technical skills in repair is required like in the case of photocopying machines, laptops and computers, a consultant firm can be engaged for routine work (Farrant, 2008). Lowler (2001) advises that to avoid losing out in this new competitive business world, Principals must take the initiative to improve the quality of school facilities by lowering the cost of maintenance - making sure the equipment are maintained as stipulated by the manufacturer.

Health Problems

Management of facilities also requires consideration of health issues; especially in the selection of the materials used. For example, using asbestos on roofs predisposes students to health problems especially when they use rain water tapped from the roof; the same applies to water tapped from painted iron sheets (Colgan 2003) cited by MC Gowen, 2007). The facilities like halls, play grounds, latrines should be away from the tuition area.

Hiring and Training of Staff

The support staff to be trained on how to maintain the school buildings ranging from classrooms, laboratories, administration bock, kitchen and latrines so that they can make sure that floors are kept clean on daily basis and routine maintenance under the supervision of the principal. This should not be done directly by the principal but by the Heads of Departments whom the principal has delegated the work to (Robert A. K 2010). Another area of importance in facility management is putting in place a checklist for all the facilities in school so that other areas are not neglected, forgotten or left aside. These may happen because most principals may not

create time or plan for facilities routine checking season. Sometime they lack management skills experience and knowledge about these facilities (Robert A. K 2010).

New systems approach on facilities management should be incorporated with lessons learned about facilities management and maintenance from their experiences on the ground. On facilities management and maintenance, it should be system preventive maintenance which will result in cost saving. The individuals who will have to implement the facilities management system in a school must be involved so that they will be more supportive of the new system and also incorporate them into the new system.

The Need for Effective Facility Management in Secondary Schools

Effective management of school facilities plays a great role in actualization of educational goals and satisfying the staff and students' physical and emotional needs. Asibaka (2008) emphasizes that physical needs are usually met by providing safe structures, adequate sanitary rooms, a balanced visual and warm environment with sufficient shelter for work and play. On the other hand, the emotional needs are met by creating a pleasant and attractive surrounding that is friendly and inspiring both in environment and atmosphere. For effective management of facilities, a careful well planned system of the buildings and paths used is needed to enhance smooth discharge of operations, movement and services within the school; hence an enhanced uptake of the curriculum.

Asibaka (2008) states that the provision and management of school facilities should reflect modern theories of learning which emphasize; students learning in real life situation of analyzing, synthesizing and evaluating information; involvement of the learner and community resources. The grounds should be easily accessible by

learners from every part of the school. The sport fields should be leveled before marking for particular games. Where there is some slope, the pitches should lie across the slope and not along the slope. The whole area should be hedged with a suitable plant to keep off unwanted animals or intruders. This edge should be attractive, effective and kept clean that is free from rubbish and litter.

Flower beds should provide a colorful attractive contribution to the appearance where learners and teachers will be motivated to stay in and enjoy the facility as they learn and teach or as they interact in the compound. The fields should be marked according to the standards of each game. Provide a few trees for shades for students to relax after a strenuous class work. The buildings should be kept clean not by just sweeping the floors but to include windows, doors, wall, ceilings, cupboards, and pictures. The charts and teaching aids must be clean and in the correct position. The aging walls should always be given attention by putting in place a routine that will guide painting in the school. Seats and lockers should be made to the right sizes and shape suitable for the learner. They should be portable to allow students move them from one place to another at their convenient during group discussions. The principal has to bear this in mind while ordering for these facilities (Farrant, 2008).

Storage is another physical facility that needs attention in a secondary because this is the place that all new resources pass through before being dispatched to the various departments. Stores therefore should be adequate not only for the teachers' equipment but for the learners also.

Planning for Essential School Facilities

According to (Educational Facilities Manual, 2010) administrative control over secondary school plants are exercised by the Principal who defines educational objectives and draws out a plan on how to meet the objectives. This includes further

defining the physical resources, construction of the school buildings, surveying and registering school sites. He/she oversees the maintenance, beautification, and sanitation of the education facilities of the school plan. He/she develops the school educational programs and school improvement plan, creates an environment in school that is conducive to teaching and learning and administers physical fiscal resources of the school.

The primary objective of the planning process is to design and construct facilities which will serve the needs of the learners in terms of maximization of use. Planning should be flexible and efficient. It should also meet the need of the students and teachers (Withthurn III, 2006). The principal must allocate time for planning in sufficient details to satisfy the requirement of teachers by identifying the objectives of the school and means by which they can be achieved. It involves the drawing out of plans on the acquisition, utilization and maintenance of educational resources He/she prioritizes what is to be acquired first, who will use it, and training on the usage.

Planning on Facilities for Ancillary Services

Ancillary services such as school health services support the success of a school program (Educational Facilities Manual, 2010). This facility should be located adjacent to the administrative blocks if possible. It should have space for first aid, treatment, waiting room, dressing room, and rest room for students who may be unwell. There should be a trained first aid teacher and a qualified nurse and if possible a visiting physician who conduct treatment and examination of the school students. The school health clinic should be furnished with the following facilities; Bed, weighing space, apparatus for measuring height thermometer, medical supplies stethoscope sink, standards office equipment (tables, chairs etc.) and first aid equipment among others.

Planning for Guidance and Counseling Facility

This is an administrative function that is very important in management and therefore requires a building or room. Educational facilities (2010) says that for the purpose of guidance and counseling program to continue well, a room should be set aside which will have separate enclosed spaces for conducting individual counseling and storage for individual records.

Maintaining School Records of Facilities

For the school facilities to be monitored well there has to be good system of recording that will enable the Head or the principal to have proper monitoring. The Educational Facilities Manual (2010) suggests that documents such as; school site ownerships, school site development plan, inventories of facilities, school furniture records, text books, instructional tools apparatus and equipment, record of school building repair, program of work, school building construction, receipts of payments for electrical, water telephone, records of establishment of school change of name of school, records of donated properties, file copy of memoranda regarding facilities should be properly kept. All records concerning accounting and inventory of school properties shall be maintained and updated by the principal through the accounts and property offices. For proper management of facilities during construction period, property, plant and equipment shall be classified and recorded as construction in progress. All the funds in a school are accounted for by the principal and therefore for proper management domestication in the proper books records must be shown clearly (Bishop 2000).

Financing Educational Facilities as Part of Management

Most of the financial support for schools comes from the government which disburses funds to schools every financial year. Though the department of education

after every budget in a financial year which include cost of keeping buildings, plant and equipment such as cleaning of equipment, painting and varnishing of buildings. (Educational Facility Manual, 2010).

Management of Physical and Instructional Resources and Academic Performance

According to Adeoye and Rapola (2011) learners must have access to necessary information on materials and resources for proper learning to take place; they must interact with tangible resources to ensure some level of performance. This is realized when there are enough reference materials such as textbooks, exercise books, teaching aids charts, the classroom itself and other supportive rooms like libraries and stores (Mutai, 2006). According to Fuller (1985) students who have used two or more textbooks were almost three times better in academic performance than those who have no textbooks (Karimi, 2011) on the other hand noted that effective school libraries provide additional reading opportunities for students which intern improve reading skills, comprehension and writing clarity of expression which will support students' academic performance in all subjects being done (Cohen, Rahudenbush and Ball 2003) affirms that it is not the availability of instructional and physical resources in school that matter but the management itself in ensuring that these resources are used by teachers and students to get academic content learned in order to improve performance,

Academic performance is the extent to which a student, teacher or institution has achieved their short term or long term educational goals. It is usually measured through examinations or continuous assessments. Adewumi (2000) corroborated Chandan's (1999) view, he revealed that the availability of adequate number of physical and facilities had significant influence on students' academic performance.

According to Adeyemi (2008) performance is a measure of educational output. It can be viewed as the extent to which an individual student can do a piece of work how well or poor he or she does the job within the learning process. Poor performance is performing below the required academic set standards and for the job to be done satisfactorily, physical resources and instructional resource must be available.

As observed by Sugut (2016) the measure of knowledge in formal education is usually indicated by examinations, grades, grade points, average and degrees, and the achievement level of the student is judged the marks that the student has scored in a term or in a year. Academic achievement is the outcome of education- the extent to which a teacher and an institution has achieved their educational goals.

Hallak (1990) cited by (Sugut, 2016) states that facilities form one of the potent factors that contribute to academic performance of students in a school system. Such facilities include school buildings, classrooms, libraries, laboratories, furniture, recreational equipment, apparatus and instructional materials. Citing Ajewole and Okebukola (2000), Sugut adds that a number of factors contribute to the students' poor academic performance. These factors may include: poor study habits and lack of school materials, poor school climate, indiscipline, inadequate facilities, teachers' ineffectiveness, teaching method and the type of learning environment available for both the students and the teachers.

Marzano (2003) accepts that a safe and orderly learning environment, in terms of resources, is critical to ensuring effective schools, and if schools do not pay attention to this factor they risk undermining all other efforts of school improvement. The focus is primarily on establishing rules and procedures, programmes that teaches self-discipline and responsibility to all students. All the above mentioned points are

ways in which management of resources in schools can affect performance positively or negatively.

Summary

The importance of Physical and Instructional Resources cannot be over emphasized in teaching and learning process because they are part and parcel of the teacher and students in their strive to achieve their goals in academic performance. From the review of related literature and studies, the status, use and management of these resources vary in various parts of the world. Most countries do not have enough of these facilities and management programs for the school manager's principal included or policies to guide them on the effective and efficient way to manage physical and instructional resources. This has resulted to disparities in academic performance of students in the same schools of the same categories. According to Cohen et al (2003) availability of Physical and Instructional Resources in a school does not matter but the use and utilization by the learners and teachers. This study was therefore necessary to investigate the status, use, maintenance and management of physical and instructional resources: influence on students' academic performance in Public Day Secondary Schools in Nandi East Sub- County Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the research methodology and uses the following format, design, targeted population, the sample and sampling techniques, research instruments, data, ethical consideration.

