INFRASTRUCTURE AND ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS IN THIKA SUB-COUNTY, KIAMBU COUNTY, KENYA

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF EDUCATION, HUMANITIES AND SOCIAL SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF EDUCATION ARTS OF GRETSA UNIVERSITY

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DECLARATION

This research project is our original work and has not been presented for award of a degree or for any similar purpose in any other institution.

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ABBREVIATIONS

CDF Constituency Development Funds

ICT Information and Communication Technology

KCSE Kenya Certificate of Secondary Education

KNBS Kenya National Bureau of Statistics

NBER National Bureau of Economic Research

NCES National Center for Education Statistics

OECD Organization for Economic Co-operation and Development

UNESCO United Nations Education, Scientific and Cultural Organization

WHO World Health Organization

OPERATIONAL DEFINATION OF TERMS

Academic Performance: Refers to success in standardized national examination at critical stages of life. For example, KCPE and KCSE, where one must succeed in order to proceed further in education or a sample of achievement of a student with respect to attained skills or knowledge.

Infrastructure: The basic physical and organizational structures and facilities needed for the operation of society or enterprise.

Poor performance: Refers to sample of achievement that is inadequate of what is expected to enable one to proceed to the next level.

Population: The total number of people in a region.

School infrastructure: Refers to the network of facilities, facilities, buildings, equipment and grounds that support educational services.

Secondary schools: A school for students between the levels of elementary school and college .

Technology: Refers to the application of scientific knowledge to the practical aims of human life.

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ABSTRACT

Infrastructure in the education sector is very important in learners' academic performance. The study investigated the impacts of school infrastructure on academic performance of secondary school students in Thika sub county, Kiambu county. The objectives of the study were to investigate how the quality of physical and technological infrastructure affect academic performance of secondary school students. The theory used was Tintos theory. This study used descriptive survey design and collected data using questionnaires from the sampled respondents. The data was analyzed and presented using tables. The study established that good infrastructure positively impacted students' academic performance. The study encouraged the stakeholders to invest in suitable physical and technological infrastructure in secondary schools to promote good academic performance.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter is all about the background of the study whereby the subject topic is introduced, statement of research of problem, purpose of the study, conceptual framework, research questions, objectives of the study, significance of the study, limitation of the study and theoretical concept that was useful in the study concerning the institutional challenges affecting the secondary schools in Thika sub-county.

1.1 Background of the Study

According to study by (Teixera et al, 2017), conducted in the United Kingdom have shown the impact of infrastructure on learners' educational outcomes and explains 16% of the variations in secondary schools' students' academic achievement. This analysis shows that the way school facilities are designed has an effect on learning process based on the three characteristics; they must be natural, stimulating and individualized.

The results of (Bullock, 2007) studies show there is a relationship between school facilities and student achievements in secondary schools. (Shannon, 2013) discovered that a big number of insufficient school infrastructures located in rural and some urban areas which leads to low school outcomes and development. The United Nations education for scientific and cultural organization (UNESCO, 2008), revealed that education reforms need to involve all educational stakeholders to and effective classroom settings.

In Africa, the learning instructions established in formal education require well-equipped school infrastructure (Lanham, 2000). (Karue and Amukowa, 2003) explain that academic achievement of learners is highly affected by available educational infrastructure in the given schools. This implies that the school whose standard which is also well equipped, provides better student

academic performance rather than the school which doesn't have complete school infrastructures and well equipped.

According to (Zipporah ,2013), Her study was that improved academic achievement is associated with more adequate and well-spaced classrooms, adequate science laboratories, adequate water and sanitation facilities and adequate participation of curriculum activities. Another research by (Murillo and Roinan, 2011) in Latin America reveled that academic achievement is affected by availability of infrastructural facilities. (Akomolafc and Adesua ,2016) conducted a study in west Nigeria and learnt that a relationship existed between physical facilities in schools and academic performance.

In Kenya, the free primary education is introduced and aimed to reducing the illiteracy levels in the country as it aims that by 2015 every Kenyan will be able to read and write (Universal Primary Education and Education for All by the year 2015.The policy has however worsened the quality of education due to high enrollment with limited physical infrastructure such as classrooms. The problem worsens by the policy of 100% transmission to secondary schools introduced in 2018 by the ministry of Education.

