ADHERENCE TO GOVERNMENT GUIDELINES ON INFRASTRUCTURAL DEVELOPMENT AND STUDENTS’ PERFORMANCE AT KENYA CERTIFICATE OF SECONDARY EDUCATION IN PUBLIC DAY SECONDARY SCHOOLS IN KIRINYAGA EAST SUBCOUNTY, KENYA

Kibugua Piah Muthoni

A Research Project Submitted in Partial Fulfillment of the Requirements of the Degree of Master of Education in Corporate Governance

University of Nairobi

2015
DECLARATION

This research project is my original work and has not been presented for award of degree in any other university

_______________________________________
Kibugua Piah Muthoni
E55/83627/2012

This research project has been submitted for examination with our approval as university supervisor

_______________________________________
Mr. Edward Kanori
Lecturer
Department of Educational Administration and Planning
University of Nairobi

_______________________________________
Dr. Lucy Njagi
Lecturer
Department of Educational Administration and Planning
University of Nairobi
DEDICATION

I dedicate this work to my mum Leah Wanjiru, my husband John Njoroge and my children Nyokabi and Kinyanjui
ACKNOWLEDGEMENTS

I am very grateful to the Almighty God for his grace which has seen me through my studies. My immense gratitude goes to my lecturers and supervisors Mr. Edward Kanori and Dr. Lucy Njagi for their professional, valuable input, guidance, support and the time they sacrificed for the success of this research project.

Many thanks to my family without whose support this project would not have been Possible. You believed in me and encouraged me when the going got tough.

My deepest gratitude to the respondents of the questionnaires whose cooperation was amazing. Special thanks to my principal who kept encouraging me to work harder.

I wish to acknowledge all the Masters of Education lecturers in the Department of Educational, administration and Planning, University of Nairobi for their commitment in this noble profession. The knowledge they imparted in me greatly helped in carrying out this research work. Lastly to my classmates in Masters of Educations Corporate Governance Group 35 for their team-spirit. May God bless you abundantly.


### TABLE OF CONTENT

<table>
<thead>
<tr>
<th>Content</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title page</td>
<td>i</td>
</tr>
<tr>
<td>Declaration</td>
<td>ii</td>
</tr>
<tr>
<td>Dedication</td>
<td>iii</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>iv</td>
</tr>
<tr>
<td>Table of content</td>
<td>v</td>
</tr>
<tr>
<td>List of tables</td>
<td>ix</td>
</tr>
<tr>
<td>List of figures</td>
<td>xi</td>
</tr>
<tr>
<td>Abbreviations and acronyms</td>
<td>xii</td>
</tr>
<tr>
<td>Abstract</td>
<td>xiii</td>
</tr>
</tbody>
</table>

## CHAPTER ONE

### INTRODUCTION

1.1 Back ground to the study ......................... 1
1.2 Problem statement .................................. 5
1.3 Purpose of the study ............................... 6
1.4 Objectives of the study ............................ 6
1.5 Research questions .................................. 6
1.6 Significance of the study ......................... 7
1.7 Limitations of the study .......................... 8
1.8 Delimitations of the study ....................... 8
1.9 Assumptions of the study ........................ 8
1.10 Definition of terms .............................. 9
CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introduction ........................................................................................................ 30

4.2 Questionnaire return rate .................................................................................. 31

4.3 Demographic information .................................................................................. 32

4.3.1 Distribution of respondents by gender .......................................................... 32

4.3.2 Distribution of students by age ....................................................................... 34

4.4 Classroom size and students performance ......................................................... 35

4.4.1 Classroom size .................................................................................................. 35

4.4.2 Classroom location ............................................................................................ 36

4.4.3 Spacing of learners desks ............................................................................... 38

4.5 Ground size and students performance ............................................................... 43

4.5.1 Land size and number of streams ..................................................................... 44

4.5.2 Adequacy of co-curricular infrastructure ....................................................... 45

4.5.3 Availability of title deeds .................................................................................. 46

4.5.4 School gate fence and security office .............................................................. 47

4.6 Sanitation infrastructure on students performance ............................................. 48

4.6.1 Adequacy of sanitation infrastructure ............................................................. 48
4.6.2 Privacy of sanitation infrastructure................................. 50
4.6.3 Effect of sanitation infrastructure on students performance....... 50
4.7 Library construction on students performance........................... 51
4.8 Government guidelines and students performance....................... 52
4.8.1 Adherence to government guidelines................................. 52

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction........................................................................... 58
5.2 Summary of findings........................................................... 58
5.3 Conclusion............................................................................ 61
5.4 Recommendations............................................................... 61
5.5 Suggestions for further research............................................ 62

REFERENCES............................................................................. 64

APPENDICES

Appendix A Letter of introduction ............................................. 68
Appendix B Questionnaire for students ....................................... 69
Appendix C Questionnaire for teachers ....................................... 72
Appendix D Questionnaire for principals..................................... 75
Appendix E Observation checklist for the researcher..................... 78
Appendix F Research permit....................................................... 79
Appendix G Letter of authorization............................................. 80
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1.1 KCSE performance</td>
<td>4</td>
</tr>
<tr>
<td>Table 2.1 Land acreage for schools</td>
<td>15</td>
</tr>
<tr>
<td>Table 3.1 Sampling matrix</td>
<td>25</td>
</tr>
<tr>
<td>Table 4.1 Response rate</td>
<td>31</td>
</tr>
<tr>
<td>Table 4.2 Gender distribution of students</td>
<td>32</td>
</tr>
<tr>
<td>Table 4.3 Gender distribution of teachers</td>
<td>33</td>
</tr>
<tr>
<td>Table 4.4 Category of teachers</td>
<td>34</td>
</tr>
<tr>
<td>Table 4.5 Distribution of students by age</td>
<td>35</td>
</tr>
<tr>
<td>Table 4.6 Classroom sizes</td>
<td>36</td>
</tr>
<tr>
<td>Table 4.7 Classroom location</td>
<td>37</td>
</tr>
<tr>
<td>Table 4.8 Spacing of learners desks and chairs</td>
<td>38</td>
</tr>
<tr>
<td>Table 4.9 Status of classrooms</td>
<td>39</td>
</tr>
<tr>
<td>Table 4.10 Status of desks and chairs</td>
<td>40</td>
</tr>
<tr>
<td>Table 4.11 Status of bookshelves</td>
<td>41</td>
</tr>
<tr>
<td>Table 4.12 Desired improvements in classrooms</td>
<td>42</td>
</tr>
<tr>
<td>Table 4.13 Classroom ventilation</td>
<td>43</td>
</tr>
<tr>
<td>Table 4.14 School acreage and number of streams</td>
<td>44</td>
</tr>
<tr>
<td>Table 4.15 Availability of title deeds</td>
<td>46</td>
</tr>
<tr>
<td>Table 4.16 Frequency of inspection</td>
<td>47</td>
</tr>
<tr>
<td>Table 4.17 Adequacy of sanitation</td>
<td>49</td>
</tr>
<tr>
<td>Table 4.18 Privacy of sanitation infrastructure</td>
<td>50</td>
</tr>
</tbody>
</table>
Table 4.1.9 Effect of sanitation on student performance……………….51
Table 4.2.0 Whether schools follow government guidelines………………53
Table 4.2.1 Performance in national examinations…………………….55
Table 4.2.2 Existing infrastructure on performance…………………….56
Table 4.2.3 School mean scores from 2011-2014………………………57
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.1</td>
<td>Needs theory</td>
<td>21</td>
</tr>
<tr>
<td>Figure 2.2</td>
<td>Conceptual framework</td>
<td>22</td>
</tr>
<tr>
<td>Figure 4.1</td>
<td>Adequacy of co-curricular infrastructure</td>
<td>45</td>
</tr>
<tr>
<td>Figure 4.2</td>
<td>Government guidelines on infrastructure</td>
<td>54</td>
</tr>
</tbody>
</table>
### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DQAS</td>
<td>Directorate of quality assurance and standards</td>
</tr>
<tr>
<td>GOK</td>
<td>Government of Kenya</td>
</tr>
<tr>
<td>KCSE</td>
<td>Kenya Certificate of Secondary Education</td>
</tr>
<tr>
<td>MOEST</td>
<td>Ministry of Education Science and Technology</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational Scientific and Cultural Organization</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Education Fund</td>
</tr>
</tbody>
</table>
ABSTRACT

Education plays a key role in socializing an individual to fit and participate adequately in development of a society. With this realization, most governments have made access to education a basic right. Nearly all public primary schools in Kirinyaga east Sub County have a day secondary school started next to it. This means shared basic resources at the initial stage. The purpose of this study was to establish the relationship between adherence of government guidelines on infrastructure development in public day secondary schools and student’s performance in Kirinyaga East Sub County. The objectives of the study were to determine the relationship between classroom size and students performance, school ground size and students performance, adherence to government guidelines on sanitation infrastructure and student performance and government guidelines on construction of school library and students performance in public day secondary schools in Kirinyaga East Sub County. This study used descriptive survey design. The target population of the study was 21 principals, 181 teachers and 1,199 Form Three students in all the 21 public day secondary schools in the sub county. The researcher used three sets of questionnaires, for principals, teachers and for students. An observation checklist was also used to observe whether government guidelines have been followed on the school physical infrastructure. Quantitative data was analyzed using descriptive statistics, SPSS and Microsoft excel. The researcher found out that to a larger extent government guidelines are not adhered to. Most schools had poorly maintained classrooms with broken windows and grills. The schools in their effort to expand flouts government guidelines by having overcrowded classrooms which negatively affects performance. Smaller acreage than the required one showed that co-curricular infrastructure was inadequate. Notable is that none of the schools had a library and the few books in the schools were kept in bookstores. Sanitation infrastructure was wanting in most schools as some were in a sorry state and privacy was an issue. The study concluded that lack of adherence to government guidelines negatively affects performance. The study recommended that school inspection be made regular and the government should set up a fund to build libraries and upgrade upcoming public day secondary schools.
CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Governments all over the world committed themselves to the provision of education for all (EFA) at Dakar, Senegal in the year 2000. With the realization that schooling is important for the achievement of the national development goals; many governments have made access to education a basic human right. (Okuom, Simathua, Olel, Wichense, 2012). United Nations Childrens’ Education Fund (UNICEF),(1998) notes that education is a development tool and a fundamental human right as enshrined in the United Nations (UN) charter of 1948. The issue of increasing access and maintaining quality education remains a compelling necessity worldwide. It has been a long-held assumption that curriculum and teaching have an impact on learning. However, it is becoming more apparent that the physical condition of schools can influence students’ achievement.