Research Design

This study used descriptive and causal-comparative design in order to investigate the status, use, management and influence of physical and instructional resources on academic performance of students. The descriptive research depicts people, situations, events and conditions as they currently exist. It is non experimental and it is qualitative or quantitative or a combination of the two. Causal-comparative research explores the influence of preexisting condition on a variable. It is more persuasive than correlation and non-experimental. It uses data from the people involved in a study and hypothesis is frequently used. The sources of information are physical settings, records, documents, objects, materials, and people directly involved. Additional sources are newspapers, photographs and people who posse's knowledge and were not directly involved (Role, 2015). The data obtained were the information gathered from students, teachers and principals from the selected schools. Data was based on the status, use and management of physical and instructional resources which were acquired from selected public day schools in Nandi East Sub County by use of research instrument. Data on students' K C S E performance from the year 2014 to 2017 were acquired from Sub County Education Director's office in Nandi East Sub County. The data that were collected were based on the use of facilities and instructional resources, the existence of these facilities, their condition and the care given in terms of management, McGowen (Gall, Burg & Gall, 1996 cited).

Population and Sampling Techniques

The population comprised students, teachers and the principals of the public day secondary schools in Nandi East Sub- County which has 16 public day schools. Out of the 16 day schools however 5 were new and had not sat for K C S E for the last four years which left 11 schools. Based on ranking, out of 11 schools 6 were picked: two schools with a mean grade of 5, two schools with a mean grade of 4 and two schools with a mean grade of 3. Form three students and all teachers were targeted in each of the schools visited. Form three students were targeted because they understand the school better than form one and form two students because of their seniority in years of stay and not an examination class like the form four students. The estimated form three students and teacher's population was about 300 and 54 respectively according single stream curriculum based establishment. Purposive sampling was used in the selection of the 6 schools. All the form 3 students represented the student population with teachers and principals of the selected schools included.

Sample Size

Sample size is a representative group selected from the population under study (Mbeche, 2004) cited by Bakari , Likoko & Ndinyo 2014). Out of 16 day schools, 11 schools were picked being those schools that had sat for K C S E for the last four years and based on ranking of schools, out of 11 schools 6 were picked. Two with a mean grade of 5, two with a mean grade of 4 and two with a mean grade of 3 with all form three students, with a student population of 300, 4 teachers and 6 principals being selected.

Research Instruments

Questionnaires, observation list and interview schedules were used as research instrument in this study. The questionnaire were prepared in such a way that both open ended and closed ended questions were used as a means of finding out the extent at which management of physical and instructional resources was being carried out in public day secondary schools in order to provide valid assessment of variables to be studied. It assisted in collection or gathering of the data required. Scaled items were developed in order to make work easy in the analysis of data and give accurate interpretation of the responses. It was done in table form. The open ended questions, gave respondents freedom to express their views without restriction hence the researcher tapped rich information that has not been influenced into a particular area.

The content of the questionnaire included:

1. Demographic information,
2. Status of the facilities both physical and instructional
3. Use of physical and instructional resources
4. Management of physical and instructional resources

Observation check list was used by the researcher to tick against the visible existing buildings, playground, books, and other instructional resources. Interview schedule was used as a guide to obtain information from the principals on areas that touched administration and management like procurement, control budgeting and planning.

Validity of Research Instruments

Validity is the accuracy, meaningfulness and the degree in which the result of the instrument will represent what it was being investigated in the study (Mugenda&Mugenda1999) cited by Githinji. The researcher consulted the

supervisors and a statistician at University of Eastern Africa, Baraton for validation and scrutiny of the research instruments. Both the supervisors and the statistician checked the likely hood that a question asked may be misinterpreted by respondents and lead to misleading responses from respondents, and that the observation schedules would help in determining the status, use and management of the resources. The validity of the instruments was again ascertained after the piloting of the instruments.

Reliability of Instrument

Reliability is the degree to which a particular measuring instrument is able to give similar results after several repetitions (Orodho2005). Before the collection of data for this study, the researcher carried out a pilot study in two public day secondary schools in Nandi central Sub County that were not included in the list of schools to be studied. The respondents were the principals of the schools, all teachers in each school and all the form three students from each of the two schools under pilot study. The number of respondents that participated were 2 principals, 15 teachers and 65 students.

The questionnaire was accompanied by an observation list carried out by the researcher in the two selected schools systematically. The observation was done in form three classrooms in order to check for the management status and standards. The reason for the piloting in these selected schools was to enable the researcher to detect if there was any problem with the research instruments. This helped the researcher take corrective measures on the unclear areas of the questionnaire, interview and the observation list.

The researcher employed Cronbach's Alpha coefficient 0.6 to determine the consistency of the instrument which was based on the scores derived from the individual's items in questionnaires. The reliability coefficient obtained for teachers'

questionnaire was 0.84 Cronbach's Alpha, and for the students' questionnaire was 0.79 Cronbach's Alpha, which were above 0.6- indicating that the instruments were reliable for the research study.

Data Gathering Procedures

The researcher obtained clearance letter from the research ethics committee (UAEB), after which the researcher then applied authority for conducting research in the National Commission for Science Technologies and Innovation (NACOSTI). The department chair was provided a copy of the letter after which the supervisors ascertained that the questionnaires were viable. The Director of Graduate Studies wrote a letter of request to the concerned authorities and the relevant offices in order to allow the researcher collect data in their areas of jurisdiction. The offices were: Nandi County, Nandi Central Sub –county and Nandi East Sub-County. The researcher visited the selected schools and sought for permission from the principals of these schools. The researcher introduced himself to the principal, and asked for permission to distribute the questionnaires, to the relevant groups, in schools, that is the students, teachers and the principal. Permission for filling the observation list was also sought for on that day which allowed the researcher to visit the rooms and fill in the appropriate spaces.

Interviews for the principals were carried out by the researcher in the principals' office

Statistical Treatment of Data

After collection of questionnaires from the field and coding them in the computer, the data was subjected to statistical treatment for better analysis and understanding. For research questions 1, 2 and 3, descriptive statistics such as frequencies, means and standard deviations were used. For research question

4ANOVA was used on students' responses because the sample size was large and Kruskal- Wallis for teachers' responses because the sample size was (less than 30) and there were three categories of schools which were compared based on ranking; fair performance, poor performance and very poor performance, with the first two at the top followed by the middle two and then the last two at the bottom of the list. The qualitative data was analyzed by content and reported in verbatim. It was triangulated with the quantitative data in order to help in the interpretations of the findings.

Ethical Considerations

Ethical consideration is where researchers need to protect their research participants, guard against misconduct that might reflect on their institution. The researcher sought for clearance from the Ministry of Education Science and Technology and Innovation and the University of Eastern Africa, Baraton Ethics Review Committee. The researcher also sought consent from the respondents and assured them that confidentiality and honesty was upheld by not requiring the respondents to write their names on the questionnaires and withholding school identities while reporting the research findings. The information gathered was only used for the purpose of the study. The data collected was locked up to protect them from unauthorized persons. The questions for the interviews were asked in nonintrusive manner and observations were done in areas permitted by the principal.

CHAPTER FOUR

PRESENTATION OF FINDINGS, ANALYSIS AND INTERPRETATION

This chapter is a discussion from the study. The data was collected from the fielded using questionnaires and interview schedules which the respondents answered. After the data was encoded in a Statistical Package for Social Science (SPSS), it was analyzed and interpreted statistically. The presentation of findings and discussion is in this order; the background information of teachers and the students, teachers and students responses on the availability of physical and instructional resources; teachers and students responses on the extent of use of available physical and instructional resources, teachers' and students' responses on the management of physical and instructional resources, comparison of extent of use of physical and instructional. From the results of the study, implications were given and discussed and major inferences were supported by the literature. The information from the observations and interviews were also triangulated to clarify the quantitative findings.

Demographic Profile of the Respondents

This section presents the demographic profile of teachers in terms of gender, age, educational qualification and years of service; and students in terms of gender.

Teachers' Background Information

Table 1 represents a description of teachers' background information in terms of gender. The data was collected using the questionnaire which the respondents answered. Considering the data distribution of teachers, 57.1% were male while 42.9% were female.

Table 1

Teachers' Gender

	Frequency	Percent	Valid Percent	Cumulative Frequency
Male	24	57.1	57.1	57.1
Female	18	42.9	42.9	100
Total	42	100	100	100

Table 2 presents a description of teacher's background in terms of age. From this table, teachers between the ages of 25-30 years were 29 while those between the ages of 31-36 years were 9 and those between the ages of 37-42 years were 4.

Table 2

Teacher's Age

	Frequency	Percent	Valid Percent
25 -30 years	29	69.0	69.0
31 -36 years	9	21.4	21.4
37 -42 years	4	9.6	9.6
Total	42	100.0	100.0

From table 3, teachers with diploma certificates were 10, those with Bachelor's degree were 30 and those with masters' degree were two.

Table 3

Teachers' Educational Qualification

	Frequency	Percent	Valid Percent
Diploma	10	23.8	23.8
Degree	30	71.4	71.4
Masters	2	4.8	4.8
Total	42	100.0	100.0

Table 4

Teachers' Years of Service

	Frequency	Percent	Valid Percentage
Below 5years	34	81.0	81.0
5-10 years	7	16.7	16.7
16-20 years	1	2.3	2.3
Total	42	100	100

The years of service as a teacher from table 4 shows that the years of service below 5 years as a teacher were 34, while those teachers who have served as a teacher for a period between 5 years and 10 years were 7 and the teachers who have served between 16 years and 20 years was 1.

Students' Background Information

Table 5

Students' Gender

	Frequency	Percent	Valid Percent
Male	119	53.1	53.1
Female	105	46.9	46.9
Total	224	100	100

Table 5 shows that on the side of students' respondents, 53% were male while 46.9 % were female.

Availability of Physical Resources

Research question 1.

What is the status of physical and instructional resources in sub-county secondary schools in Nandi East?