Thika town which is the main focus of this study is a highly populated area. Inadequate educational infrastructure such as classrooms in the area has affected the delivery of quality education. This has contributed to absenteeism of students, student dropouts and overall poor performance. In the last year 2023 KCSE, despite the schools in Thika town performing well, a report by Kenya News Agency (KNAE)reports that some of the school principals complained of the overwhelming students' enrollments and population.

(Chepkonga ,2017), asserts there is scarcity of school infrastructure in secondary schools in Kenya. In the study it was revealed that most secondary schools in Kenya lack schools'

infrastructure and that the schools are running out of adequate learning facilities which influenced the quality of education, for instance the performance of school in Gatanga divisions is relatively poor.

Kenya's government has tried to improve school infrastructure as the goal to achieve vision 2030 of ensuring quality education and training. Through the CDF fund a number of secondary schools have been built. The fund also aims to help in infrastructure improvement in different area and yet still the problem is there and very little has been done to explore the contribution of school infrastructures to students' academic performance in Kenya including Thika town Kiambu county. Therefore, this study is being conducted to explore infrastructural challenges and their impact on secondary school students' academic performance.

1.2. Statement of the Research Problem

For some time, there has been a rapid increase of students' failure relative to success in schools in Thika sub county. The failures could continually be due to the accentuation of lack of school facilities or absolute ones that do not promote good working conditions in general and apprenticeships in particular (Teixeira, Amoroso and Gresham, 2017). We asked ourselves whether students' 'academic' performance was really influenced by the state whether good or bad of school facilities and infrastructure.

We need to mention that the schools studied are both private and public and many have different infrastructural structure, due to this; a report the star on October third 2023 by John Kamau reports that Thika MP Alice Nga'nga regretted that the poor state of some public learning institutions has occasioned absenteeism and dismal performance among learners. Owing to the rapid population growth rate spews out an ever-increasing number of students keen to join the education system at all levels (Karemei, 2010). Challenges arising from the pressure placed upon

available educational resources and funds have been growing steadily. This study will examine the examine the influence of school infrastructure on academic performance in secondary schools in Thika sub county Kiambu county Kenya.

1.3. Purpose of the Study

This study sought to investigate the impact of school infrastructure on students' academic performance of secondary schools in Thika town subcounty.

1.4. Conceptual Framework

A conceptual framework for researching the impact of infrastructure on academic performance illustrating the relationship between the infrastructure components and the presence of long-term investments in schools and academic outcomes (performance)