School infrastructure is the platform on which most learning takes place. For example, it is in the classrooms that teaching takes place and in the fields that most curriculum activities take place (Adede, 2012). (Earthman, Cash & Van Berkum, 1996) found that 11th grade students in above standard buildings scored higher as measured by the comprehensive test of basic skills than did their counterparts attending class in substandard facilities. Chan (1996) conducted a similar study of the impact of physical environment on student success. This study classified 165 Georgia schools into three categories: modern learning, obsolete learning, or half
modern learning environment. The differences in the three categories included lighting, colour schemes, air control and acoustic levels. Chan (1996) found student achievement to be the highest in modern environment and lowest in obsolete learning environment. Cornell University joined forces with the Council of Educational Facility Planners International to conduct a survey of the renovation of Syracuse City schools and find out how that renovation impacted on students’ achievement. The study looked at achievement before and after the renovation. Significant impact was found in student achievement after facilities in the schools were refurbished. Most significant was the improvement in mathematics scores of sixth grade students (Moore & Warner, 1998). In Malawi, the quality and adequacy of school infrastructure in terms of classrooms, access to water and sanitation facilities have always been a challenge hence contributing to low enrolment, high dropout rates and poor performance particularly for girls (Esar, 2006).

School facility assessment normally conjures up thoughts of designers, architects, engineers and other professionals trained specifically to evaluate buildings. However, a growing trend considers that the users of a building such as teachers and students are the most reliable people to assess school facilities and their effect to student academic performance (Sanoff, 2001). Maiden & Foreman (1998) state that all school administrators should possess a basic understanding of facility assessment and use this knowledge to continually evaluate the condition of school buildings and its impact upon students’ success. In Kenya, the safety standards manual for schools outlines the infrastructural guidelines to create a safe environment where individuals
can move freely and feel secure in going about their daily activities. The children’s Act lays emphasis on protection of all children. Schools should be aware of such rights in order to provide suitable site plans which should be adhered to (Kirimi, 2014). Physical infrastructure includes structures such as classrooms, offices, toilets, dormitories, libraries, laboratories, kitchen, water pipes, play grounds and equipment. These facilities should be appropriate, adequate and properly located devoid of any risks to users or to those around them. They should also comply with the provisions of the ministry of public works building regulations/standards. Failure by schools to meet the set standards for infrastructure leads to non compliance with government guidelines (Mwaura, 2011).

School grounds refer to the entire enclosure designated for use by the school for any of its activities such as learning and playing. They should be large to house the required physical infrastructure including classrooms, offices, latrines, playing grounds and assembly walkways. Sanitation facilities should include solid waste disposal, drainage, adequate water for personal hygiene and clean toilets. These facilities should be safe and built to the required standards (MOEST, 2001).

Performance in education is evaluated based on examinations given and student performance in them. Examinations have been accepted by educationists and other stakeholders as an important aspect of any education system (Mbatia, 2004). Table 1.1 shows means scores in day secondary schools in K.C.S.E. in three Sub Counties of Kirinyaga County between the years 2011-2014.
Table 1.1

KCSE mean scores between year 2011-2014

<table>
<thead>
<tr>
<th>Sub county</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kirinyaga East</td>
<td>3.795</td>
<td>4.079</td>
<td>4.250</td>
<td>4.395</td>
</tr>
<tr>
<td>Kirinyaga Central</td>
<td>4.483</td>
<td>4.903</td>
<td>4.564</td>
<td>4.417</td>
</tr>
<tr>
<td>Kirinyaga West</td>
<td>4.382</td>
<td>4.766</td>
<td>4.303</td>
<td>4.723</td>
</tr>
</tbody>
</table>

Kirinyaga East Sub County appears to have the lowest mean scores in all the four years analyzed though on an increasing trend. According to DQAS officer Kirinyaga East Sub-County, most day secondary schools initially share infrastructure with their sister primary schools before they develop their own. This compromises government guidelines on infrastructure development as they rush to move out of the primary schools to their own grounds. The primary schools are initially located on a twelve acre piece of land. This land is shared by the two schools and they end up sharing some facilities like playgrounds. The researcher seeks to investigate the cause of the poor performance in the Sub County and whether non-adherence to government guidelines in infrastructural development could have contributed to the situation.
1.2 Statement of the problem

Despite government measures to boost performance such as teacher salary increase, establishment of Directorate of Quality Assurance and Standards (DQAS) and establishment of School Infrastructure Fund, academic performance in public day secondary schools in Kirinyaga East Sub-County remains poor as can be seen in Table 1.1. Mokaya, (2013) assessed the adequacy of school infrastructure in Kajiado County but did not state the guidelines required in the construction of specific facilities like classroom size and sanitation facilities as per school population. Omolo (2005) on implementation of safety guidelines in public secondary schools in Kisumu District, Kenya focused only on the relationship between safety of students and students’ unrest. The findings were that most schools did not implement safety guidelines because most of the classrooms were congested and did not have fire fighting equipments. Kukali (2005) carried out a study that evaluated the safety guidelines implementation in girls’ boarding schools in Bungoma East District. These studies failed to relate implementation of government guidelines on infrastructural development to academic performance. None of these studies has narrowed down to public day secondary schools. Therefore, a knowledge gap exists which this study seeks to fill.
1.3 Purpose of the study

The purpose of this study was to investigate the relationship between government guidelines in infrastructural development and students’ performance in public day secondary schools in KCSE in Kirinyaga East Sub County.

1.4 Objectives of the study

The study was guided by the following objectives:

i) To determine the relationship between adherence to government guidelines on classroom size and students’ academic performance in public day secondary schools in Kirinyaga East Sub County.

ii) To determine whether adherence to government guidelines on school ground size is related to students’ academic performance in public day secondary schools in Kirinyaga East Sub County.

iii) To establish the extent to which adherence to government guidelines on sanitation facilities influence students’ academic performance in public day secondary schools in Kirinyaga East Sub County.

iv) To establish whether adherence to government guidelines on school library is related to students’ academic performance in public day secondary schools in Kirinyaga East Sub County.

1.5 Research questions

The study was based on the following research questions:
i) To what extent does adherence to government guidelines on classroom size influence students’ academic performance in public day secondary schools in Kirinyaga East Sub County?

ii) Does adherence to government guidelines on the size of school grounds related to students’ academic performance in public day secondary schools in Kirinyaga East Sub County?

iii) To what extent does adherence to government guidelines on sanitation facilities relate to students’ academic performance in public day schools in Kirinyaga East Sub County?

iv) Does adherence to government guidelines on libraries relate to students’ academic performance in public day secondary schools in Kirinyaga East Sub County?

1.6 Significance of the study

The Ministry of Education has been emphasizing the need to follow government guidelines in development of school infrastructure. This study gave a report on the situation. The Kenya Educational Management Institute (KEMI) may use the findings to decide whether to incorporate government guidelines on infrastructural development in their syllabus. The teacher training colleges may use the findings in teaching government guidelines on infrastructural development. The BOM may use the findings for future improvement of school infrastructure.
1.7 Limitations of the study

The study relied on principals’, teachers’ and students’ perception on the state of existing infrastructure in their school. This is a qualitative aspect and may vary from one person to another. The researcher issued the questionnaire to the respondents and read through explaining its contents. The study was conducted during KCSE season. Some teachers were out of school for invigilation and the Form Three students were busy preparing for end of year examinations. The researcher used drop and pick later method to overcome this.

1.8 Delimitations of the study

The researcher appreciates that students’ performance is an outcome of a complex combination of many factors. However, the study was restricted to the relationship of government guidelines in infrastructural development and students’ performance. The study was confined in Kirinyaga East Sub County because from Table 1.1 a problem exists and the researcher wanted to find out whether it is related to non-adherence to government guidelines on infrastructural development. Principals, teachers and Form Three students were the participants in this study. The study did not cover public boarding secondary schools, public primary schools and private schools thus its findings may not be generalized as the situation in all schools.

1.9 Assumptions of the study

The following assumptions were made in the study:

i) Respondents gave accurate, responses to the items of the questionnaire.
ii) Records containing important information on facility construction and school acreage were accurate.

1.10 Definition of significant terms

The following are the definitions of significant terms of the study

Classroom size the space recommended for a room in a school where teaching and learning takes place.

Co-curricular facilities are those infrastructures that are meant to bring social and physical adjustments in a learner. They include fields, recreation centres, and rooms for indoor games among others.