Table 6

<i>Teachers' Responses</i>					<i>Students Responses</i>			
	Available		Not available		Available		Not available	
	F.	%	F	.%	F	%	F	%
Classroom for students	41	97.6	1	2.4	222	99.1	2	.9
Laboratory Equipment	37	88.1	5	11.9	186	83.0	38	17.0
Library	15	35.7	27	64.3	60	28.8	164	73.3
Staffroom for teachers'	34	81	8	19	170	75.9	53	23.7
Latrines for teachers and students	37	81.1	5	11.9	186	83.0	38	17.0
Dining hall	10	23.8	32	76.2	43	19.2	181	80.8
Classroom Chairs	30	71.4	12	28.6	160	71.4	64	28.6
Lockers for students	33	78.6	9	21.4	176	78.6	48	21.4
Play ground	25	59.5	17	40.5	158	70.5	66	29.5
First aid kit	13	31.0	29	69.0	75	33.5	149	66.5

Note: F = Frequency
% = Percent

Table 6 indicates that classrooms for students were almost 100% available from both responses of teachers and students. Laboratory equipment followed with 88.1% and 83.0% from teachers and students. The rest were as follows: library 35.7 and 28.8, staff room 81.1 and 75.9, latrines for teachers and students 81.1 and 83.0, dining hall 23.8 and 19.2, classroom chairs 71.4 and 71.4, lockers for students 78.6 and 78.6, playground 59.5 and 70.5, first aid kits 30.1 and 33.5 from teachers and students respectively. It follows therefore that most schools in Nandi East Sub County lack of the essential physical resources. From the observations done, some schools shared the play field with neighboring primary schools, while there were separate latrines for boys and girls they were not adequate, and classroom chairs were broken. These findings confirm earlier research findings that after the introduction of free day secondary school the instructional facilities are no longer proportional to the increased number of student (Bakar, Likoko, & Ndinyo, 2013).

Instructional Resources

Teachers' and Students' Responses

Table 7

Availability of Instructional Resources

	Teachers' Responses				Students Responses			
	Available		Not available		Available		Not available	
	F.	%	F.	%	F.	%	F.	%
Course textbooks	39	92.9	3	7.1	156	69.6	68	30.4
Charts	22	52.4	20	47.6	110	49.1	112	50.0
Chalk boards	32	76.2	10	23.8	146	65.2	77	34.4
Maps	19	46.3	22	53.7	137	61.2	87	38.8
Computers for Students' use	12	28.6	30	71.4	52	23.2	171	76.3
Projectors	13	31.0	29	69	52	23.2	172	6.8
Laptops for teachers use	12	28.6	30	71.64	21	8.8	182	81.3
Models for Mathematics	27	64.3	15	35.7	93	41.5	131	58.5
Laboratory for apparatus	23	54.8	19	45.2	166	74.1	58	25.9
Library books	29	69.0	12	28.6	115	51.3	109	48.7
Chalks	29	69.0	13	31.0	150	67.3	73	32.6
Sports and games equipment	25	59.5	17	40.5	138	61.6	86	38.4

Note: F = Frequency
% = Percent

As indicated in Table 7 the most available instructional resources were course books (teachers= 92.9%; students= 69.6%), chalk boards (teachers= 76.2%; students= 65.2%) and chalks (teachers= 69.0%; students = students= 67.3%). There seemed to have been an improvement on course books after the government of Kenya came up with a policy to provide tuition money to schools to purchase text books to bring the student book ratio to 1:1 (The Ministry of Education Science and Technology, 2005), though it was observed that in some cases students still shared text books. Maps seemed to be more available to students than the teachers (students =61.2%; teachers= 46.3%), though during the observation it was noted that maps, charts, and models

were not displayed in most of the schools. The availability of laboratory apparatus for teacher was 54.8% and 74.1% for students, while sports and games equipment was 59.5% for teachers and 61.6 % for students. There were fewer projectors (teachers= 31.0%; students= 23.2%), computers (teachers= 28.6%; students= 23.8 %) and laptops (teachers= 28.6%; students 18.8%).During the interviews some of the heads said they did not have ICT programs.

Utilization of Available Resources

Research question 2.

To what extent do teachers and students use the physical and instructional resources available in their schools?

In order to determine the extent to which teachers and students use the physical and instructional resources, the respondents were asked to respond on the extent of use of available physical resources and the areas with low mean rating were considered to be insufficient in their use in school. The following scales were used to interpret the ratings of the respondents on each of the factors:

2.50 – 3.00 Always

1.50 – 2.49 Sometimes

1.00 – 1.49 Never

Teachers' Responses

Extent of Use of Available Physical Resources

There were ten items on the questionnaire for teachers and students on the extent of use of available physical resources that addressed this area of concern in the research.

Table 8

Extent of Use of Physical Resources

	N	Minimum	Maximum	Mean	Std. Deviation
Classrooms for students	41	2	3	2.66	.480
Laboratory equipment	37	1	3	2.27	.693
Library	15	1	3	2.13	.834
Staffroom for teachers	34	1	3	2.21	.770
Latrines for teachers and students	36	1	3	2.19	.822
Dining hall	9	1	3	2.00	.707
Classroom chairs	30	1	3	2.23	.728
Lockers for students	33	1	3	2.09	.843
Playground	25	1	3	2.08	.702
First aid kit	13	1	3	2.00	.707
Extent of Use of Available Physical Resources	42	1.50	3.00	2.2358	.83086

From the result presented in table 8, on the average, the teachers sometimes used the available physical resources with a mean of 2.24 and a standard deviation 0.33086 which shows that they were spread closely in their responses. The teachers' mean on the use of classrooms was 2.66, meaning that they always use the classrooms for teaching students. However, teachers only use the following resources sometimes; laboratory equipment (Mean= 2.27), Library (Mean=2.13), staffroom for teachers (Mean=2.21), latrines for teachers and students (Mean=2.19), dining hall (Mean=2.00), classroom chairs (Mean=2.23), lockers for students (Mean=2.09), playground (Mean=2.08), first aid kit (Mean=2.00). From the observation most schools lacked libraries, first aid kits and play grounds. Classroom chairs were broken and inadequate. According to Asiabaka (2008) facilities such as toilets, dining hall and offices satisfy individuals' physical and emotional needs; meaning that in this case the teacher's and students' physical and emotional needs were at stake. Further, Akomolafe and Adesua (2016) argue that physical facilities such as the building do

not only protect the students from rain, suns' heat, and cold and wind or cold, they play an important role in providing space for seats, laboratory and internet facilities which enhance the learners motivation to learn. It is therefore necessary to maximize the use of resources.

Extent of Use of Available Instructional Resources

Table 9

Use of Instructional Resources

	N	Minimum	Maximum	Mean	Std. Deviation
Course textbooks	39	1	3	2.54	.555
Charts	22	1	3	2.14	.640
Chalkboards	32	1	3	2.16	.847
Maps	20	1	3	1.70	.733
Computers for students' .use	12	1	3	2.00	.853
Projectors	13	1	3	1.77	.832
Laptops for teachers' use	12	1	3	2.17	.718
Models for mathematics	27	1	3	2.00	.784
.Laboratory apparatus	23	1	3	2.22	.736
Library books	30	1	3	2.03	.556
Chalks	28	1	3	2.21	.876
Sports and games equipment	25	1	3	2.04	.889
Extent of Use of Available Instructional Resources	42	1.25	2.75	2.1259	.34037

On the extent of use of available instructional resources in schools of Nandi East Sub County, going on item by item of the 10 items, course textbooks had a mean of 2.54 which shows that teachers always use this resource. However, the teachers only used the following instructional resources sometimes; charts (Mean= 2.14), chalkboards (Mean= 2.16), computers (Mean= 2.00), laptops (Mean= 2.17), models for Mathematics(Mean= 2.00), laboratory apparatus(Mean= 2.22) , library(Mean= 2.03), books(Mean= 2.21), chalks (Mean= 2.00), and sports equipment (Mean= 2.04),projectors (Mean= 1.77) and maps(Mean= 1.70. These findings are interesting because even though books were the most available resource, the teachers did not

always use them. In addition, the finding that teachers only used the maps sometimes, correspond with the finding that the maps were not readily available to the teachers as they were to students. On this note, there is advice that teachers and students should cooperate to use the available resources effectively (Effective use of Resources in schools, 2013).

Extent of Use of Physical Resources

Students' Responses

Table 10

Extent of Use of Available Physical Resources

	N	Minimum	Maximum	Mean	Std. Deviation
Classrooms for students	222	1	3	2.45	.727
Laboratory equipment	186	1	3	2.44	.712
Library	60	1	3	2.03	.823
Staffroom for teachers	171	1	3	2.61	.697
Latrines for teachers and students	186	1	3	2.56	.712
Dining hall	43	1	3	2.00	.845
Classroom chairs	160	1	3	2.72	.606
Lockers for students	176	1	3	2.55	.724
Playground	158	1	3	2.31	.821
First aid kit	75	1	3	2.12	.838
Extent of Use of Available Physical Resources	224	1.20	3.00	2.4163	.49481

As indicated in table 10 the four physical resources that were always used by the students were; classroom chairs (Mean= 2.72), the staffroom (Mean= 2.61), latrine for teachers and students (Mean= 2.56), and lockers for students (Mean= 2.55). The students indicated that they only use the following resources sometimes; classrooms (Mean= 2.45), laboratory equipment (Mean = 2.44), playground (Mean = 2.31), first aid kit (Mean=2.12), library (Mean=2.03), and dining hall (Mean =2.00). From these findings it is clear that resources such as the classroom, laboratory equipment, playground, first aid kit, the library and dining hall are underutilized by students.