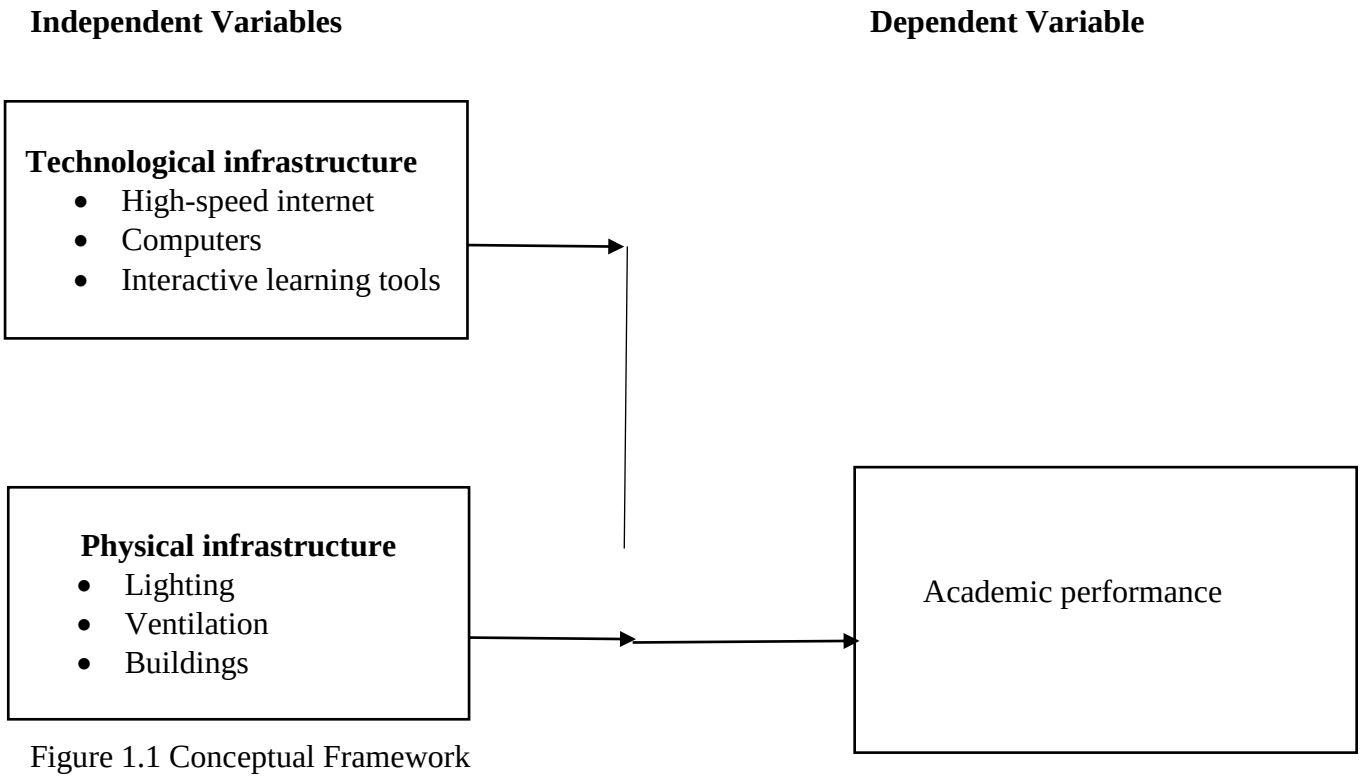

Figure 1.1 Conceptual Framework

1.5 Research Questions

The research study was guided by the following research questions:

1.How does the quality of physical infrastructure affect student academic performance in secondary schools in Thika sub-county, Kiambu County?

2.How does technological infrastructure affect students' academic performance in secondary schools in Thika sub-county, Kiambu County?

1.6. Objectives of the Study

The study was guided by the following objectives:

1) To investigate how the quality of physical infrastructure affect students' academic performance in secondary schools in Thika sub-county, Kiambu county.
2) To determine how technological infrastructure, affect students' academic performance in schools in Thika sub county, Kiambu county.

1.8. Significance of the Study

The research addressed how infrastructure affects the performance of students in Thika town Sub- County, which in turn helped to show areas that require improvement in order to improve students' performance.

The research focuses on providing more understanding to the school administrators on how infrastructure affects the performance of students in Thika Sub County.

The findings of this study were useful to the ministry of Education of Thika Sub County on improving infrastructure in schools in the sub-county in order to improve academic performance of students in schools.

The study also helped the school management to find ways on how to improve infrastructure in order to encourage hard work among students which will improve academic performance.

1.9. Scope of the Study

This study was conducted in schools around Thika Sub county and included information from teachers and members of school management. The study aimed to determine how infrastructure affect students' performance in schools within Thika Sub County.

1.10 Limitations of the Study

The research gave the questionnaires for teachers and principals and left them to be filled when they had sufficient time. This however increased the study period making researchers take a longer time to complete the study. To encounter this challenge, the researcher reminded and encouraged them to take the shortest possible and reasonable deadlines.

1.11 Assumptions

It was considered in this study that respondents would be cooperating and would provide reliable and accurate information.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter gave the researcher the outline of the study basing on the factors from the research. It also provides literature from previous researchers and their views of this topic. Basically, impacts of infrastructure in enhancing academic performance of students in Thika town sub-county **2.2 Review of related literature to the study**

The study reviewed existing literature to understand how school infrastructure affects academic performance. This provided the foundation of the research.

2.3 Impact of Physical Infrastructure on Students' Academic Performance

(Kerubo, 2013) noted that infrastructure facilities in secondary schools of Assam state in Sivasagar district, India, lacked sufficient infrastructural facilities affect the academic performance of students. The existence of poor infrastructure cause irritation and friction within learning institutions. (Lahon, 2015) revealed that a planned infrastructure in schools is a center of satisfactory students learning. Thus, despite that the previous studies showed that infrastructure has greatly impacted on academic performance among students, they did not tell how of which the current study needs to show.