Day public schools refers to schools funded by the government, local community and parents in which students operate from home to school daily.

Government guidelines refer to instructions of operating institutions.

Sanitation infrastructure refers to structures constructed for the purposes of human waste disposal and for cleanliness.

School library refers to a room in a school where books, magazines, articles and newspapers are stored for reference.

Standard refer to level of quality achievement in relation to school safety.

1.11 Organization of the study

The study is organized into five chapters. Chapter one consists of background of the study, statement of the problem, purpose of the study, objectives of the study, limitations of the study, delimitations of the study, assumptions of the study, definition of significant terms and organization of the study. Chapter two consists of
literature review. This covers introduction, classroom size on students’ performance, size of school grounds on students’ performance, sanitation facilities on students’ performance and school library on students’ performance. Chapter three focuses on the research methodology including research design, target population, sample size and sampling procedure, research instruments, instrument validity, instrument reliability, data collection procedures, data analysis techniques and ethical considerations. Chapter four consists of the findings and discussions of the study. Chapter five consists of a summary of the study in which the major findings were noted and discussed. Important implication were pointed out and recommendations given as well as suggestions for further research.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents theoretical and empirical literature with specific focus on concept of infrastructure, School infrastructure and student performance, government guidelines on classroom size to students performance, size of school grounds, sanitation facilities and school library to students performance, summary of literature review, theoretical framework and conceptual framework.

2.2 concept of infrastructure

School infrastructure has been observed as an important factor to quality education. Its importance to teaching and learning cannot be over-emphasized. Clarke (1964) argues that school infrastructure should be adequate in size and properly arranged for the number of students enrolled and the type of education the community wishes to offer. They should be constructed to provide a healthy and safe environment to the students. They should also follow the minimum specified standards as set by the government.

2.3 School infrastructure and student’s academic performance

Education outcome is a product of many unrelated factors. UNESCO (2008) holds that a good learning environment constitutes secure, un-crowded and well maintained schools. The teaching and learning environment either motivates or de-motivates the learners.
Cash (1992) conducted a research that examined various factors of building condition on student performance. He found out that when socio-economic factors were constant, building condition had a significant correlation with student performance. According to Akandi (1985) the size of classroom, sitting position, arrangement of tables, chairs and shelves are all determinants of students’ performance. Oni (1992) notes that school infrastructure constitute a strategic factor in organizational functioning and that adequate and relevant infrastructure improve academic performance of students.

The specifications given for the establishment and management of infrastructure in public secondary schools are stipulated in the laws and policies that govern a country’s education system (Alimi, 2004). It is a government requirement that school infrastructure adhere to the physical and health safety guidelines as outlined in the safety standards manual for schools. They should comply with the provisions of the Education Act (cap211), public health Act (cap 242) and the Ministry of Public Works building regulations (MOE, 2008).

2.4 Laws and policies governing compliance with government guidelines

**Education act cap 211** The enactment of the Education Act cap 211 in 1967 defines what a school is and the requirements of registering a school.
public health act cap 242 It explains how hygiene should be assured especially on sanitation as well as drainage aspects.

Ministry of public works building regulations The regulations define the construction requirements ratio and the process of putting up school buildings.

Children’s Act 2001. It stipulates the rights of a child and states that all learning institutions shall provide safe and accessible physical environment.

Safety standards manual for schools in Kenya. It highlights safety needs of children within the school.

School health and safety is therefore an integral component of national government of Kenya policies. This makes it compulsory for all schools to adopt the policies. Relevant Acts and policy documents should be maintained by all heads of institutions (Wanyama, 2011)

According to Wanyama, (2010) the school principal is entrusted with the administrative task of school plant management. This area is concerned with diligent sitting of school plant and facilities, maintenance and repair, and enhancing cleanliness within the school. The Board of Management in schools should constitute a sub-committee to deal with school safety whose major function is to mobilize resources required by the school to ensure a safe, secure and caring environment for learners by following government guidelines
2.5 **Government guidelines on classroom size and students’ academic performance**

According to MOE safety standards manual, classrooms are important infrastructure in a school setting since learners spend most of their time in them. Classrooms should measure 7.5m x 5.85m or 7.5mx6.0m. Such classrooms should accommodate a maximum of 30 learners in one seater desk or forty learners in 2 seater desks in line with the provisions of the MOE circular on health for safety standards in educational institutions. The doors should open outwards. Classroom windows should be without grills and be easy to open. They should be properly lit and ventilated. The floors should be level and kept clean always. Each block should be fitted with serviced fire extinguishers (MOEST,2001).

The size and arrangement of the classroom can be welcoming or repulsive to students. This simple fact has been noted to profoundly influence the acts of learning, (White,1990)). Educational researchers are frequently recommending that cognitive learning specialists become actively involved in planning instructional space in efforts to maximize student performance across all learning modalities, (Hill ,1996). Maengwe (1985) noted that overcrowding in classrooms affected learning because students found it hard to write while teachers found it difficult to move round to reach all students where they sit working on their assignments. Flexible classroom space increases the capability for the students to interact in participatory learning exercises. This will allow teachers to utilize modern educational strategies such as project based assignments (Day, 2001)
2.6 Government guidelines on school ground size and students’ academic performance

According to (MOE, 2002) the amount of school land should be sufficient for games, staff houses and agriculture. The minimum amount of land required is determined by enrolment as illustrated below.

**Table 2.1**

**Expected land acreage for secondary schools**

<table>
<thead>
<tr>
<th>Number of streams</th>
<th>Plot size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double stream boarding</td>
<td>12 acres</td>
</tr>
<tr>
<td>Double stream day</td>
<td>7 acres</td>
</tr>
<tr>
<td>Single stream boarding</td>
<td>7 acres</td>
</tr>
<tr>
<td>singles stream day</td>
<td>5 acres</td>
</tr>
</tbody>
</table>

Source: MOE 2002

Apart from the land size, all schools must have valid title deeds and those without should be assisted to secure ownership of the land or be moved to own grounds.

Schools should have a ‘NO TRESPASSING’ and ‘VISITORS REPORT TO HEADTEACHER’S OFFICE’ signs at the main gate entrance. All visitors to the school must sign the visitors’ register and record their IDs at the gate. The gate keeper must verify that the IDs are valid and keep them safely. The IDs are to be
returned on signing out on completion of the visit. The school should erect sign
boards to show directions to various facilities such as administration offices, staff
offices, classrooms, toilets and dining hall. The grounds should be leveled to
make them easier for use by learners and teachers. The bare areas of the grounds
should be planted with grass to minimize the effect of dust. Trees in the school
should be labeled, indicating their uses and those that may be poisonous.
Playgrounds should reflect the diversity of sport talents in the school. These
grounds should be properly separated and the equipments used should meet the
necessary safety requirements. All the walkways should be properly demarcated
with flowers or shrubs rather than wires which may cause injuries to learners.
There should be proper and regular supervision and inspection of the grounds to
ensure that there are no items such as broken glass, loose sticks, stones or
potholes that may cause injury to the learners, teachers and other school
personnel.
According to Sushila and Bakhda (2004) many schools do not have the ground
space required for a learning institution. In densely populated areas of Western,
Nyanza and Central regions, some schools are located on very small plots that are inadequate for teachers’ houses, school farm and play grounds (OLembo, 1985) Students who participate in co-curriculum activities typically do better academically, have fewer attendance and discipline problems and have a higher graduation rate than fellow students who do not participate in co-curricular activities (Hunt and Lasley, 2010). Adede (2010) notes that the provision of school infrastructure related to games, sports and clubs gives the learners analytical thrust for knowledge, promotes competitive spirit, communication skills, value orientation, leadership skills and career development.

2.7 Government guidelines on sanitation facilities and students’ academic performance

Sanitation infrastructure includes all the structures constructed for the purposes of disposal of human waste and for cleanliness. According to Government of Kenya, (2001) a safe school must have sanitation facilities built up to the required standards and kept clean with high standards of hygiene. Pit latrines should not be less than six metres deep and should be regularly disinfected. They should be at least 15 metres away from a borehole or water supply point. In the construction of sanitation facilities the following must be observed in relation to numbers. The first 30 learners; 4 closets (holes). The next 270 learners’ one extra closet for every 30 learners. Every additional learner over 270; one closet per 50 learners. At least 1/3 of the fitting for boys should be closets and the rest urinals. If a urinal is a
trough, its equivalent to one fitting. Soap and tap water or water cans fitted with
taps should be set outside the toilets for washing hands after use of these facilities
implies non compliance with health and safety standards for the emergency
response on health and hygiene. This may lead to disease outbreaks or drop outs
and poor performance especially for girls

2.8 Government guidelines on construction of school library and students’
academic performance

A library that meets safety standards should be rightly located in a quiet place and
have sufficient space. It should be well ventilated and safe from invasion by
destructive insects and pests. The rooms should be spacious and passage ways
wide to facilitate evacuation. The bookshelves should be well spaced and properly
reinforced (MOE, 2001)

Library is a major teaching and learning facility. The purpose of a school library
is to make available to the students all books, periodicals and other reproduced
materials which are of interest and value to them but which are not provided or
assigned as basic or supplementary textbooks. A study conducted by Heynemana
(1980) Ndiritu (1998) concluded that a school library has significant effect on the
learners academic performance. They found out that the mere presence of a
school library was significantly related to achievements of students in Brazil,
Chile, Botswana and Uganda. Popoola (1989) discovered that library correlates
with academic achievement and those schools with well equipped library
normally maintain high academic performance. In another study on raising school quality in developing countries, Fuller (1985) found that collection of books kept for reading in the library related to performance. Ola (1990) concluded that secondary school library in whatever form has replaced, the traditional method of ‘chalk and talk’ in imparting knowledge to students and that its effect on academic performance need not be over emphasized. Ogunseye (1986) noted that total absence of an organized school library would continue to spell doom for thousands of secondary school students and that many day secondary schools operate without libraries which greatly affect their performance. Fuller (1986) identified a school library as an instructional resource which may significantly influence pupil’s achievement after controlling the pupil’s family background. Reporting the state of libraries in Lagos Secondary Schools, (Shodimu1998) submitted that the guidelines that each school should be provided with a library with 100 students seating capacity was not followed as most of the schools he sampled had seating capacity of less than 100 students.