Greany (2005) stresses that a classroom should be a place liked by all and also painted to attract the users. Educational facilities (2010) emphasizes the need for the playground to be free from debris, sharp objects and safe to be used during games

Table 11

Extent of Use of Available Instructional Resources

	N	Minimum	Maximum	Mean	Std. Deviation
Course textbooks	156	1	3	2.49	.758
Charts	112	1	3	2.38	.762
Chalkboards	147	1	3	2.61	.667
Maps	137	1	3	2.26	.816
Computers for students' use	53	1	3	1.60	.716
Projectors	52	1	3	1.50	.610
Laptops for teachers' use	42	1	3	1.79	.717
Models for mathematics	93	1	3	2.20	.815
Laboratory apparatus	165	1	3	2.39	.755
.Library books	115	1	3	2.27	.841
Chalks	151	1	3	2.56	.708
Sports and games 13.equipment	138	1	3	2.38	.786
Extent of Use of Available Instructional Resources	224	1.17	3.00	2.2573	.54031

Table 11 presents students responses on the use of instructional resources. Like the teachers, students reported that the chalk board (Mean= 2.61) and chalk (Mean= 2.56) were always used. Students sometimes used course text books with a mean of 2.49, laboratory apparatus (Mean=2.39), charts (Mean=2.38), sport and games equipment (Mean=2.38), library books (Mean=2.7), maps (Mean=2.26), models for mathematics (Mean=2.20), laptops for teachers use (Mean=1.79), computers for students use (Mean=1.60), and projectors (Mean=1.50). The findings

show that even though the course textbooks were available, they were not used adequately by the students. The findings also show that the students responses and teachers responses agreed on the use of the following instructional resources: charts, chalk boards, maps, laboratory apparatus, sports and games equipment, chalks, library books, models for mathematics, laptops for teachers use, computers for students and projectors where all showed that they were only used sometimes. Lyons (2002) observes that there is a relationship between use of instructional tools and equipment like computer, books, magazines and educational outcomes.

Management of Physical and Instructional Resources

Research question 3. Are the physical and instructional resources managed according to the set standards?

The following scales were to interpret the ratings of the respondents on each of the factors:

3.50 – 4.00 Agree

2.50 – 3.49 Tend to Agree

1.50 – 2.49 Tend to Disagree

1.00 – 1.49 Disagree

Teachers' Responses

Table 12

Management of Physical Resources

	N	Minimum	Maximum	Mean	Std. Deviation
The school has routine check for physical facilities	42	1	4	2.24	1.031
All equipment are serialized for accountability purpose	42	1	4	2.40	1.106
All equipment are coded bearing the school brand	42	1	4	2.14	1.026
There is a budget for maintenance, repairs, and improvement of physical and instructional resources	42	1	4	2.48	1.087
A regular inventory of all instructional resources is done.	42	1	4	2.12	.916
Broken chairs and lockers are replaced as soon as they are reported.	41	1	4	2.29	.955
Students maintain the cleanliness of the classrooms.	42	1	4	2.38	.987
The cleanliness of the school surroundings is maintained.	42	1	4	2.55	1.017
The principal and teachers ensure that all physical facilities including the toilets are kept clean.	41	1	4	2.41	1.095
The library is secured to avoid losses of books.	42	1	4	2.29	.970
The laboratory apparatus are kept in lockable cabinets	42	1	4	2.48	1.110
The charts, maps, models and other instructional resources are kept safely in a storeroom or in an office.	42	1	4	2.29	1.066
There is a personnel in-charge of taking care of the computers in the computer laboratory.	42	1	4	2.14	.952
There is a room where the games and sports equipment are kept safely.	42	1	4	2.00	1.012
There is a qualified personnel in-charge of assisting students with health problems	42	1	4	1.93	.973
The medicines in the first aid kit are readily available.	41	1	3	1.68	.756
The medicines are dispensed only by the personnel in-charge.	42	1	4	1.90	.850
Management of Physical and Instructional Resources	42	1.47	3.18	2.184	.41462

Table 12 presents the mean rating of the 17 items that relate to the management of physical resources according to the set standards. On the overall the teachers tend to disagree, with a general mean of 2.22, that the available physical resources were managed according to the set standards. Notably, it is only the school surroundings that received the highest maintenance with a mean of 2.55 of tend to agree. Students tended to disagree that the following resources were managed according to the set standards; laboratory apparatus kept in lockable cabinets (Mean= 2.48), there is a budget for maintenance, repairs, and improvement for physical and instructional resources (Mean=2.48); the principal and teachers ensure that all physical facilities including the toilets are clean (Mean=2.41), all equipment are serialized for accountability purpose (Mean=2.40), students maintain the cleanliness of the classrooms (Mean=2.38), library is secured to avoid loses of books (Mean= 2.29), broken chairs and lockers are replaced as soon as they are reported (Mean= 2.29), charts, maps, models and other instructional resources are kept safely (Mean= 2.29).

The students also tended to disagree that the school has a routine check for physical facilities (Mean= 2.24), all equipment are coded bearing the school brand (Mean= 2.14), there is a personnel to take care of computers (Mean= 2.14), regular inventory of all instructional resources is done (2.12), there is room in which games and sport equipment are kept safely (Mean= 2.00), there is a qualified personnel to assist students with health problems (Mean= 1.93), the medicine is only dispensed by the personnel in charge (Mean= 1.90), and the medicine in the first aid kit are readily available (Mean= 1.68). Looking at the whole table it shows that management of physical resources is not done to the set standards of the ministry of education. Asiabaka (2008) categorizes maintenance into three areas; preventive, routine,

emergency repairs, and predictive maintenance which should be followed in order to succeed in the management of schools. These findings show that the schools lagged in all the three areas of maintenance, but more so, the preventive and emergencies.

Even though the Principals said, during the interviews, that they carried out routine check and followed procurement act (2015), they did not seem to be consistent and confident about what they needed to do. Each principal had devised his/her own way of management. For example, some carried out routine check once a term, some yearly, while others said that they had not set a specific time for routine checks. When asked about if they follow the set standards of buildings by the Ministry of Education Science and Technology, some said that they could not follow the standards because the amount of money available for the buildings was never adequate.

Students' Responses

Table 13

Management of physical resources

	N	Minimum	Maximum	Mean	Std. Deviation
The school has routine check for physical facilities	224	1	4	2.63	1.195
All equipment are serialized for accountability purpose	224	1	4	2.21	1.101
All equipment are coded bearing the school brand	224	1	4	2.18	1.114
There is a budget for maintenance, repairs, and improvement of physical and instructional resources	224	1	4	2.67	1.193
A regular inventory of all instructional resources is done.	224	1	4	2.31	1.088
Broken chairs and lockers are replaced as soon as they are reported.	224	1	4	2.54	1.193
Students maintain the cleanliness of the classrooms.	223	1	4	3.01	1.137
The cleanliness of the school surroundings is maintained.	224	1	4	3.13	1.067
The principal and teachers ensure that all physical facilities including the toilets are kept clean.	224	1	4	3.13	1.047
The library is secured to avoid losses of books.	222	1	4	2.63	1.262
The laboratory apparatus are kept in lockable cabinets	223	1	4	2.87	1.163
The charts, maps, models and other instructional resources are kept safely in a storeroom or in an office.	224	1	4	2.64	1.186
There is a personnel in-charge of taking care of the computers in the computer laboratory.	222	1	4	2.35	1.118
There is a room where the games and sports equipment are kept safely.	223	1	4	2.19	1.132
There is a qualified personnel in-charge of assisting students with health problems	223	1	4	2.14	1.126
The medicines in the first aid kit are readily available.	224	1	4	1.97	1.028
The medicines are dispensed only by the personnel in-charge.	224	1	4	2.07	1.069
Management of Physical and Instructional Resources	224	1.18	3.75	2.5121	.48658

Table13 presents the mean ratings of the students on the seventeen items that show how the physical resources are managed and if according to the set standards.

Like the teachers, the students' tend to agree that the school surroundings are clean and maintained with the highest mean of 3.13. All physical facilities including toilets are kept clean which shows that student, teachers and the principal work together as a team in cleanliness of this area. This is followed by the students' maintenance of cleanliness of the classrooms with a mean of 3.01.

The laboratory apparatus are kept in lockable cabinets and is also rated higher than the average with mean of 2.87 which shows that laboratory equipment are given more attention than other physical facilities. There is a budget for maintenance, repairs and improvement of physical and instructional resources (Mean= 2.67), showing that the management of the schools are concerned with repairs, maintenance and improvement which students and teachers tend to agree. There are few with almost the same mean; these schools has routine check for physical facilities (Mean= 2.63), the library is secured to avoid loses of books(Mean= 2.64), the charts, maps models and other instructional resources (Mean= 2.63).The students also tend to agree that broken chairs and lockers are replaced whenever they are reported has a mean of 2.54

The part that seeks to know whether there is a personnel in charge of taking care of computers in the computer lab had a lower mean of 2.35 which is almost the same with mean for a regular inventory of all instructional resources with a mean of 2.31 which seems not to be given much attention, though is of great importance.

Though students tended to agree that the following resources were maintained by their schools, the mean ratings were much lower as follows; serialization of equipment for accountability purpose (Mean = 2.21), room for keeping games and sports equipment (Mean= 2.19), coding of equipment to bear school brand (Mean= 2.18), qualified personnel assisting students with health problems (Mean= 2.14), and

medicine in aid kit is readily available (Mean= 1.97). Management of medical personnel and kit seem to be a serious concern. However, looking at the overall mean of 2.51, it is evident that students tend to agree that the physical and institution resources are managed on the average.

Use of asbestos on roofs predisposes students to health problems especially when they use rain water tapped from the roof; the same applies to water tapped from painted iron sheets (Colgan, 2003) cited by McGowen, 2007). The support staff should be trained on how to maintain school buildings, keep floors clean on daily basis and carry out routine maintenance under the supervision of the principal (Robert, 2010).

Comparison of Extent of Use of Available Physical Resources

Research question 4.

Is there a significant difference in the extent of a) use and b) management of physical and instructional resources of secondary schools classified according to academic performance?

Teachers' Responses

This research questions was designed to test the null hypothesis which says there is no significant difference in the extent of a) use b) management of physical and instructional resources of secondary schools classified according to academic performance?

To find out whether there were significant differences in the use and management of physical and instructional resources in secondary school classified according to academic performance in Nandi East Sub County, Kruskal-Wallis was used. There were three categories of schools to be compared; fair performance, poor performance and very poor performance.

Table 14

Extent of Use of Available Physical Resources

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Fair Performance	13	2.2596	.24621	.06829	2.1108	2.4084	1.75	2.63
Poor Performance	16	2.2995	.35319	.08830	2.1113	2.4877	1.86	3.00
Very Poor Performance	13	2.1335	.37432	.10382	1.9073	2.3597	1.50	2.83
Total	42	2.2358	.33086	.05105	2.1327	2.3389	1.50	3.00

Table 14 shows descriptive part of the extent of use of available resources of the three categories of schools being fair performance, poor performance and very poor performance and their mean of 2.25, 2.30 and 2.13 respectively.