(Suliah and Arafat ,2019) assessed headmasters' strategies to maximize using infrastructure, and teacher's role in improving the quality of learning in elementary schools in Pakistan. The study findings indicated that headmasters used efforts to maximize the teaching processes in the classrooms, but did not achieve objective due to an insufficient number of classrooms. (Kathuri ,1984). A study published in frontiers in psychology (2023) found that factors such as lighting, temperature and noise levels significance affects students' concentration and overall academic performance. For instance, well-lit classrooms with appropriate temperature control were associated with higher levels of student engagement and lower levels of class boredom.

Moreover, the arrangement of furniture can influence how students interact amongst themselves. Sitting arrangements in class that favor pairing of learners help them assist each other thus improving content intake. This aligns with findings from Educational psychology review (2022), which indicated that classrooms designed for collaborative work led to improved problem-solving skills among students.

2.4 Impact of Technological Infrastructure of Students' Academic Performance

(Volti ,2001) defined ` technology` as principles and terminologies of arts, particularly involving science. According to him, technology has affected our society, causing the greatest problems of an age influenced by technology. Likewise, based on Costley, technology in teaching and learning can unlock learning possibilities for all students. (Costley, 2014)

Challenges faced by educators as they struggle to integrate technology in the schools as well classrooms include insufficient equipment's or connectivity, internet problems, poor electricity supply and inadequate teachers training or skills (Russeu, and Stam, 2016).

Technology can increase student engagement by providing interactive and personalized learning experiences. Research indicates that students who utilize educational technologies tend to show higher levels of motivation and participation in their studies (Hattie and Donoghue, 2016).

This is confirmed by (Klopfer et al, 2009), who observed the effects of technology in classrooms and believes the class becomes stronger by incorporating technology.

With technology, students gain access to a vast array of resources beyond traditional textbooks. This includes online databases, e-books, educational videos, and collaborative tools that enhance research capabilities (Baker et al ,2020)

Proficiency in using technology is increasingly recognized as essential for success in both academic settings and future careers. Students regular access to technology are more likely to

develop critical skills such as information literacy, problem-solving abilities and digital communication (OECD, 2021).

World Health Organization (WHO) provides extensive research on how environmental factors affect health outcomes among students.

The psychological impact of safety concerns cannot be left out. A study by the journal of educational psychology found that students who feel safe in their school environment are more likely to participate actively in class and perform better academically (Smith and Jones, 2023). Also, schools with high incidences of violence may have declines in student performance due to distractions. This aspect is particularly relevant in Thika Town sub-county where some schools are located in areas prone to violence or other insecurities.

Investment in infrastructure has been linked to improved academic outcomes. A comprehensive review by educational Evaluation and policy Analysis highlighted that schools receiving funding for renovation or new construction often report higher test scores post-improvements (Johnson et al, 2024). This shows there is a relationship between the quality of infrastructure and educational success.

Reports from organizations like the National center from Education statistics emphasize the need for ongoing assessments of school infrastructure to maintain high standards for student learning environments (NCES, 2024).

2.5Theoretical Framework

This study will be guided by Tinto's (2012) Theory of student retention which focuses on the factors that influence students' ability to stay in and succeed in schools. In terms of infrastructure, Tinto's theory suggests that the physical and social environment of the school

plays a crucial role in student success and retention which in turn impacts academic performance. Tinto argues that students who are academically integrated into the school environment such as through access to adequate resources for example the libraries, internet, well equipped classrooms are more likely to succeed. If students have infrastructure that they need to engage with learning materials and participate in class activities, they are more likely to feel connected to their academic work which boosts their performance. Academic interaction contributes to higher levels of student's engagement and academic achievement. Therefore, improving infrastructure is crucial in enhancing student retention and performance.

2.6 Identified Gaps

Low-income schools are disproportionately affected by inadequate facilities, which can hinder students' academic performance, health and overall well-being. The study stresses the need for more equitable funding and updated policies to address these infrastructure inequalities, as well as the comprehensive research that takes into account the variety of factors impacting student learning environments. This calls a deeper investigation into how physical conditions like classroom, temperature, lighting, air quality and building safety directly and indirectly affects students and teachers. They also point out infrastructure research often fails to address long-term impacts and broader social and environmental contexts, which are crucial for understanding how facilities influence educational outcomes

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter focused on the research design, study area, target population, sampling technique, sample size, measurement of variables, research instruments, research instruments, reliability and validity measures, data collection, analysis of data as well as the logistics and ethical considerations that make up the entire study.