2.9 Summary of literature review
The literature review focused on how adherence to government guidelines in infrastructural development is related to students’ academic performance. It is evident that school infrastructure has a marked influence on the quality of education in an institution of learning. It has been established that lack of school infrastructure like classrooms, play fields, toilets and library can be a major
hindrance to student academic achievement. Academic performance improves with improved building conditions, lighting levels, air quality and temperature. Further, there is a correlation between classroom size and student achievement. Congested classrooms make movement within the classroom difficult which means individual attention by the teacher is impossible. The adequacy of sanitation infrastructure ensures improved hygiene which reduces the possibility of disease outbreak like cholera and typhoid. School co-curricular infrastructure helps in developing the learner physically, socially, mentally, and emotionally. The availability of adequate playing fields and necessary equipment are necessary for talent development. Learning institutions should therefore provide appropriate forum for nurturing talent. The need for a school library is no longer an issue of debate. The library is a hub of intellectual activities in a school. Available literature has shown that users’ expectations and the theoretical concept of what makes a good school building do not match. In practice, teachers and students are required to adapt to given environments whether good or bad. (Dudek, 2000; Booth and Marton 2007; Sanoff, 2009);

2.10 Theoretical framework

This study is based on Needs theory (1948). The proponent of this theory is Abraham Maslow who presented needs in a hierarchical order with physiological needs at the bottom of the triangle and self–Actualization at the top.
According to Maslow, individuals are motivated by the unsatisfied needs in each level. Physiological needs are the most basic needs and include: oxygen, food, water, education and sex. Safety and security needs are need for protection against dangers. They include both emotional and physical needs. Safety needs relate to the desire for a peaceful, smoothly run and stable environment. Social needs are the needs for love, affection and acceptance as belonging to a group. Esteem needs are the need to have a stable, firmly based, high evaluation of one (self when a lower need is satisfied, the next highest become dominant and the individual esteem) and to have the respect for others (prestige). Self actualization is the need to develop potentialities and skills to become what one believe he/she...
is capable of becoming (Armstrong 2006). This theory states that attention is
turned to satisfying the higher needs.

The theory is paramount in this study because it identifies safety need as a
motivator to all human beings. People avoid physical harm, chaos and cases of
threats placing safety need in a prominent position in human beings life. After
acquiring the physiological needs, human beings need the assurance that their
safety will be guaranteed. Without safety in learning institutions therefore,
learners will not learn as expected. The BOM, principals and teachers should
provide the basic infrastructure. This raises students’ esteem and improves their
academic performance which leads good performance (self actualization).

2.1.1 Conceptual framework

Conceptual framework of how adherence to government guidelines on provision
of physical infrastructure influences academic performance

![Conceptual Framework](image)

**Figure 2.2 conceptual framework**
Figure 2.2 shows that academic performance of students is dependent on classrooms size, size of school grounds, sanitation facilities and state of school library. If government guidelines on these facilities are followed, academic performance will improve.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter presents methodology which was used in the study. It is presented under research design, target population, sample size, sampling techniques and research instruments, validity of research instruments, reliability of research instruments, Data collection procedure and data analysis techniques, and Ethical considerations.

3.2 Research design
This study adopted descriptive survey design. Kerlinger (2002), descriptive survey research design is used to obtain pertinent and precise information concerning the current status of a problem/issue and where possible draw valid general conclusion from the facts available. This design was appropriate for this study since it was based on the assumption that the sample taken shares similar characteristics with the whole population where it is drawn.

3.3 Target population
To Mugenda and Mugenda (1999) a target population is the entire group of individuals, events or objects having a common observable characteristic. The target population for this study consisted of 21 principals, 181 teachers, and 1199 Form Three students in all the 21 day public secondary schools in Kirinyaga East Sub-county. (District Education Office, Kirinyaga East Subcounty)
3.4 Sample size and sampling procedure

Mugenda and Mugenda, (2003) states that a minimum sample size for descriptive studies should be between 10-30 percent of the population. The sample size for this study was 10 percent for student population, 20 percent for teachers and 30 percent for principals. This translated to 6 principals, 36 teachers and 120 form three students from all the 21 public day secondary schools in Kirinyaga East Sub County. Simple random sampling was used for each category of respondents.

Table: 3.1 Sampling matrix

<table>
<thead>
<tr>
<th>Category</th>
<th>Total number</th>
<th>Sampling percentage</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form 3 Students</td>
<td>1199</td>
<td>10</td>
<td>120</td>
</tr>
<tr>
<td>Teachers</td>
<td>181</td>
<td>20</td>
<td>36</td>
</tr>
<tr>
<td>Principals</td>
<td>21</td>
<td>30</td>
<td>6</td>
</tr>
</tbody>
</table>

3.5 Research instruments

According to Kombo and Tromp (2006) in carrying out a research, the researcher requires methods that provide high accuracy, generalization and explanatory power ‘with low cost, rapid and minimum management demands and administrative convenience. The instruments for this study were the principals, teachers, and students questionnaires. The students questionnaire consisted of four parts: section A captured the demographic information, section B captured teaching and learning infrastructure and section C captured sanitation infrastructure and section D co-curricular infrastructure. The teacher’s
questionnaire captured demographic information, teaching and learning infrastructure, sanitation infrastructure and effects of infrastructure on students’ academic performance and adherence to government guidelines. The principal’s questionnaire captured demographic information, availability of vital documents and government guidelines on infrastructural development. An observation check list was used by the researcher to check the location and compliance of infrastructure to government guidelines.

3.6 Instruments validity

Validity seeks to establish if instruments measure what they are purported to measure Orodho (2004). Content validity of the instruments was ascertained by comparing the content of the instruments with the objectives of the study and by professionals in the field and included experts such as supervisors in the Department of Educational Administration and Planning. A pilot study was done through administering the instruments to respondents of three randomly selected day secondary schools in Kirinyaga East Subcounty. It was further enhanced by making necessary adjustments to the questionnaires based on the pilot study.

3.7 Instruments reliability

Reliability measures the degree to which a research instrument yields consistent results on repeated trials Gay (1992). The researcher used test-retest technique of evaluating reliability of the questionnaires. The same instruments was administered to teachers of selected schools after one week to test whether similar responses would emerge. The two scores of each respondent were analyzed to
check for consistency of responses. Scores of the first test were then correlated with scores from the final test. This type of reliability assures that there was no change in the quality or construct being measured.

Using Pearson’s product moment formula, the researcher computed correlation co-efficient in order to establish consistency. Pearson correlation formula was used as follows

\[ R_{xy} = \frac{N \sum x \cdot y - \sum (x) \sum (y)}{\sqrt{\{N \sum x^2 - (\sum x)^2\} \{N \sum y^2 - (\sum y)^2\}}} \]

Where \( N \) is the number of the respondents

\( X \)-is the scores from the first test

\( Y \)-is the scores from the second test

The value of \( r \) showed lie between +1 or -1 Mugenda and Mugenda (2010). The closer the value to 1, the stronger the congruence.

In both instances each case was treated separately and the results were generated in percentages. A comparison between the percentage responses per item was then made in order to check whether the responses were consistent. The result of the test-retest technique was 0.72. This was taken to be reliable and therefore satisfactory.
3.8 Data collection procedures

The researcher used direct administration of the questionnaire personally to ensure that necessary supplementary instruction was provided. The researcher reported to the principal’s office and explained the purpose of the visit. The principal availed the construction documents for use in the observation checklist. The researcher was introduced to the teachers and gave them questionnaires to fill after explaining to them the purpose and use of the data. The researcher was also introduced to Form three students and interpreted the questionnaire for them. The researcher left the respondents to fill in the questionnaire and continued to fill in the observation checklist.