Table 15

Kruskal-Wallis Test

Ranks

	School performance category	N	Mean Rank
Extent of Use of Available Physical Resources	Fair Performance	13	23.62
	Poor Performance	16	22.72
	Very Poor Performance	13	17.88
	Total	42	

Table 15 presents the extend of use of available physical resources by the schools in three categories fair performance school category with a mean of 23.62, poor performance school category with a mean of 22.72 and very poor performance school category with a mean of 17.88 which is lower than the other two categories of fair performance and poor performance. From the above ranks it shows that there were significant differences on the use of available physical resources in the three

categories of schools. Asiabaka (2008) emphasizes that physical needs are usually meet by providing safe structures, safe sanitary rooms, a balanced visual and warm environment with sufficient shelter for work and play.

Students' Responses

Table 16

Descriptive

Extent of Use of Available Physical Resources

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Fair Performance	78	2.5634	.48706	.05515	2.4536	2.6732	1.20	3.00
Poor Performance	89	2.5755	.43403	.04601	2.4841	2.6669	1.20	3.00
Very Poor Performance	57	1.9664	.27621	.03659	1.8931	2.0397	1.50	2.50
Total	224	2.4163	.49481	.03306	2.3511	2.4814	1.20	3.00

Table 16 shows students' responses on the extent of use of available physical resources. Fair performance schools had a mean of 2.56, while poor performance schools had a mean of 2.57- in both schools students tended to agree on the use of the available physical resources. The very poor performance category of schools had a mean of 1.97 which shows that they tend to disagree with the extent of use of the available physical resources.

Table 17

Test of Homogeneity of Variances

Extent of Use of Available Physical Resources

Statistic	df1	df2	Sig.	
Levene	11.182	2	221	.000

Table 17 shows the tests on the homogeneity of variances on the extent of use of available physical resources which yields results of p. value 0.00 which is less than significance level of 0.05; which rejects the null hypothesis, and accepts the position that there was a significant difference in the extent of use of available resources.

Table 18

ANOVA

Extent of Use of Available Physical Resources

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	15.482	2	7.741	43.736	.000
Within Groups	39.116	221	.177		
Total	54.599	223			

The table shows extend of use of available physical resources between groups and within groups with a p. value of 0.00 which is less than the significant level of 0.05. This shows that there is a significant difference in the use of available physical resources between groups.

Post Hoc Tests

Multiple Comparisons

Table 19

Dependent Variable: Extent of Use of Available Physical Resources

Games-Howell

(I) School performance category	(J) School performance category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Fair Performance	Poor Performance	-.01205	.07182	.985	-.1820	.1579
	Very Poor Performance	.59706*	.06618	.000	.4401	.7540
Poor Performance	Fair Performance	.01205	.07182	.985	-.1579	.1820
	Very Poor Performance	.60911*	.05878	.000	.4699	.7483
Very Poor Performance	Fair Performance	-.59706*	.06618	.000	-.7540	-.4401
	Poor Performance	-.60911*	.05878	.000	-.7483	-.4699

Table 19 shows multiple comparisons of school performance per given categories. These are fair performance, poor performance and very poor performance. To understand further on the significance of the performance of the categories of schools multiple comparisons is done to obtain clear picture on the use of available physical resources. Fair performance and very poor performance schools yielded a p. value of 0.00 which is less than the significance level of 0.05 thus it shows that there is significant difference. Comparing the poor performance and the very poor performance categories of schools, it yields results of p. value of 0.00 which is less than the significance level of 0.05 which also shows that there is a significant difference.

When we compare the very poor performance and fair performance and the poor performance they both yield a p. value of 0.00 which is less than the significance value of 0.05 thus we reject the null hypothesis and accept that there is significant difference between the very poor performance, fair performance and the poor performance categories of schools. When their mean difference is compared, it shows that the fair performance and the very poor performance have a difference of 0.597 which is higher than the mean difference between the fair performance and the poor performance which is -0.012. It also shows that the mean difference between the poor performance and the very poor performance is 0.609 which shows that there is a significant difference between the three categories of schools.

Adeoye and Rapola (2011) support this by saying that learners must have access to necessary information on materials and resources for proper learning to take place; they must interact with tangible resources to ensure some level of performance. Thus materials like textbooks, exercise books, teaching aids and charts, the classroom, and libraries must be enough for better performance (Mutai, 2006).

Comparison of Extent of Use of Available Instructional Resources

Teachers' Responses

Table 20

Extent of Use of Available Instructional Resources

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Fair Performance	13	2.0743	.36443	.10107	1.8541	2.2946	1.50	2.75
Poor Performance	16	2.1841	.39248	.09812	1.9749	2.3932	1.25	2.67
Very Poor Performance	13	2.1059	.25030	.06942	1.9546	2.2571	1.63	2.50
Total	42	2.1259	.34037	.05252	2.0198	2.2320	1.25	2.75

Table 20 presents the extent of use of available instructional resources compared on fair performances with a mean of 2.07, poor performances with a mean of 2.18 and very poor performance with a mean of 2.13. Their means are close to one another.

Table 21

Test Statistics^{a,b}

	Extent of Use of Available Physical Resources
Chi-Square	1.693
Df	2
Asymp. Sig.	.429

a. Kruskal Wallis Test

b. Grouping Variable: School performance category

Students' Responses

From table 21 the Chi-Square shows that there is a difference of 2 between the groups of schools which tells that schools have significant difference on the extent of use of available physical resources.

Kruskal-Wallis Test

Table 22

Ranks on The Extent of Use of Available Instructional Resources

	School performance category	N	Mean Rank
Extent of Use of Available Instructional Resources	Fair Performance	13	19.96
	Poor Performance	16	23.53
	Very Poor Performance	13	20.54
	Total	42	

Table 22 shows the ranks on Kruskal-Wallis Test on school performance categories on the extent of use of available instructional resources starting with fair performance with a rank of 19.96 and very poor performance with a rank of 20.54. The fair performance school category was ranked 19.96 which was higher than the poor performance school and the very poor performance school thus giving some significant difference.

Students' Responses

Table 23

Extent of Use of Available Instructional Resources

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Fair Performance	78	2.3364	.57621	.06524	2.2065	2.4664	1.20	3.00
Poor Performance	89	2.4571	.45707	.04845	2.3608	2.5533	1.20	3.00
Very Poor Performance	57	1.8372	.35487	.04700	1.7430	1.9313	1.17	2.67
Total	224	2.2573	.54031	.03610	2.1862	2.3285	1.17	3.00

Table 23 shows extent of use of available instructional resources on the fair performance schools. There were 78 students with mean of 2.33 which shows that they tend to disagree while the poor performance had 88 students responding with a mean of 2.46 which they tend to disagree. The very poor performance had a mean of 1.84 which means they tend to disagree.

Table 24

Test of Homogeneity of Variances

Extent of Use of Available Instructional Resources

Levene Statistic	df1	df2	Sig.
16.660	2	221	.000

Table 24 shows the test of homogeneity of variances on the extent of use of available instructional resources on Levene statistics that yields a *p*-value of 0.00 which is less than significance level of 0.05 which shows that there is a significant of use of available instructional resources

Table 25

ANOVA

Extent of Use of Available Instructional Resources

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	14.101	2	7.050	30.551	.000
Within Groups	51.001	221	.231		
Total	65.102	223			

Table 25 shows the ANOVA on extent of use of instructional resources between groups and within groups which yielded a *p* value of 0.00 less than the significant level of 0.05. Thus there is significance on the use of the available instructional resources between groups. Since the mean for very poor performance was 1.84 lower than that of poor performance of 2.45 and fair performance of 2.33 it

shows that there is some differences in the use of available instructional resources. Since ANOVA results yielded a p. value of 0.00, which is less than the significance level of 0.05, and then there is a significance difference in the use of available instructional resources on the fair performance, poor performance and very poor performance. So the null hypothesis is rejected. This implies that the use of available resources in schools was not to the desired degree by the students. As it was discovered through the interviews of the principals, most of the available materials were not always used because the personnel in charge had no skills and if they had the skills, the resources were not enough.

Table 26

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Extent of Use of Available Instructional Resources

Games-Howell

(I) School performance category	(J) School performance category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Fair Performance	Poor Performance	-.12062	.08126	.301	-.3130	.0718
	Very Poor Performance	.49927*	.08041	.000	.3086	.6899
Poor Performance	Fair Performance	.12062	.08126	.301	-.0718	.3130
	Very Poor Performance	.61988*	.06750	.000	.4600	.7798
Very Poor Performance	Fair Performance	-.49927*	.08041	.000	-.6899	-.3086
	Poor Performance	-.61988*	.06750	.000	-.7798	-.4600

*. The mean difference is significant at the 0.05 level.

In order to get more information on significant differences among groups, a multiple comparison analysis was done as shown in table 26. When the fair performance and very poor performance were compared for difference, the results yielded p. value of 0.00 which is less than significant level of 0.05. This implies that there is a significant difference in the use of available resource in fair performance and very poor performance similarly when poor performance and very poor

performance were compared for differences; ANOVAs' results yielded a p. value of 0.00 which is less than the significance level of 0.05. This, once more, shows that there is significant difference in the use of available resources by poor performing schools and very poor performing schools.

When very poor performing schools and fair performance and poor performance were compared, the ANOVA's results yielded a p. value of 0.00 which is less than significance level of 0.05. This also shows that there is significant difference in the use of available resources by the very poor performing schools, fair performing school and poor performing schools. This finding shows that there is need to focus on the extent of use of available resources in very poor performing schools. The mean for very poor performance school category was 1.84 which was far much below the other two categories which were both above a mean of 2.3. It shows that each school is employing its own way of using its available resources. There should be policies on the use of school resources in order for schools to be at par in performance (Effective use of resources in schools 2013).