3.1 Research Design

The research design that was employed on this study was descriptive survey design. A descriptive survey research design is an approach of descriptive research that blends quantitative and qualitative data to provide relevant and accurate information. It is a time efficient research method. It engages the people who are at the center of research objectives. (Voxco, 2021)

3.2 Study Area

This study was carried out in Thika Sub County, Kiambu County, Kenya where a number of schools were sampled, to aid in establishing findings of the study. This area was selected because it has both top performing schools, average and well, the below average performing schools. It has a considerable number of students dropping out of school due to reason that this research sought to establish whether or not is a determining factor.

3.3 Target Population

According to (Mugenda and Mugenda, 1999), a population is defined as a complete set of individual cases or objects with some characteristics that differentiate it from other population. The study target population was all teachers' principles and students in Thika Sub-County, Kiambu County. According to the Kenya National Bureau of Statistics (KNBS)2019, there are

approximately 30 secondary schools in Thika Town, with an estimated total student's enrollment of around 10,000 students.

3.4 Sampling Techniques

According to (Gay ,1992), a researcher selects a sample due to various limitations that may not allow the researcher to use the whole population.

The sampling techniques that was used is simple random sampling, because the schools were randomly selected. Simple random sampling is a randomized selection of a small segment of individuals or members from a whole population. (CFI TM 2021).

3.5 Sample Size

A total of 12 schools were sampled. The method of sampling selected guaranteed representation of the study area thus increasing the efficiency of the population. Each school was assigned a number, the writings of each number placed in a container, from where the researcher picked the required number (fourteen). This ensured each school was appropriately represented.

All the twelve (12) principals of sampled schools were respondents to the principal's questionnaire. Teachers' respondents were sampled randomly from those who taught the schools. The researcher used 40 teachers are representative sample. The researcher sampled 400 students from the 12 schools from the current form fours using probability proportionate to size. Principals, teachers and learners formed a core group in this study because they are key players in the academic performance of students.

3.6 Measurement of Variables

Table 1 Measurement of Variables

Variables	Measures\indicators	Measurement scale	Question number
Classroom environment	➢ Poor ➢ Fair ➢ Good ➢ Excellent	Ordinal	A
Internet connectivity	➢ No access ➢ Limited ➢ Moderate ➢ High		B
Library	Yes or no	Nominal	C
Laboratory quality	➢ Poor ➢ Fair ➢ Good ➢ Excellent	Ordinal	D
Electricity access	Yes or no	Nominal	E

3.7 Research Instruments

The research instrument that was used in this study was questionnaires which were open and closed for principals, teachers and students. The questionnaires were admitted through hard copy to the students, teachers and principals. It was considered since it could easily administer.

3.8 Validity of Measurement

As explained by (Scribbr, 2019) validity refers to how accurately a method measures what it was designed. If a method measures what it claims to measure, and the result closely corresponds to real world values, then it can be considered valid. The researcher went through the research instruments in relation to the set objectives to make sure that it contained all the necessary information to meet set objectives. This helped the researchers in establishing if the instrument was comprehensive enough to elicit the intended information exhaustively and whenever there was need, a revision was done accordingly.

3.9 Reliability of Measurements

In order to test the reliability and consistency of the research measurement instruments the researcher can analyze the data collected in order to calculate its reliability.

3.10 Data Collection Techniques

The researchers travelled to the 12 schools for familiarization before administering the instruments to the students, teachers and principals. After issuing the research instruments, the researchers explained clearly contents of questionnaires to the respondents. They were given ample time to study and the questions accordingly. After that, the researchers collected the filled questionnaires for analysis.

3.11 Data Analysis

The method of data analysis used was descriptive statistics which was the use of frequency tables and percentages. Among the stats analyzed were the age, gender, academic qualifications and experiences.

3.12 Logistical and Ethical Consideration

According to Saundebiis and Thorn Hill, research ethics research ethics refers to appropriateness of the researcher behaviors in the relation to the rights and the respondents.

The name of the participants was to not be used in the questionnaires or any part of the study. The respondents were assured that the information would be confidential. This was to ensure the code of conduct is adhered to, to ensure a safe and productive research. Collected data was presented to the relevant authorities and personnel and the findings of the research was also presented without bias and manipulation.