3.9 Data analysis techniques

After field work, the researcher edited and counterchecked completion of the questionnaires in order to identify items which might not have been responded to. Quantitative data were then coded manually and analyzed using descriptive statistics (use of frequencies, percentages, mean score and standard deviation) with the help of statistical package for social sciences (SPSS) and presented through percentages, pie charts bar graphs and frequency tables. In addition, inferential statistics (regression analysis) was used to measure the relationship between adherence to government guidelines on infrastructural development and student performance in public day secondary schools in Kirinyaga East Sub-county.
3.10 Ethical issues

According to Sieber (1992), ethical issues that emerge disrupt the quality of research and undermine the privacy and integrity of respondents. These include deception in a bid to obtain classified information and camouflaged researcher involvement in field data collection. The researcher sought an introductory letter from the department of Educational administration and planning, University of Nairobi to help get a research permit from the National Commission for Science, Technology and innovation (NACOSTI). The researcher presented the permit from NACOSTI to the area county commissioner seeking permission to carry out research within Kirinyaga County. An authorization letter from Kirinyaga East sub-county Education office and an introduction letter of the researcher were presented to the selected schools’ principals to seek permission within the schools. The researcher used informed consent consideration and explained to the respondents that the purpose of the study was purely academic and respondents were not required to disclose their identity on the questionnaires.
CHAPTER FOUR
DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introduction

This chapter presents data analysis and presentation of the research findings. The purpose of the study was to investigate the relationship of government guidelines on infrastructural development and students’ academic performance in public day secondary schools in KCSE in Kirinyaga East sub-county. The findings of the study were based on four research questions namely To what extent does adherence to government guidelines on classroom size is related to student’s performance in public day secondary schools in Kirinyaga east sub-county? To what extent does adherence to government guidelines on the size of school grounds is related to student’s performance in public day secondary school in Kirinyaga east sub-county? To what extent does adherence to government guidelines on construction of sanitation facilities is related to student’s performance in public day secondary schools in Kirinyaga east Sub-county? To what extent does adherence to government guidelines on construction of libraries is related to students’ academic performance in public day secondary schools in Kirinyaga Sub county?
4.2 Questionnaire return rate

Response rate is the proportion of the sample that participates in all the research procedures. According to Mugenda and Mugenda (2013) a 50 percent response rate is adequate, 60 percent response rate is good and above 70 percent response rate is very good. Table 4.1 gives a summary of the response rate

<table>
<thead>
<tr>
<th>Target respondent</th>
<th>Sample size</th>
<th>Response</th>
<th>Return rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>120</td>
<td>106</td>
<td>88.3</td>
</tr>
<tr>
<td>Teachers</td>
<td>36</td>
<td>34</td>
<td>94.4</td>
</tr>
<tr>
<td>principals</td>
<td>6</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>total</td>
<td>162</td>
<td>146</td>
<td>90.1</td>
</tr>
</tbody>
</table>

The response rate was 90.12 percent. This reasonable response rate was made a reality after the researcher made personal calls and visits to remind the respondents to fill-in and return the questionnaires. The study was carried out during KCSE examination thus all the principals were in school to oversee the exercise. This explains the 100 percent questionnaire return rate for principals. In two schools some students had been sent home to collect school fees and their questionnaires could not be traced.
4.3 Demographic information

This section presents the demographic information of the respondents in the study. It provides a summary on gender, age bracket and teacher’s position in the school.

4.3.1 Distribution of respondents by gender

Gender of the respondents was considered in order to highlight the ratio of male and female students and teachers. Having both gender in a study is important in examining whether the study captured the views of both male and female as concerns classroom, school ground, sanitation and library infrastructure. Data obtained from the field regarding sex of the students was analyzed presented as shown in Table 4.2

Table 4.2

Gender distribution of students

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>67</td>
<td>63.2</td>
</tr>
<tr>
<td>Female</td>
<td>39</td>
<td>36.8</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100</td>
</tr>
</tbody>
</table>
From Table 4.2 majority of the respondents (63.2%) were male. However even the female gender was fairly represented in the study by 36.8 percent thus the findings of the study showed a representative view of both gender.

The gender of the teachers in this study was found relevant because the day schools in Kirinyaga east sub county are all of mixed gender. Table 4.3 shows this.

**Table 4.3**

**Gender distribution of teachers**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>20</td>
<td>58.80</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>41.2</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>100</td>
</tr>
</tbody>
</table>

Among the teachers respondents, 58% were male while 41.2% were female.

This helped in giving accurate information on sanitation infrastructure for both boys and girls.

The researcher sought information on category of teachers. This was important for this study because each category was important. The heads of departments are likely to know the schools better than the ordinary teachers thus they may give more accurate information especially on government guidelines. The regular teachers interact with students more and can give more accurate information on
problems faced by students due to poor or inadequate infrastructure. This information was presented in Table 4.4

**Table 4.4**

**Category of teachers**

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular teachers</td>
<td>21</td>
<td>61.76</td>
</tr>
<tr>
<td>HODs</td>
<td>13</td>
<td>38.24</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>100</td>
</tr>
</tbody>
</table>

Majority of the respondent teachers were regular (61.76%). This was found to be okey as it represents the large proportion of regular teachers compared to heads of departments in schools.

**4.3.2 Distribution of students by age.**

Age of students was important for this study since the students were required to assess and report about issues that affect their performance. Very young students might not assess this correctly. Their ages were presented in Table 4.5
Table 4.5

**Distribution of students by age**

<table>
<thead>
<tr>
<th>Age bracket(yrs)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-16</td>
<td>6</td>
<td>5.2</td>
</tr>
<tr>
<td>17-20</td>
<td>95</td>
<td>89.6</td>
</tr>
<tr>
<td>Above 20</td>
<td>6</td>
<td>5.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>107</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

From Table 4.5 the ages of the students were clustered into 13-16, 17-20 and above 20 yrs only (6) 5.2% of the students are within the age of 13-16. Majority 89.6% of the students are between 17-20 yrs while 5.2% of the students are above 20 yrs. Most students were within the same age bracket of 17-20 years, thus they were likely to respond to the issues of the questionnaire the same way when all other factors are held constant.

**4.4 Relationship of classroom size and students performance.**

In this research questions the study sought to gather information on classroom size adequacy of classrooms, ventilation, spacing of desks and chairs, availability of bookshelves and location of classrooms.

**4.4.1 Classroom size**

According to Musyoka (2013) when the number of students in a class is more than the recommended, teaching and learning is negatively affected because teachers get overwhelmed by the number of students especially when marking the
assignments given in class. The teachers hardly get time to pay attention to academically weak students. The researcher used an observation checklist to get information on class size in the schools under study. Table 4.6 shows classroom sizes from records made available by principals of the schools under study.

**Table 4.6**

**Classroom sizes**

<table>
<thead>
<tr>
<th>Classroom size</th>
<th>frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below normal</td>
<td>21</td>
<td>37.5</td>
</tr>
<tr>
<td>Normal (7.5m by 6.5m)</td>
<td>13</td>
<td>23.21</td>
</tr>
<tr>
<td>Above normal size</td>
<td>22</td>
<td>39.29</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>100</td>
</tr>
</tbody>
</table>

Majority of the schools have classroom which are normal or larger than the recommended sizes. This they explained that population in their schools was slowly increasing without commensurate increase in the number of teachers thus the large classes would accommodate more students without increasing the number of streams. 37.5 percent of the classes were smaller than the recommended size of six metres by seven point five metres and this led to congestion. These findings agree with Lackey (2001) that overcrowded classrooms in New York City had students scoring significantly lower in both mathematics and reading examinations than did similar students in schools with
spacious classrooms. Mokaya (2013) noted that classrooms should be big enough to accommodate the recommended number of students.

4.4.2 Classroom location

Asked whether the classrooms were properly located, the teachers gave responses which were presented Table 4.7

Table 4.7

<table>
<thead>
<tr>
<th>Classroom location</th>
<th>Frequency</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22</td>
<td>64.7</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>35.3</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>100</td>
</tr>
</tbody>
</table>

Majority of the teachers (64.70%) felt that their location was okay while few (35.30%) felt that their classrooms were not properly located. Teachers gave various reasons for this. Most of them cited the classrooms being very near to the busy roads leading to learners being distracted. Other reasons were classrooms being near the staffroom where teachers consult noisily.

4.4.3 Spacing of learners desks

The study also sought to gather information on spacing of learners desks in classrooms. The data collected from the teachers was analyzed and presented as shown in Table 4.8
Table 4.8

Spacing of learners desks

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>17</td>
<td>50</td>
</tr>
<tr>
<td>Average</td>
<td>14</td>
<td>41.2</td>
</tr>
<tr>
<td>Poor</td>
<td>3</td>
<td>8.8</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>100</td>
</tr>
</tbody>
</table>

From Table 4.8 none of the teachers felt that spacing was excellent, 50% indicated that the spacing was good, 41.17% felt the spacing was average while 8.82% felt the spacing was poor. Maluba (2006) agrees with this study finding since his study found that classroom is the basic requirement to access education. Dudex (2000) observed that uncomfortable classrooms cause problems such as poor concentration span and writing difficulties thus reducing learning opportunities.

From these findings it can be concluded that the poor performance in national examinations may be as a result of poor spacing in classrooms.

The students were asked to state the status of classrooms in their schools. Their responses were presented in table 4.9.
<table>
<thead>
<tr>
<th>Status</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Highly adequate</td>
<td>5</td>
<td>4.71%</td>
</tr>
<tr>
<td>Inadequate</td>
<td>53</td>
<td>50%</td>
</tr>
<tr>
<td>Adequate</td>
<td>42</td>
<td>39.62%</td>
</tr>
<tr>
<td>Highly inadequate</td>
<td>6</td>
<td>5.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

On adequacy of classrooms 4.71% indicated that they were highly inadequate. 50% of the students indicated, 39.62% said the classrooms were adequate while only 5.66% said the classrooms were highly inadequate.

The students were asked to give the status of desks and chairs in their classrooms. Their responses were presented in table 4.10.
Table 4.1.0

Status of desks and chairs

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Highly adequate</td>
<td>4</td>
<td>3.77%</td>
</tr>
<tr>
<td>Inadequate</td>
<td>39</td>
<td>36.79%</td>
</tr>
<tr>
<td>Adequate</td>
<td>60</td>
<td>56.6%</td>
</tr>
<tr>
<td>Highly inadequate</td>
<td>3</td>
<td>2.83%</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100%</td>
</tr>
</tbody>
</table>

Majority of the respondents (56.6%) said the desks and chairs were adequate while only 2.83% said the desks and chairs were highly adequate. 36.79% of the students felt that desks were inadequate.