Comparison of Management of Physical and Instructional Resources Teachers' Responses

Table 27

Management of Physical and Instructional Resources

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval		Minimum	Maximum
					for Mean			
					Lower Bound	Upper Bound		
Fair Performance	13	2.0127	.38331	.10631	1.7811	2.2444	1.47	2.76
Poor Performance	16	2.3072	.44330	.11083	2.0710	2.5434	1.56	3.06
Very Poor Performance	13	2.3148	.35830	.09937	2.0982	2.5313	1.82	3.18
Total	42	2.2184	.41462	.06398	2.0892	2.3476	1.47	3.18

Table 27 shows teachers responses on the management of physical and instructional resources of the given categories of schools that of fair performance with a mean of 2.01, Poor Performance with a mean of 2.31 and that of Very Poor Performance with a mean of 2.22. This shows some slight differences but not far from one another which is evident from the standard deviations of 0.38, 0.44 and 0.35 respectively.

Table 28

Test Statistics^{a,b}

	Extent of Use of Available Instructional Resources
Chi-Square	.728
Df	2
Asymp. Sig.	.695

a. Kruskal Wallis Test

b. Grouping Variable: School performance category

Table 28 on the extent of use of available instructional resources with a mean difference of two indicates that there is a difference among the grouped schools.

Table 29

Kruskal-Wallis Test

Ranks on Management of Physical and Instructional Resources

	School performance category	N	Mean Rank
Management of Physical and Instructional Resources	Fair Performance	13	15.50
	Poor Performance	16	24.19
	Very Poor Performance	13	24.19
	Total	42	

Table 29 presents Kruskal –Wallis Test on school performances category on management of physical and instructional resources. Fair performance category had a

mean rank of 15.50; poor performance category had a mean rank of 24.19 while very poor performance category had a mean rank of 24.19.

Students' Responses

Table 30

Management of Physical and Instructional Resources

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Fair Performance	78	2.6478	.41187	.04663	2.5550	2.7407	2.00	3.59
Poor Performance	89	2.6140	.55536	.05887	2.4970	2.7310	1.18	3.75
Very Poor Performance	57	2.1672	.24827	.03288	2.1013	2.2331	1.71	2.82
Total	224	2.5121	.48658	.03251	2.4480	2.5761	1.18	3.75

Table 30 presents management of physical and instructional resources on fair performance with a mean of 2.65, poor performance with a mean of 2.61 and very poor performance with a mean of 2.51. Their mean decreases from fair to the very poor.

Test of Homogeneity of Variances

Table 31

Management of Physical and

Instructional Resources

Levene Statistic	df1	df2	Sig.
21.131	2	221	.000

Table 31 presents the test of homogeneity of variance of 0.00 which yields results of p. value of 0.00 significance of which is less than that of significance level. This shows that there is a significant relationship on the management of physical and instructional resources.

Table 32

Management of Physical and Instructional Resources

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	9.142	2	4.571	23.140	.000
Within Groups	43.655	221	.198		
Total	52.797	223			

The table presents management of physical and instructional resources on the comparison between groups and within groups, and ANOVA yields the result of p -value of 0.00; significance which is less than 0.05 - the significance level. This rejects the null hypothesis and therefore accepts that there is significant difference in the management of school physical and instructional resources.

Post Hoc Tests

Table 33

Multiple Comparisons

Dependent Variable: Management of Physical and Instructional Resources

Games-Howell

(I) School performance category	(J) School performance category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Fair Performance	Poor Performance	.03386	.07510	.894	-.1438	.2115
	Very Poor Performance	.48065*	.05706	.000	.3453	.6160
Poor Performance	Fair Performance	-.03386	.07510	.894	-.2115	.1438
	Very Poor Performance	.44679*	.06743	.000	.2869	.6066
Very Poor Performance	Fair Performance	-.48065*	.05706	.000	-.6160	-.3453
	Poor Performance	-.44679*	.06743	.000	-.6066	-.2869

*. The mean difference is significant at the 0.05 level.

In order to understand more on the significance differences among the groups a multiple comparison analysis was done and shown in table 33 where the comparison of the fair performance and the poor performance was done. The results yielded a p -

value of 0.00 which is less than the significance level of 0.05. This implies that there are significant differences in the management of available physical and instructional resources. Similarly, when poor performance and the very poor performance school categories was done, it yielded a p. value of 0.00 which is less than significant level of 0.05, which also implies that there is a significant difference in the management of available physical resources in the poor performance and the very poor performance categories of schools in performance.

When the very poor performance and Fair performance categories of schools was done, it also yielded a p. value of 0.00 which is less than the significance level of 0.05 thus implying that there is a significant difference in the management of resources in the very poor performance and fair performance categories of schools in their academic performance.

It was also discovered from the interviews with the principals that the management of the available resources depends on the availability because the schools that had fewer available physical and instructional resources required a lot of improvisation in order to apply the management skills. There are some management skills that cannot be used when the resources are not available, for example maintenance, planning and number of times they can be used.

Since facilities are the center of interest in the management style of the principal and his team in the institution, Uko (2001) advises that it is necessary for the principal to set required objectives for supervision of facility usage; formulate plans for procurement and ensure actual management and supervision of available facilities such as buildings, grounds, flower gardens, pavements, paths, playground and its surroundings.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents an overall summary of the study, major findings, conclusions, recommendations and suggestions for further study. The chapter is therefore divided into four main sections which include the general summary, the summary of the findings, conclusions and suggestions for further study.

Summary

The general purpose of this study was to find out the influence of the management of physical and instructional resources on students' academic performance in public secondary schools in Nandi East sub county Kenya. The independent variables were physical resources, instructional resources and resource management, while the dependent variable was students' academic performance. The study was based on theoretical framework of Systems Theory (Bertalanffy, 1968) and the Resource Based on Theory (Grant, 2017).

The study employed descriptive and causal comparative research designs. The main instrument for collecting data was questionnaires, observation lists and interviews. The interviews were administered to Principals only. The data were collected from 224 students and 42 teachers. The data was then analyzed using descriptive statistics, Kruskal-Wallis and analysis of variance (ANOVA) because there were three categories of schools to be compared.

Summary of the Findings

The major findings of this study were related to the four research questions dealt with in this study.

1. Apart from course textbooks and classrooms, there is inadequate supply of important physical and instructional resources in Nandi East Sub County secondary schools, particularly dining halls.
2. On the extent of use of the available physical and instructional resources, both teachers and students tended to disagree that the available resources had been used properly. The physical resources that were always used by students included classroom chairs, the lockers, the staffroom and latrines; teachers always used the classrooms. Both teachers and students sometimes used the laboratory equipment, playground, first Aid kit, the library and the dining hall. The instructional resources which were always used were chalkboard, chalks and textbooks, while maps, mathematical models, laptops, computers, projectors, and charts were only used sometimes.
3. The physical and instructional resources were not managed according to the standards set by the Ministry of Education Science and Technology, especially coding of equipment, inventory, computer personnel, and health resources.
4. There was significant difference in a) the use and b) management of physical and instructional resources classified among the fair performing, poor performing and the very poor performing schools.

Conclusions

The findings of the study generated the following conclusions:

1. There is inadequate supply of physical and instructional resources in public day secondary schools in Nandi East Sub-County.
2. The public secondary schools in Nandi East Sub County have not adequately utilized the available physical and instructional resources.

3. The management of the physical and instructional resources does not meet the standards set by the Ministry of Education Science and Technology.
4. Schools which utilize and manage the physical and instructional resources well, have better academic performance than those which do not.

Recommendations

The following recommendation were drawn from the finding of this study

1. The Principals in collaboration with the County Government should work on a plan on how to increase the physical and instructional resources to at least over 95% in the public secondary schools.
2. Teachers and students should maximize the use of the available physical and instructional resources, particularly laboratory equipment, playground, first Aid kit, library and the dining hall; maps, mathematical models, laptops, computers, projectors, and charts. text books, library, and computer.
3. The School Principals, in collaboration with teachers, should come up with school policies which ensure that the physical and instructional resources are managed according to the standards set by The Ministry of Education, Science and Technology.
4. The Ministry of Education, Science and Technology should carry out an audit on the utilization and management of physical and instructional resources in all schools to solve the current problem of existing disparities in academic performance.

Suggestions for Further Study

The researcher would like to recommend that:

1. A similar study is done that would cover boarding schools in the Nandi East Sub County Kenya to see if the same findings will be realized.
2. Another study to be done on schools which are well equipped with physical and instructional resources.

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APPENDIX A

STUDENTS QUESTIONNAIRE

Background information

The following are questions that helped the researcher to gather information that will assist in the study of 'Influence of management of physical and instructional resources on academic performance in secondary schools'. Please tick against each question appropriately.

Male () Female ()

Form One () Two () Three () Four ()

Section 2 - Availability and use of physical and instructional resources

The following questions concern the availability and use of physical facilities and instructional resources in your school.

Tick if the resource is available or not (Column A), if the resource is available, circle the number that corresponds to the frequency of use (Column B).