CHAPTER FOUR: FINDINGS AND DISCUSSIONS

4.0 Introduction

In this chapter we present and analyze the data collected during the research in relation to the objectives and research questions. The data presented covered the state and numbers of infrastructure, classroom condition, importance of technological access, safety of school infrastructure and long term investments on students' academic performances in Thika Sub-County.

The chapter also presents analysis and findings of the study as set out of the research methodology. The study findings were presented showing the infrastructure and academic performance of secondary school students in Thika Sub-County, Kiambu county. The data was gathered from the questionnaires administered to the respondents. The results here were presented in frequency tables and discussions.

4.1 Questionnaire Return Rate

Respondents were given questionnaires which they filled and returned to the researcher. The questionnaire return rate is as presented on table 4.1

Table 2 Questionnaires return rate.

Category of respondents	**Sample**	**Questionnaire returned**	**Percentage Return Rate**
Principals	12	10	83%
Teachers	40	36	95%
Students	400	350	88%

Table 2 indicates that the response rate achieved for the set of questionnaires was 83% for Principals, 95% for Teachers and 88% for Students. The return rate of 88.7% was considered adequate in providing valid and reliable presentation of the targeted population. This was attributed to the fact that the researcher administered the questionnaires personally.

4.2 Demographic Information of Respondents

The section included the respondents gender, age, education level, year of experience and academic qualifications.

Table 3 Distribution of respondents by gender.

Gender	**Principals**	**Teachers**	**Students**	**Frequency**	**% Frequency**
Male	4	18	180	202	50.8%
Female	6	20	170	196	49.2%
Total	**10**	**38**	**350**	**398**	**100%**

Table 3 above shows 50.8% of the total respondents are male while 49.2% of the total respondents are female.

Table 4 Demographic information of teachers and principals.

Principal's and Teacher's Gender	Frequency	Percentage Frequency
Male	22	45.8%
Female	26	54.2%
Total	**48**	**100%**

The table 4 above shows that the male gender 45.8% are fewer than female gender 54.2% that is random sampled teachers and principals of the randomly selected schools in Thika sub-county, Kiambu county.

Table 5 Principal's and teacher's age.

Age	Frequency	Percentage frequency
21-30	22	45.8%
31-40	10	20.8%
41-50	8	16.7%
51 and above	8	16.7%
Total	**48**	**100%**

From the table 5 majority of the Principals and the Teachers aged between 21-30 years are 45.8%, 20.8% of the Teachers and Principals are aged between 31-40 years then the rest between ages 41-50 years and 50 and above years had the same percentage which was 16.7%

Table 6 Principal's and teacher's academic qualifications /level

	Frequency	**Percentage frequency**
PhD	10	20.8%
Masters' Degree	12	25%
Degree	24	50%
Diploma	2	4.2%
Total	**48**	**100%**

The table 6 shows that majority of the sampled Teachers and Principals hold a degree that is 50%, Masters' degree holders were 25% PhD holders were 20.8% and the rest 4.2% were diploma holders.

Table 7 Principal's and Teacher's years of experience.

	Frequency	**Percentage frequency**
Below 5 years	2	4.2%
6-10 years	14	50%
11-15 years	12	25%
Above 15 years	10	20.8%

The table 7 above indicates that Principals and Teachers with the highest years of teaching experience are 20.8% having a teaching experience of above 15%, Principals and Teachers with 11-15 years of experience are 25%' those with 6-10 years of experience are 50% and beyond 6 years of teaching experience are 4.2%

Table 8 Students demographic information.

Gender	Frequency	Percentage frequency
Male	170	48.6%
Female	180	51.4%
Total	**350**	**100%**

The table 8 above indicates that the male gender 48.6% were fewer than the female gender that is random sampled students of the randomly selected schools in Thika sub- county, Kiambu county.

Table 9 Students age.

Age	Frequency	Percentage frequency
Below 13	40	11.4%
13-15	58	16.6%
15-17	120	34.3%
18 and above	132	37.7%
Total	**350**	**100%**

The above table 9 shows that majority of the students were 18 and above years which is 37.7% , 34.3% belong to the 15-17 age gap, 16.6% of the students belong to the 13-15 age gap and the rest 11.4% were below 13 years.

Table 10 Students form.