When asked about the status of bookshelves in their classes the students gave the responses presented in table 4.1.1
Table 4.1.1

Status of bookshelves in classrooms

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available</td>
<td>92</td>
<td>86.79%</td>
</tr>
<tr>
<td>Highly adequate</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Inadequate</td>
<td>11</td>
<td>10.37%</td>
</tr>
<tr>
<td>Adequate</td>
<td>3</td>
<td>2.83%</td>
</tr>
<tr>
<td>Highly inadequate</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Majority of the students (86.79%) indicated that bookshelves were not available and only 10.37% indicated presence of bookshelves which were inadequate. The researcher observed that the students’ books were heaped on the floor at the back of the classroom in most schools which made the classrooms very untidy. The students were asked to state what they would want improved in the classrooms and their responses were presented in Table 4.1.2.
Table 4.1.2
Desired improvements in classrooms

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>28</td>
<td>26.4</td>
</tr>
<tr>
<td>More desks</td>
<td>13</td>
<td>12.3</td>
</tr>
<tr>
<td>Improved spacing</td>
<td>6</td>
<td>5.7</td>
</tr>
<tr>
<td>Book shelves</td>
<td>34</td>
<td>32.1</td>
</tr>
<tr>
<td>Floor repair</td>
<td>12</td>
<td>11.3</td>
</tr>
<tr>
<td>ICT</td>
<td>5</td>
<td>4.7</td>
</tr>
<tr>
<td>Nothing</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

On what would be improved in the classrooms 5.6% indicated that desks and chairs need to be repaired, 26.41% felt that the classrooms need electricity installation. 12.26% felt that more classrooms need to be provided. 5.66 % felt that spacing of desks need improvement, 31.13% indicated a requirement of bookshelves in the classrooms. 11.32% felt the floor require repair while 7.54% indicated that ventilation needed to be improved.

Asked about ventilation of the classrooms, the teachers gave responses which were presented in Table 4.1.3.
<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>28</td>
<td>82.4</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>17.6</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>100</td>
</tr>
</tbody>
</table>

Majority of the respondents (82.35%) felt that the classes were properly ventilated while a few (17.65%) felt that they were not properly ventilated. The researcher observed that although ventilation was okay, all the classroom windows had grills which is against the government guidelines. The principals cited security threat when students are away from school.

### 4.5 Influence of school grounds size to students performance

In this research question, the researcher sought information on school acreage and number of streams, adequacy of co-curricular infrastructure,

#### 4.5.1 Land size and number of streams

The study sought to gather information on influence of school ground size to students performance. Table 4.13 shows school acreage and the number of streams in the schools.
Table 4.1.4

School acreage and number of streams

<table>
<thead>
<tr>
<th>Acreage</th>
<th>Streams</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>2</td>
<td>33.3%</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>2</td>
<td>33.3%</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>2</td>
<td>33.3%</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

All the schools were located on a 5 acres piece of land. Majority of the schools (66.6%) flouts the government guidelines as this size of land is set for a single stream day secondary school because they were more than one stream.

4.5.2 Adequacy of co-curricular infrastructure

The study sought to find out the adequacy of co-curricular infrastructure namely playfield, games equipment, music rooms and swimming pools. Mokaya (2013) notes that co-curricular infrastructure should be well located and well structured for nurturing talents in students. The availability of adequate playing fields and necessary equipments are important for talent development. The responses were shown in the figure 4.1
On playfields all schools had playfields. The students gave their responses as follows. 16 (15.09%) indicated that they were very adequate, 54 (50.94%) indicated that they were just adequate, 29 (27.35%) said the fields were inadequate while 7 (6.6%) said they were very inadequate. On games equipments 6 (5.66%) indicated that they were very adequate, 24 (22.64%) said they were adequate, 59 (55.66%) said they were inadequate, 12 (11.32%) indicated were very inadequate while only 9 (8.49%) said they were not available. Majority of the students 72 (67.92%) said that their schools did not have music rooms, 13
(12.26%) said they were very inadequate, 16 (15.09%) said they were just inadequate, 2 (1.88%) indicated they were adequate while only 3 (2.8%) said they were very adequate. None of the schools had a swimming pool.

### 4.5.3 Availability of title deeds

The study sought to find out if schools have title deeds as required in the government guidelines. The responses were represented in Table 4.1.5

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available</td>
<td>1</td>
<td>16.7</td>
</tr>
<tr>
<td>Not available</td>
<td>5</td>
<td>83.3</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>100</td>
</tr>
</tbody>
</table>

Only 1 (16.67%) of the schools had that title deeds for their piece of land, while 5 (83.33%) are in the process of acquiring one as required in the guidelines.

### 4.5.4 Frequency of school inspection

The schools should be inspected regularly (At least twice yearly) as outlined in the safety manual for schools. The principals were required to indicate the frequency of school inspection and the information they gave was presented in Table 4.1.6
Table 4.1.6

Frequency of school inspection.

<table>
<thead>
<tr>
<th>Period</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Termly</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yearly</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>After 5 years</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

On inspection 50 percent of the principals indicated that inspection in their schools is done yearly while the other 50 percent indicated that inspection is done after every five years. They cited funding as a setback for implementing recommendations in the inspecting reports.

4.5.4 School gate, fence and security office

The safety manual for schools require every school to have a manned gate and a perimeter fence. The researcher used an observation checklist to get this information from schools.

All the schools had a decent school gate but none had security office. The gates were left open throughout where anybody gets in or out without restrictions. The safety standards manual states that school gates should be manned and visitors into the school but identify themselves before being allowed in. This area was noted by the researcher as one which threatens the security of those who occupy the schools especially during the day.
4.6 Influence of Sanitation infrastructure on students performance

These facilities are important for the students because when they are adequate, students feel comfortable. This study agrees with kinder (2003) who observed that when cleanliness in schools is maintained students get attracted and motivated which contribute to good academic performance of the students. Musyoka (2013) found out that schools which had proper sanitation performed better in KCSE than schools without. Sanitation facilities if not well maintained may affect the environment making it unconducive for learning activities. Musyoka’s study found out that majority of the schools had proper sanitation which made their environment clean.

In this research question the study sought to gather information on adequacy, location privacy and hygienic conditions of the sanitation facilities.

4.6.1 Adequacy of sanitation infrastructure

Ngaroga (2003) observes that inadequate sanitation infrastructure led to congestion which resulted in learners missing study time hence affecting their academic performance. Congestion also led to dirty toilets which affect performance of the learners since a clean environment promotes the health status of learners thus improving attendance and level of concentration in class. Adede (2012) observed that inadequate toilets disrupted learning as learners preferred to visit toilets during class time to evade long queues while others boycotted and waited until they return home to relieve themselves. This situation automatically
affects concentration and participation during lessons since learners were uncomfortable and under pressure.

The students were asked to assess whether the toilets in the schools were adequate and gave responses as presented in table 4.1.7.

**Table 4.1.7**

**Adequacy of sanitation facilities**

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate</td>
<td>13</td>
<td>12.26%</td>
</tr>
<tr>
<td>Average</td>
<td>42</td>
<td>39.62%</td>
</tr>
<tr>
<td>Inadequate</td>
<td>51</td>
<td>48.11%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>106</td>
<td>100%</td>
</tr>
</tbody>
</table>

Few students (12.26%) felt that the sanitation infrastructure were adequate, 42(39.62%) felt that they were average while 51 (48.11%) felt that they were inadequate. On privacy of sanitation facilities, 66.6% of the schools had boys toilets too close to the girls toilets which flouts the government guidelines. Only 33.3% of the schools had toilets for boys and girls on different corners of the school compound as laid out in government guidelines.

On adequacy of sanitation infrastructure, teachers were asked whether the sanitation facilities in their schools were adequate to serve the students needs.

Many teachers gave their opinions that the toilets were far from classes. During break time, the students use a lot of time to walk to and from the toilets. The study
found that the average number of students using one toilet was between 54 and 59 contrary to the Ministry of Education (MOE) guidelines of 30-50 students per toilet. This led to overcrowding and delay of students to class. stating that some of the toilets were dilapidated.

4.6.2 Privacy of sanitation infrastructure

This question was asked to both teachers and students. All the schools under study had mixed gender hence the dire need for privacy. Their responses were presented in table 4.1.8

**Table 4.1.8**

<table>
<thead>
<tr>
<th>Response</th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18</td>
<td>68</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>106</td>
</tr>
</tbody>
</table>

Majority of the teachers (52.94%) indicated that there was privacy in the students sanitation while 47.06% said the infrastructure did not offer privacy. Majority of the students (64.15%) felt that there was privacy while 35.85% felt that there was no privacy

4.6.3 Effect of sanitation infrastructure on student performance

The students were asked to assess the effect of sanitation infrastructure on their performance. Their responses were presented in table 4.1.9
Table 4.1.9

Effect of sanitation infrastructure on student performance

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>58</td>
<td>54.71%</td>
</tr>
<tr>
<td>No</td>
<td>48</td>
<td>45.28%</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100%</td>
</tr>
</tbody>
</table>

Majority of the students (54.71%) felt that sanitation infrastructure had an effect on their performance while the rest (45.28%) felt that the infrastructure had no influence on their performance.