Part A. PHYSICAL RESOURCES

Table 77

	PHYSICAL RESOURCES	A. AVAILABILITY		B. FREQUENCY OF USE		
		Available	Not Available	ALWAYS	SOMETIMES	NEVER
1	Classrooms for students			3	2	1
2	Laboratory equipment			3	2	1
3	Library			3	2	1
4	Staffroom for teachers			3	2	1
5	Latrines for teachers and students			3	2	1
6	Dining hall			3	2	1
7	Classroom chairs			3	2	1
8	Lockers for students			3	2	1
9	Playground			3	2	1
10	First aid kit			3	2	1

Part b. INSTRUCTIONAL RESOURCES

Table 78

	INSTRUCTIONAL RESOURCES	AVAILABILITY		FREQUENCY OF USE		
		Available	Not Available	ALWAYS	SOMETIME S	NEVER R
1	Course textbooks			3	2	1
2	Charts			3	2	1
3	Chalkboards			3	2	1
4	Maps			3	2	1
5	Computers for students' use			3	2	1
6	Projectors			3	2	1
7	Laptops for teachers' use			3	2	1
8	Models for mathematics			3	2	1
9	Laboratory apparatus			3	2	1
10	Library books			3	2	1
11	Chalks			3	2	1
12	Sports and games equipment			3	2	1

Section 3. Management of Physical and Instructional Resources

The following questions concern management of physical and instructional resources. Please circle the number corresponding to the degree of your agreement or disagreement to the statements using the following scale:

1=Disagree (D) 2=Tend to Disagree (TD) 3= Tend to Agree(TA) 4=Agree (A)

	THE MANAGEMENT OF PHYSICAL AND INSTRUCTIONAL RESOURCES	D	TD	T A	A
1	The school has routine check for physical facilities	1	2	3	4
2	All equipment are serialized for accountability purpose	1	2	3	4
3	All equipment are coded bearing the school brand	1	2	3	4
5	There is a budget for maintenance, repairs, and improvement of physical and instructional resources	1	2	3	4
6	A regular inventory of all instructional resources is done.	1	2	3	4
7	Broken chairs and lockers are replaced as soon as they are reported.	1	2	3	4
8	Students maintain the cleanliness of the classrooms.	1	2	3	4
9	The cleanliness of the school surroundings is maintained.	1	2	3	4
10	The principal and teachers ensure that all physical facilities including the toilets are kept clean.	1	2	3	4
11	The library is secured to avoid losses of books.	1	2	3	4
12	The laboratory apparatus are kept in lockable cabinets	1	2	3	4
13	The charts, maps, models and other instructional resources are kept safely in a storeroom or in an office.	1	2	3	4
14	There is a personnel in-charge of taking care of the computers in the computer laboratory.	1	2	3	4
15	There is a room where the games and sports equipment are kept safely.	1	2	3	4
16	There is a qualified personnel in-charge of assisting students with health problems	1	2	3	4
17	The medicines in the first aid kit are readily available.	1	2	3	4
18	The medicines are dispensed only by the personnel in-charge.	1	2	3	4

TEACHERS' QUESTIONNAIRE

Section 1 - Background information.

Tick appropriately:

Gender: Male () Female ()

Age: 25-30 () 31-36 () 37-42 () Above 43 ()

Qualifications: Diploma () Bachelor's () Master's () Any other ()

Years of service as a teacher:

Bellow 5 years () 5-10 () 11-15 () 16-20 () Above 20 ()

Section 2 - Availability and use of physical and instructional resources

The following questions concern the availability and use of physical facilities and instructional resources in your school.

Tick if the resource is available or not (Column A). If the resource is available, circle the number that corresponds to the frequency of use (Column B).

Part a. PHYSICAL RESOURCES

	PHYSICAL RESOURCES	A. AVAILABILITY		C. FREQUENCY OF USE		
		Available	Not Available	ALWAYS	SOMETIMES	NEVER
1	Classrooms for students			3	2	1
2	Laboratory equipment			3	2	1
3	Library			3	2	1
4	Staffroom for teachers			3	2	1
5	Latrines for teachers and students			3	2	1
6	Dining hall			3	2	1
7	Classroom chairs			3	2	1
8	Lockers for students			3	2	1
9	Playground			3	2	1
10	First aid kit			3	2	1

Part b. INSTRUCTIONAL RESOURCES

	INSTRUCTIONAL RESOURCES	AVAILABILITY		FREQUENCY OF USE		
		Available	Not Available	ALWAYS	SOMETIMES	NEVER
1	Course textbooks			3	2	1
2	<i>Charts</i>			3	2	1
3	Chalkboards			3	2	1
4	Maps			3	2	1
5	Computers for students' use			3	2	1
6	Projectors			3	2	1
7	Laptops for teachers' use			3	2	1
8	Models for mathematics			3	2	1
9	Laboratory apparatus			3	2	1
10	Library books			3	2	1
11	Chalks			3	2	1
12	Sports and games equipment			3	2	1

Section 3. Management of physical and instructional resources

The following questions concern management of physical and instructional resources. Please circle the number corresponding to the degree of your agreement or disagreement to the statements using the following scale:

1=Disagree (D) 2=Tend to Disagree (TD) 3= Tend to Agree(TA) 4=Agree (A)

	THE MANAGEMENT OF PHYSICAL AND INSTRUCTIONAL RESOURCES	D	TD	T A	A
1	The school has routine check for physical facilities	1	2	3	4
2	All equipment are serialized for accountability purpose	1	2	3	4
3	All equipment are coded bearing the school brand	1	2	3	4
5	There is a budget for maintenance, repairs, and improvement of physical and instructional resources	1	2	3	4
6	A regular inventory of all instructional resources is done.	1	2	3	4
7	Broken chairs and lockers are replaced as soon as they are reported.	1	2	3	4
8	Students maintain the cleanliness of the classrooms.	1	2	3	4
9	The cleanliness of the school surroundings is maintained.	1	2	3	4
10	The principal and teachers ensure that all physical facilities including the toilets are kept clean.	1	2	3	4
11	The library is secured to avoid losses of books.	1	2	3	4
12	The laboratory apparatus are kept in lockable cabinets	1	2	3	4
13	The charts, maps, models and other instructional resources are kept safely in a storeroom or in an office.	1	2	3	4
14	There is a personnel in-charge of taking care of the computers in the computer laboratory.	1	2	3	4
15	There is a room where the games and sports equipment are kept safely.	1	2	3	4
16	There is a qualified personnel in-charge of assisting students with health problems	1	2	3	4
17	The medicines in the first aid kit are readily available.	1	2	3	4
18	The medicines are dispensed only by the personnel in-charge.	1	2	3	4

Interview Schedule for Principal

1. How do you ensure that a routine check on physical facilities is working at your school?
2. How do you manage procurement procedures in your school?
3. What mechanism have you put in place for identification of the schools' facilities?
4. What has made you successful in getting qualified support staff?
5. How often do you carry maintenance on school facilities?
6. What strategies have you put in place to ensure effective management of the school facilities?
7. How do you relate management of facilities and students performance?
8. What mechanism have you put in place to track your expenditure on school resources yearly?
9. How do you manage your finances in order to meet your budget proposal on school resources?
10. How is your school work plan made for the purchase of instructional resources?
11. How are you using technology in management of facilities in your school?
12. What mechanism have you put in place to ensure that the constructions of buildings are to the set standards?

APPENDIX B

FACILITIES OBSERVATIONS LIST

AREAS TO BE VISITED ARE INDICATED BELOW

SECTION 1: FACILITY TYPE

	With seats With no seats	Floor Cemented - 1 Not cemented = 0	Windows Panels = 1 Broken =0	Ceiling With ceiling-1 Without -0	Paints Painted -1 Not painted -0
Classroom					
Staffroom					
Laboratory					
Library					
Kitchen					
Administration					

SECTION 2: ANCILLARY FACILITIES

Latrines: Boys/ Girls	Exist – 1 Not exist -0	With doors -1 Without doors – 0	Clean – 1 Not clean – 0
Gate	Exist – 1 Not exist -0		
Water services (water storage)	Taped - 1 Not taped – 0	Storage – 1 without – 0	

SECTIONS 3: PLAYGROUND

	Trimmed grass= 1 Not trimmed=0	Exist =1 Does not exist =0	Marked =1 Unmarked = 0	Level =1 Not level =0
Football				
Netbal				
Volleyball				
Basketball				
Athletics Field				
Hockey Field				
Handball				

Instructional Resources

	Exist = 1 Do not exist= 0	Corded =1 Not corded =0	In good condition=1 Bad condition= 0
Textbooks Books			
Chalk board			
Computers			
Laptops			
Maps, .			
Charts			
Globes			
Pictures			
Drawings			
Projectors			

APPENDIX C

NANDI EAST SUB-COUNTY LIST OF DAY SCHOOLS

FORM THREE ENROLMENT

Nandi East Sub-County Enrolment.From Quality Assurance and Standards officer (2017)

		STREAM	NO. OF STUDENTS
	NAME OF SCHOOL		
1	A	1	42
2	B	1	25
3	C	1	40
4	D	2	56
5	E	2	55
6	F	1	47
7	G	1	48
8	H	1	31
9	I	1	43
10	J	1	42
11	K	1	41
12	L	1	44
13	M	1	18
14	N	1	35
15	O	1	34
16	P	2	85
	TOTAL	19	686

APPENDIX D

2016 KCSE ANALYSIS

2016 KCSE ANALYSIS FOR NANDI EAST SUB-COUNTY PUBLIC DAY SECONDARY SCHOOLS

POSITIONS	CENTER NAME	ENTRY	M.S 2016	M.S 2015	M.S 2014	M.S 2013	A.VM.S
1	A	52	4.42	6.83	5.24	4.68	5.2925
2	B	29	3.9	5.05	5.51	5.49	4.9875
3	C	33	3.67	3.94	3.92	3.82	3.8375
4	D	30	3.43	5.2	5.17	4.93	4.6825
5	E	41	3.37	4.88	4.38	4.6	4.3075
6	F	55	3.2	4.35	5.02	5.41	4.495
7	G	31	3.16	4.09			3.625
8	H	22	3.14				3.14
9	I	39	2.89	4.43	4.04	3.60	3.74
10	J	50	2.86	4.41			3.635
11	K	50	2.82	4.10	4.1	4.14	3.79
12	L	60	2.82	3.86	3.84	4.44	3.74
13	M	22	2.77	3.42			3.095
14	N	26	2.62	4.33	3.68	3.36	3.4975
15	O	33	2.52	4.04			3.28
16	P	50	2.43	3.49	4.28	3.6	3.45

APPENDIX E

LETTERS



**OFFICE OF THE DIRECTOR OF GRADUATE STUDIES
AND RESEARCH**

UNIVERSITY OF EASTERN AFRICA, BARATON

P. O. Box 2500-30100, Eldoret, Kenya, East Africa

March 29, 2017

Keter Benjamin Saina
University of Eastern Africa, Baraton
School of Education

Dear Keter,

Re: ETHICS CLEARANCE FOR RESEARCH PROPOSAL (REC: UEAB/11/3/2017)

Your research proposal entitled "*Management of Physical and Instructional Resources: It's influence on Students' Academic Performance in Nandi East Sub-County Public Secondary Schools, Kenya*" was discussed by the Research Ethics Committee (REC) of the University and your request for ethics clearance was granted approval.