	Frequency	Percentage frequency
Form 2	108	30.9%
Form 3	130	37.1%
Form 4	112	32%
Total	**350**	**100%**

The above table 10 indicates that majority of the students are forms 3 which is 37.1%, 32% are form 4's and the rest are form 2's which equates to 30.9%.

4.3 Analysis as per objectives as for the Principals and Teachers.

4.3.1: School Infrastructure.

a) "How would you rate the conditions of the school infrastructure**?**"

Table 11 School infrastructure.

	Frequency	Percentage frequency
Excellent	10	20.8%
Good	20	41.7%
Average	16	33.3%
Poor	6	12.5%
Total	**48**	**100%**

The table 11 above indicates that majority of the Principals and Teachers rate the conditions of the sschool infrastructure that is, 41.7% as good, 33.3% rare the conditions of the school

infrastructure as average, 20.8% of the Principals and Teachers rate the conditions of the school as excellent and the rest 12.5% gave a poor rating of the school infrastructure.

4.3.2: Availability of Adequate Classrooms.

Adequate classrooms are necessary to create the proper conditions for learning leading to good academic performance. The following were the respondents' opinions:

Table 12 Availability of adequate classrooms.

	Frequency	**Percentage frequency**
Positively	32	66.6%
Negatively	2	4.2%
Non- impact	14	29.2%
Total	**48**	**100%**

The table 12 above indicates that most of the respondents who were 66.6% stated that the availability of adequate classrooms impacted positively towards the student's academic performance,29.2% stated that adequate classrooms had no impact on the academic performance and the rest stated that adequate classrooms affected students negatively on academic performance.

4.3.3: Sufficient Teaching and Learning Materials.

Teaching and learning materials are necessary for the teaching and learning process:

Table 13 Sufficient teaching and learning materials.

	Frequency	**Percentage frequency**
Yes	30	62.5%
Partially	12	25%
No	6	12.5%
Total	**48**	**100%**

The above table 13 indicates that 62.5% of the respondents, responded that teaching and learning materials were sufficient, 25% of the Teachers and Principals responded that there was partially enough teaching and learning materials while the rest which is 12.5% responded that there was no sufficient teaching and learning materials.

4.4. School Infrastructure.

Good condition of the school infrastructure is key to create a good learning environment leading to good academic performance.

Table 14 School infrastructure

	Frequency	**Percentage frequency**
Excellent	80	22.9%
Good	105	30%
Average	140	40%
Poor	25	7.1%
Total	**350**	**100%**

The table above 14 indicates that 40% of the students find the school infrastructure to be in average cSondition, 30% of the students find the condition of the school infrastructure to be good, 22.9% of the students find the conditions of the school infrastructure to be excellent and the rest stated that the school infrastructure was in poor condition.

4.4.2: Availability of Adequate Classrooms.

Enough classrooms provide adequate room for the teaching and learning process leading to good academic performance.'

Table 15 Availability of adequate classrooms

	Frequency	**Percentage frequency**
Yes	340	97.1%
No	10	2.9%
Total	**350**	**100%**

The above table 15 indicates that 97.1% of the students agreed that the availability of adequate classrooms affect the academic performance while the rest 2.9% disagreed.

4.2.3: Libraries.

Well-equipped libraries are required in order to assist in teaching and learning leading to good academic performance.

Table 16 Libraries.

	Frequency	**Percentage frequency**
Yes, well equipped	128	36.6%
Yes, but poorly equipped	190	54.3%
No	32	9.1%
Total	**350**	**100%**

The above table 16 indicates that 54.3% of the students stated that there was a library but it was poorly equipped, 36.6% of the students stated that there was a library and it was well equipped while the rest of the students stated that there was no library.

4.4.4: Proper Sanitation Facilities.

Clean water and proper sanitation facilities are required for good academic performance.

Tabsle 17 Proper sanitation facilities

	Frequency	Percentage frequency
Yes	210	60%
No	140	40%
Total	**350**	**100%**

The table above 17 indicates that all the students agreed that there's access to clean water and proper sanitation facilities.

4.4.5: Well-Maintained Roads

Well maintained roads enable teachers and students to learn and work properly in the school environment.

Table 18 Well maintained roads.

	Frequency	Percentage frequency
Yes	282	80.6%
No	68	19.45%
Total	**350**	**100%**

The above table 4.4.5 indicates that 80.6% of the student agreed that there were well maintained roads in the school environment while 19.4% disagreed on having well maintained roads in the school environment.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This Chapter gave the summary of the study findings, conclusions and recommendations for further research on the state of school infrastructure in Thika Sub-County, Kiambu county.