4.7 Relationship of library construction and students performance

On the research question whether government guidelines on construction of library influence students’ academic performance, It is worth noting that none of the schools where the study was carried out had a library. These findings explain the poor performance in the sub-county. This agrees with Musyoka (2013) who found out that schools that have libraries performed better in KCSE than those without. Musyoka’s study found out that even those schools which had libraries, they were just stocked with coursework book materials and no reference books. This affects the preparation of the students in examinations The findings also agree with those of Tanui and Kaberia (2011) which revealed that students in schools with adequate libraries tended to achieve higher on average test scores. According to their study, libraries should be viewed as a vital partner in
knowledge management that shares with all other instructional agents hence an
educational system without a library will limit students academic achievement
and their level of exposure to current developments and trends in the world.
Earlier studies showed that a library is an essential factor in teaching-learning
process. The library makes available all books, periodicals and other reproduced
materials which are of interest and value to the students but not provided or
assigned to them as basic or supplementary textbooks. All the schools had very
few textbooks which were used by teachers and others issued to some students.

4.8 Government guidelines and students performance

The researcher sought information on whether government guidelines are
followed in the construction of infrastructure and the performance of the schools
under study. Nthenya (2012) recommended that policy makers should follow up,
monitor and evaluate safety situations in all schools to sustain school safety.

4.8.1 Adherence to government guidelines

The teachers were asked whether their schools are constructed and occupied in
consultation and approval of the Ministry of Works. Their responses were
presented in table 4.2.0
Table 4.2.0

Whether schools are constructed following government guidelines

<table>
<thead>
<tr>
<th>Response</th>
<th>Outcome</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22</td>
<td>64.71</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>35.29</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>100</td>
</tr>
</tbody>
</table>

Majority of the teachers (64.71%) said that government guidelines were adhered to while 35.29% said that the guidelines were not followed. Those who said that infrastructure was not constructed following government guidelines gave reasons that most of the facilities were constructed before the enactment of the safety regulations in the year 2003.

When asked whether infrastructure in the school have been constructed following the government guidelines, principals indicated that some guidelines were flouted. Their responses were presented in figure 4.2.
Figure 4.2 Government guidelines on infrastructure

All the principals were aware of the guidelines in the safety manual for schools but said some of the infrastructure was developed for temporary use.

The students were asked to rate performance in their schools as either excellent, good, average, poor, or very poor. Their responses were presented in Table 4.2.1
Table 4.2.1

**Performance in national examinations**

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>10</td>
<td>9.43%</td>
</tr>
<tr>
<td>Good</td>
<td>22</td>
<td>20.75%</td>
</tr>
<tr>
<td>Average</td>
<td>70</td>
<td>66.04%</td>
</tr>
<tr>
<td>Poor</td>
<td>4</td>
<td>3.77%</td>
</tr>
<tr>
<td>Very poor</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>99.99%</strong></td>
</tr>
</tbody>
</table>

Majority of the students (66.04%) indicated that performance in their schools was average. Very few (9.43%) felt that the performance was excellent. None of the students indicated that performance was very poor. Many students said they performed poorly because they do not have enough facilities like libraries. Kinder (2003) concluded that good infrastructure promote effective teaching and learning thus classrooms and libraries should be well located and equipped.

The students were asked whether the overall performance in their schools was influenced by the existing infrastructure. Their responses were presented in table 4.2.2
Table 4.2.2

Relationship of existing infrastructure and performance

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>85</td>
<td>80.19%</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>19.81%</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100%</td>
</tr>
</tbody>
</table>

Majority of the respondents (80.19%) indicated that the existing infrastructure in their schools influenced the overall performance of students while only a few (19.81%) thought the infrastructure had no influence on students performance. 100% of the principals stated that the infrastructure in their schools negatively affected student performance and required improvement. Asked about the challenges they face in implementing government guidelines on infrastructure development, 88.83% cited for funding as a major setback both from the parents and the government. 13.77% gave limited space as their challenge while 2.9% gave rogue contractors who win tenders for construction especially where constituency development fund (CDF) is concerned.

On challenges most principals indicated teachers are not enlightened on safety standards for schools. They recommended that teachers be trained on school health, safety and government guidelines.

The principals were asked to indicate their schools performance between the year 2011 to 2014. The performance was presented in table 4.2.3.
Table 4.2.3

School mean scores in KCSE from 2011-2014

<table>
<thead>
<tr>
<th>School</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.28</td>
<td>4.61</td>
<td>4.98</td>
<td>5.73</td>
</tr>
<tr>
<td>B</td>
<td>4.14</td>
<td>3.88</td>
<td>3.34</td>
<td>4.66</td>
</tr>
<tr>
<td>C</td>
<td>4.20</td>
<td>4.80</td>
<td>4.40</td>
<td>5.61</td>
</tr>
<tr>
<td>D</td>
<td>3.73</td>
<td>4.00</td>
<td>3.43</td>
<td>4.32</td>
</tr>
<tr>
<td>E</td>
<td>4.34</td>
<td>4.54</td>
<td>3.65</td>
<td>4.30</td>
</tr>
<tr>
<td>F</td>
<td>4.61</td>
<td>4.68</td>
<td>5.09</td>
<td>5.69</td>
</tr>
</tbody>
</table>

From the table performance in all the schools under study is below the average mean of six points. Performance in almost all the school is not consistent and keeps fluctuating.
CHAPTER FIVE

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on a summary of the study, conclusions, recommendations and suggestions for further research based on the issues raised in the study.

5.2 Summary of the study

The study findings are presented below under themes from the objectives of the study. The study aimed at investigating the influence of government guidelines on infrastructure development on students’ academic performance in public day secondary schools in Kirinyaga East Sub County, Kenya. The study concentrated on the following objectives. To determine the extent to which government guidelines on classroom size, school ground size, Sanitation infrastructure and construction of school library is related students’ academic performance in public day secondary schools in Kirinyaga East sub county Questionnaire for students, teachers and principal were used. The study was conducted using descriptive survey design .Data were collected in six out of the twenty one public day secondary schools in the sub-county.

To analyze the relationship of classroom size and students’ academic performance, the study found out that majority of the school did not adhere to government guidelines on construction of classrooms. Most classes were larger than recommended in order to accommodate more students which interferes with
the level of interaction between teachers and students. Some Classroom windows had grills while floors were full of potholes. Notable too was small desks which appeared uncomfortable for the learners. This may lead to poor academic performance.

To establish adherence to government guidelines on size of school grounds, the study found out that the public day secondary schools were initially meant to be single stream with 5 acres of land as per the government guidelines. Majority of these schools have expanded to double or triple streams without increase in land size which flouts government guidelines. Other aspects of school grounds have been ignored in majority of the schools as security office at the gate, labeling of trees and sign boards showing direction to various places within the school compound.

To determine the extent of adherence to government guidelines on sanitation facilities, the average number of students using one toilet was between 54-59 contrary to government guidelines of utmost 50 students per toilet. This led to overcrowding hence delay to classes. Privacy in these facilities was in question as majority of the schools did not have them at different corners of the school compound as recommended in MOE guidelines. None of the schools provided water and soap for use after visiting the facilities and the appearance of the facility in most schools was not appealing. This can negatively influence students performance because the unhygienic conditions may bring about sickness which make students to study away from school and miss classes.
To determine the extent of adherence to government guidelines on construction of school library, none of the schools under study had a library. The schools own a few copies of text books which are issued to some students. This means that students cannot hold private study in a quiet place whenever they are free within the school compound.

The significance of the study is that it is likely to benefit the Ministry of Education and Ministry of Finance in formulating policies and strategies to boost development of infrastructure in the schools in order to increase students access to education. In disbursing infrastructure funds the ministry may give special attention to day secondary schools especially in construction of school library. The Board of managers (BOM), parents and teachers association (PTA) who are the findings of this study to know the government guidelines and their influence on students academic performance as concerns classroom size, school ground size, sanitation facilities and school library.

Data was computed using the statistical package for social science (SPSS). The data was analyzed and presented in bar graphs, percentages and pie charts.

5.3 Conclusions of the study

After assessing the influence of government guidelines on infrastructure development in public day secondary schools in Kirinyaga East sub county, the study found out that to a larger extent, government guidelines were not followed. The absence of school libraries in all the public, day secondary schools is associated with poor performance by students in National Examinations. Absence
of bookshelves in the classes led to storage of books on the floor which is unhygienic. This coupled with absence of water points after visiting the toilets is an indicator of the level at which students are exposed to diseases which in turn will influence academic performance negatively.

If the schools have to expand, they have to consider acquiring extra land to reduce congestion on the school ground. Limited space denies students participation in co-curricular activities.

**5.4 Recommendations**

From the findings and conclusion, this study recommends the following:

1. The quality assurance and the standards officers should ensure that classrooms are in good condition and grills removed from the classroom windows. Classrooms located near busy roads should be built with noise proof materials to reduce the effect of noise.

2. Before expansion of schools, inspection of infrastructure should be carried out to ensure that government guidelines are not flouted after expansion. Proper location should be fundamental requirement for a school registration. This should be adhered to strictly to avoid mushrooming of schools without the vital infrastructure that enhance learning.

3. Schools should provide a variety of co-curricular facilities to help in talent development of the students.

4. Adequacy of sanitation infrastructure and privacy of the students when using these facilities should be enhanced. Cleanliness of these facilities
should be observed at all times to avoid health problems associated with poor sanitation.

5 Effort should be made to construct and equip a school library where students can spend the free time reading. The government should come up with a funding scheme for schools without library to construct one

5.5 Suggestions for further research

The researcher felt that this study does not exhaust the area of infrastructure in schools and the following areas could still be researched on to build on this body of knowledge.