This approval is for one year effective March 29, 2017 until March 29, 2018. For any extension beyond this time period, you will need to apply to this committee one month prior to expiry date. Note that you will need a clearance from the study site before you start gathering your data.

We wish you success in your research.

Sincerely yours,

A handwritten signature in cursive script that reads "Jackie K. Obey".

Dr. Jackie K. Obey
Chairperson, Research Ethics Committee

A SEVENTH-DAY ADVENTIST INSTITUTION OF HIGHER LEARNING
CHARTERED 1991



**OFFICE OF THE DIRECTOR OF GRADUATE
STUDIES AND RESEARCH**
UNIVERSITY OF EASTERN AFRICA, BARATON
P. O. Box 2500, Eldoret, Kenya

31 March 2017

THE COUNTY EDUCATION DIRECTOR
Nandi County
Kenya


Re: REQUEST FOR PERMISSION TO GATHER RESEARCH DATA

Mr. Keter Benjamin Saina is a graduate student pursuing the degree **Master of Education in Educational Administration** at the University of Eastern Africa, Baraton. He is currently writing his thesis entitled *Management of physical and instructional resource: Its influence on students' academic performance in public secondary schools in Nandi East Sub-county, Kenya.*

I am requesting you to please allow him to administer his questionnaires to teachers and form 3 students, conduct interviews with principals, and do observation of selected secondary schools in Nandi East Sub-county. He will gather his research data within the month of April 2017.

Any assistance you will grant him will be greatly appreciated. May God richly bless you in all your undertakings.

Sincerely yours,


Prof. Elizabeth M. Role, PhD
Director

Cc: Chair, Department of Education
Office File



A SEVENTH-DAY ADVENTIST INSTITUTION OF HIGHER LEARNING
CHARTERED 1991



**OFFICE OF THE DIRECTOR OF GRADUATE
STUDIES AND RESEARCH**

UNIVERSITY OF EASTERN AFRICA, BARATON
P. O. Box 2500, Eldoret, Kenya

31 March 2017

THE SUB-COUNTY EDUCATION DIRECTOR

Nandi East Sub-county
Nandi County
Kenya

Re: REQUEST FOR PERMISSION TO GATHER RESEARCH DATA

Mr. Keter Benjamin Saina is a graduate student pursuing the degree **Master of Education in Educational Administration** at the University of Eastern Africa, Baraton. He is currently writing his thesis entitled *Management of physical and instructional resource: Its influence on students' academic performance in public secondary schools in Nandi East Sub-county, Kenya.*

I am requesting you to please allow him to administer his questionnaires to teachers and form 3 students, conduct interviews with principals, and do observation of selected secondary schools in your sub-county. He will gather his research data within the month of April 2017.

Any assistance you will grant him will be greatly appreciated. May God richly bless you in all your undertakings.

Sincerely yours,


Prof. Elizabeth M. Role, PhD
Director



Cc: Chair, Department of Education
Office File

A SEVENTH-DAY ADVENTIST INSTITUTION OF HIGHER LEARNING
CHARTERED 1991



**OFFICE OF THE DIRECTOR OF GRADUATE
STUDIES AND RESEARCH**

UNIVERSITY OF EASTERN AFRICA, BARATON
P. O. Box 2500, Eldoret, Kenya

31 March 2017

THE PRINCIPAL

Re: REQUEST FOR PERMISSION TO GATHER RESEARCH DATA

Mr. Keter Benjamin Saina is a graduate student pursuing the degree **Master of Education in Educational Administration** at the University of Eastern Africa, Baraton. He is currently writing his thesis entitled *Management of physical and instructional resource: Its influence on students' academic performance in public secondary schools in Nandi East Sub-county, Kenya*.

I am requesting you to please allow him to administer his questionnaires to teachers and form 3 students, conduct interviews with you, and do observation of your school. He will gather his research data within the month of April 2017.

Any assistance you will grant him will be greatly appreciated. May God richly bless you in all your undertakings.

Sincerely yours,


Prof. Elizabeth M. Role, PhD
Director



Cc: Chair, Department of Education
Office File

**THIS IS TO CERTIFY THAT:
MR. BENJAMIN SAINA KETER
of UNIVERSITY OF EASTERN AFRICA
BARATON, 0-30301 NANDI HILLS, has
been permitted to conduct research in
Nandi County**

**Permit No : NACOSTI/P/17/40035/17524
Date Of Issue : 19th June,2017
Fee Received :Ksh 1000**

**on the topic: MANAGEMENT OF
PHYSICAL AND INSTRUCTIONAL
RESOURCES:ITS INFLUENCE ON
STUDENTS ACADEMIC PERFORMANCE IN
NANDI EAST SUB-COUNTY PUBLIC
SECONDARY SCHOOLS, KENYA**



**for the period ending:
19th June,2018**

.....
**Applicant's
Signature**

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

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officer will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice



REPUBLIC OF KENYA



National Commission for Science,
Technology and Innovation

**RESEACH CLEARANCE
PERMIT**

Serial No.A **14443**

CONDITIONS: see back page



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-3213471,
2241349,3310571,2219420
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

4th Floor, Utalii House
Utalii Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No: **NACOSTI/P/17/40035/17524**

Date: **19th June, 2017**

Benjamin Saina Keter
University of Eastern Africa, Baraton
P.O. Box 2500-30100
ELDORET.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Management of physical and instructional resources: Its influence on students academic performance in Nandi East Sub-County Public Secondary Schools, Kenya,*" I am pleased to inform you that you have been authorized to undertake research in **Nandi County** for the period ending **19th June, 2018.**

You are advised to report to **the County Commissioner and the County Director of Education, Nandi County** before embarking on the research project.

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


GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nandi County.

The County Director of Education
Nandi County.

THE PRESIDENCY
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Tel: 053 52621, 52003, Kapsabet
Fax No. 053 – 52503
E-mail:
nandicountycommissioner@gmail.com
When replying, please quote



County Commissioner's Office,
Nandi County
P.O. Box 30,
KAPSABET.

21st June, 2017

Ref: No. NC.EDU.4/I VOL.IV/(54)

Benjamin Saina Keter
University of Eastern Africa, Baraton
P.O. Box 2500 - 30100
ELDORET

RE: RESEARCH AUTHORIZATION

This is in reference to letter No. NACOSTI/P/17/40035/17524 dated 19th June, 2017 from the Director General/CEO, National Commission for Science, Technology and Innovation on the above subject matter.

You are hereby authorized to conduct a research on **“Management of physical and instructional resources: its influence on students academic performance in Nandi East Sub County Public Secondary Schools”** in this county for the period ending 19th June, 2018.

Wishing you all the best.


G.O. MATUNDURA
For: COUNTY COMMISSIONER
NANDI.



Copy to:

Deputy County Commissioner,
NANDI EAST.

REPUBLIC OF KENYA



MINISTRY OF EDUCATION
STATE DEPARTMENT FOR BASIC EDUCATION

Email: cdenandicounty@yahoo.com
Telephone: 0773044624
When replying please quote
Ref:NDI/CDE/RESEARCH/1/Vol.II/31

COUNTY DIRECTOR OF EDUCATION,
P.O BOX 38 – 30300,
KAPSABET,
DATE: 21st June, 2017

Benjamin Saina Keter
University of Eastern Africa, Baraton
P.O Box 2500-30100
ELDORET.

RE: RESEARCH AUTHORISATION.

The above named person has been granted permission by the CDE to carry out research on "*Management of physical and instructional resources: its influence on students' academic performance in Nandi East Sub County Public Secondary Schools*" in Nandi County for the period ending **19th June, 2018.**

Kindly provide him all necessary support he requires.


Emily Isiye

For: County Director
of Education
NANDI COUNTY

For: County Director of Education,
NANDI.

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
STATE DEPARTMENT OF EDUCATION

Telegrams: "EDUCATION",
Telephone: 053643340/0208008149



Email: groenandicest@gmail.com
When replying please quote

SUB-COUNTY

EDUCATION OFFICE
NANDI EAST
P.O. Box 13
NANDI HILLS

REF:NED/ADM/G.C/83/VOL.II/169

5TH APRIL, 2017

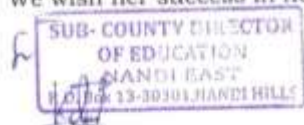
TO WHOM IT MAY CONCERN

RE: KETER BENJAMIN SAINA

The above named person is granted permission to collect data as part of his research work for his masters' thesis entitled "Management of physical and instructional resources: Its influence on students' academic performance in public secondary schools in Nandi East Sub-County, Kenya."

While conducting the research, he will be required to observe the ethics of research and maintain high integrity.

We wish her success in her endeavours.



Kipruto Kosgei
Sub-County Director of Education
NANDI EAST

APPENDIX F

CURRICULUM VITAE

PERSONAL INFORMATION

Name: Keter Benjamin Saina

Gender: Male

Date of Birth: 10/2/1962

EDUCATIONAL BACKGROUND

1972-1978: Primary Education

1979-1982: Secondary Education

1983-1987: Diploma in Technical Education

2008-2012: Bachelors Degree

2014- DATE: Masters Degree Student in Educational Administration

ADMINISTRATION

1987-1994: Secondary School Teacher Nakuru High

1994-2003: H .O. D Guidance & Counseling Samoei Sec

2003-2005: H. O. D Boarding Samoei Secondary School

2006-2009: Deputy Principal Samoei Secondary School

2009-DATE: Principal Siret Secondary School

CHURCH RESPONSIBILITIES

1990-1991: Church Elder S .D. A Church Nakuru Central

1996-1998: Church Elder S. D. A Church Sirwa

2002-2004: Church Elder/District Chair S. D. A Sochoi

2008-2010: Church Elder S.D.A Sirwa

2013-2014: Church Elder/District Chair S.D.A Koilot

2017-DATE: Church Elder S.D.A Sirwa

COMMUNITY SERVICE

2015-DATE: Water Projects Chairman Kapchorua Location