1 This study was conducted in Kirinyaga East sub-county, there is need for replication of this study in the other sub-counties of Kirinyaga county and the whole country to elicit more accurate national perspective of adherence to government guidelines on infrastructural development and its influence on students academic performance

2 This study just considered relationship between adherence to classroom size, school ground size, sanitation facilities and library to student performance. There is need to investigate influence of adherence to government guidelines on boarding facilities, laboratories, administration block, infrastructure and the influence on students performance.

3 A need to carry out the study to evaluate the implementation of the co-curriculum activities in secondary schools.
This study was conducted in day secondary schools. A similar study need to be conducted in Private primary schools, private secondary schools and special schools in Kenya.
REFERENCES


APPENDICES

APPENDIX A:

LETTER OF INTRODUCTION

UNIVERSITY OF NAIROBI

P.O. BOX 30197-00100,

The Head teacher

……………. Secondary school

Dear Sir/ Madam,

RE: PARTICIPATION IN RESEARCH

I am a postgraduate student at the University of Nairobi pursuing a degree in Corporate governance. As partial fulfillment of the requirements for the award of the degree, I am conducting a research on adherence to government guidelines on infrastructural development on student academic performance in public day secondary schools in Kirinyaga East Sub county.

I request you to allow me to collect the data in your school. Please note that any information will not be used for any other purpose apart from this research project. Your assistance will be highly appreciated

Thank you

Yours faithfully,

Piah Muthoni Kibugua.E55/83627/2012
APPENDIX B

QUESTIONNAIRE FOR STUDENTS

This questionnaire is meant to collect information on how adherence to government guidelines on infrastructural development relates to students’ academic performance in public day secondary schools in Kirinyaga East Sub-County Kenya. Kindly fill / tick the applicable response. I assure you that your response will be treated with all confidentiality and your identity will not be disclosed whatsoever.

**Section A** demographic information

1 What is the name of your school

__________________________________________________________________________

2. What is your gender?

   male □ female □

3. What is your age bracket?

   13-16 ears □ 17-20 years □ above 20 years □

**Section B** teaching and learning infrastructure

4. Assess the correct status of the infrastructure in your school in the table given below.

   1= Not available  2= highly adequate  3= Inadequate  4= Adequate  5= highly adequate
<table>
<thead>
<tr>
<th>FACILITIES</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desks and chairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading tables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Suggest what needs to be improved in your classrooms in order to improve your performance in National Examinations.

6) Do you think the state of your school library has an effect on students’ academic performance?

Section C Sanitation infrastructure

7) How would you rate the sanitation facilities in your school?
   (a) Adequate (b) average (c) inadequate

8) How do you think the sanitation infrastructure in your school can be improved?

9) Do you think the state of sanitation infrastructure in your school influences academic performance of students in national examinations?
Section D  Co-curricular infrastructure and academic performance

10). How do you rate the adequacy of the following co-curricular facilities?

Key  1) Very adequate   2) Adequate   3) Inadequate   4) Very inadequate

<table>
<thead>
<tr>
<th>Facilities</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playground</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Games Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drama costume</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11) How would you rate the overall performance of this school in National Examination?

1) Excellent   2) Good   3) Average   4) Poor   5) Very poor

12). In your opinion, is the overall performance of this school influenced by the existing infrastructure of the school?

Thank you for your response
APPENDIX C

QUESTIONNAIRE FOR TEACHERS

This questionnaire is meant to collect information on the Adherence to government guidelines on students’ performance in Public day secondary schools in Kirinyaga East Sub county, Kenya kindly fill/tick the applicable response. I assure you that your response will be treated with strict confidentiality and your identity will not be disclosed whatsoever.

Section A Demographic information

1) What is your gender? Male/female

2) What is your position in the school?

(a) Teacher (b) HOD (c) Others. specify.

Section B Teaching and learning infrastructure

3) In your own opinion, are the classrooms properly located?

   Yes [ ] No [ ]

4) How would you rate the spacing of learner’s lockers in classrooms in this school?

   1) Excellent [ ] 2) Good [ ] 3) Average [ ] 4) poor [ ]

5) Do you think the classrooms are properly ventilated?

   a) Yes    b) No

6) In your own opinion, is the school library properly located?

   Yes [ ]

______________________________________________________________
Section C Sanitation and Co-curricular infrastructure

7) In your own opinion, are the sanitation facilities in this school adequate to serve this student's needs?

Yes [ ] No [ ]

Explain your answer

8) To what extent do the following co-curricular facilities affect the overall academic performance of this school?

Key 1=Very low 2=Low 3=High 4=Very high

<table>
<thead>
<tr>
<th>Facilities</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fields</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Game Equipments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music rooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section D Academic performance and Government guidelines on infrastructure

9) Do you think the following infrastructure have any influence on student academic in your school? In each case state the reason for your answer.

a) Classroom

B) School ground

c) Sanitation facilities

d) Library
10) In your own opinion, is this school constructed and occupied in consultation
with approval of Ministry of Public Works?

Yes ☐  No ☐

11) What are the possible constraints in the implementation of government
guidelines in this school? ________________________________

12) Give suggestions on what should be done to overcome the constraints which
Are faced in regard following government guidelines ________________________________
APPENDIX D

QUESTIONNAIRE FOR PRINCIPALS

Dear Sir /Madam

This questionnaire is meant to collect information on the adherence to government guidelines on students’ performance in Public day secondary schools in Kirinyaga East Sub county, Kenya. Kindly fill/tick the applicable response. I assure you that your response will be treated with strict confidentiality and your identity will not be disclosed whatsoever.

Section A Classroom infrastructure

1) How many streams is your school?
   a) one   b) two    c) three

2) What is the average population per class?
   a) below twenty   b) 20-40  c) over forty

Section B School grounds

3) Does your school have a title deed?
   Answer Yes or No

4) What is the school acreage?
   ...........................................................

5) How do you ensure that there is security within the school during the day?
   ........................................................................
   ........................................................................
6) How often is your school inspected?
   a) Termly b) yearly c) After 5 years d) not at all

Section C  Sanitation infrastructure

7) What is the current student population?
   ……………………………………………………………………………………

8) Is water supply in your school regular ?
   a) Yes b) No

9) How do you ensure that proper hygiene is observed within the sanitation facilities?
   ……………………………………………………………………………………
   ……………………………………………………………………………………

Section D  Library Infrastructure

10) Is the school library accessible to the students any time they are free?
    a) Yes b) No

11) Do you think the school library is spacious enough to accommodate the students who would want to use it at any one time?
    a) Yes b) No

Section E  Government guidelines and academic performance

12) In your own opinion are the following school infrastructure constructed in accordance with government guidelines? Answer yes or no.
    a) Classrooms. Yes /no
    b) Play fields. Yes/no
c) Sanitation facilities. Yes/no

D) Library. Yes/no

13) Do you think the state of the above infrastructure in your school influences students academic performance in any way?
   a) Yes  b) No

14) What challenges do you face when implementing government guidelines on infrastructural development?

15) Indicate your school mean in KCSE from year 2011-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
</tr>
</tbody>
</table>

Thank you for your responses
APPENDIX E

OBSERVATION CHECKLIST

<table>
<thead>
<tr>
<th>facility</th>
<th>Available</th>
<th>Not available</th>
<th>compliant</th>
<th>Not compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classrooms size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ventilation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desks and chairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soap and water source</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privacy of toilets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toilets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate and security office</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signboards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play field</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bookshelf spacing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Physical location of facilities and their compliance with government guidelines in public Day secondary schools in Kirinyaga East Sub-county
APPENDIX F

LETTER OF AUTHORIZATION

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacost.go.ke
Website: www.nacost.go.ke
When replying please quote

Ref: No. NACOSTI/P/15/90561/8830

30th November, 2015

Piah Muthoni Kibugua
University of Nairobi
P.O. Box 30197-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Influence of government guidelines in infrastructural development on students performance in public day schools in K.C.S.E in Kirinyaga East Sub County, Kenya.” I am pleased to inform you that you have been authorized to undertake research in Kirinyaga County for a period ending 24th November, 2016.

You are advised to report to the County Commissioner and the County Director of Education, Kirinyaga 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.

Said Hussein
For: Director General/CEO

Copy to:
The County Commissioner
Kirinyaga County.
The County Director of Education
Kirinyaga County.
APPENDIX G

RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MS. PIAH MUTHONI KIBUGUA
of UNIVERSITY OF NAIROBI, 0-10300
Kerugoya, has been permitted to
conduct research in Kirinyaga County
on the topic: INFLUENCE OF
GOVERNMENT GUIDELINES IN
INFRASTRUCTURAL DEVELOPMENT ON
STUDENTS PERFORMANCE IN PUBLIC
DAY SCHOOLS IN K.C.S.E IN KIRINYAGA
EAST SUB COUNTY, KENYA
for the period ending:
24th November, 2016

[Signature]

Applicant's Signature

Permit No: NACOSTI/P/15/90561/8830
Date Of Issue: 30th November, 2015
Fee Recieved: Ksh 1,000

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.
Government Officers will not be interviewed
without prior appointment.
2. No questionnaire will be used unless it has been
approved.
3. Excavation, filming and collection of biological
specimens are subject to further permission from
the relevant Government Ministries.
4. You are required to submit at least two (2) hard
copies and one (1) soft copy of your final report.
5. The Government reserves the right to
modify the conditions of this permit including
its cancellation without notice.

RESEARCH CLEARANCE PERMIT

CONTRIBUTIONS

[Signature]

Applicant's Signature

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

CONDITIONS: see back page

Serial No: 7347