5.1 Summary of Findings

The purpose of this study was to determine how the infrastructure of schools affect the academic performance of students who are learning within Thika Sub-County in Kiambu county. A total of 10 Principals, 38 Teachers and 350 students participated in this study.

5.1.1 School Infrastructure

The study revealed that majority of the principals and teachers rate the conditions of the school infrastructure, that is 41.7% as good while majority of the students, that is 40% find the school infrastructure to be in average conditions.

This meant that the state of the school infrastructure was suitable for a vast majority of the students and this contributes further to good academic performance.

5.1.2 Availability of Adequate Classrooms

Regarding the reactions concerning the availability of adequate classrooms. The perception was that majority of the Principals and Teachers that is 66.6% stated that availability of adequate classrooms impacted positively towards the student academic performance.

From the student point of view, it was found that 97.1% of the student s agreed that availability of adequate classrooms affected their academic performance in a positive manner.

This revealed that adequate classrooms are necessary and are very important in promoting a good academic performance.

5.1.3 Sufficient Learning Materials

According to the study majority of the respondents stated that the teaching and learning materials were sufficient while 25% percent of the Teachers and Principals responded that there was partially enough Teaching and learning materials. And the remaining 12.5% percent of the Teachers stated that there was no sufficient teaching and learning materials. It should be noted that there were sufficient learning materials result in good academic performance.

5.1.4 Libraries

From the findings it was discovered that despite the schools having libraries, they were poorly equipped. This is according to the response of the majority of the students who fiilled up to 54.3%. This revealed that a well-equipped library is required in order to assist in the teaching and learning process so as to achieve good academic performance.

5.1.5 Proper Sanitation Facilities

According to the research study it was found that 60% of the students had access to clean water and sanitation facilities while 40% of the students disagreed that there was lack of proper sanitation facilities in their schools. This shows that the availability of clean water and sanitation facilities improves the welfare of the students which can translate to good academic performance.

5.1.6 Well-Maintained Roads

From the research study it was discovered that a majority of the students that is 80.6% agreed that there well maintained roads in the school environment. This shows that a well maintained this shows that well maintained roads within a school environment make it easier for Teachers to administer knowledge to learners which leads to good academic performance.

5.2 Conclusion

The study established that there is a significant relationship between school infrastructure and students' academic performance. Schools with adequate physical and technological infrastructure tend to help in the improvement of students' academic performance.

5.3 Recommendation

The following recommendations have been brought about as a result of the findings of this study:

1. Investment in physical infrastructure:

   The stakeholders should prioritize the construction and improvement of classrooms, libraries and laboratories to create a good learning environment for secondary school students in Thika Sub County, Kiambu county.

2. Improvement of technological infrastructure:

   Secondary schools in Thika Sub County, Kiambu county should be equipped with computers and stable internet and other e-learning materials that help in improving the academic performance of students.

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Questionnaires

Appendix 1 Questionnaires for Teachers

Questionnaire for teachers: Impacts of infrastructure on academic performance

Instructions: This questionnaire is to collect data for purely for academic purposes. All information will be treated with strict confidentiality. Do not write your name or any identification on this questionnaire. Please answer your questions honestly. Tick the right answer.

Section A: Background information

Gender:

1. Male. ( )
2. Female. ( )

Highest academic level

1. Diploma. ( )
2. Degree. ( )
3. Masters' degree. ( )
4. PhD. ( )

How many years have you been a high school teacher?

Below 5 years. ( ) 6 to 10 years ( ) 11 to 15 years ( )

Above 16 years. ( )

Section B: School infrastructure and teaching environment

1. How would you describe the condition of the school infrastructure?
   a) Excellent. ( )
   b) Good. ( )
   c) Average. ( )

d) Poor. ( )

2. How does the availability of adequate classrooms impact students' learnings?
   a) Positively. ( )
   b) Negatively. ( )
   c) No impact. ( )
3. Are there sufficient teaching and learning materials?
   a) Yes. ( )
   b) Partially. ( )
   c) No. ( )
4. Do the following challenges affect students learning?
   a) Overcrowded classrooms. ( )
   b) Lack of desks and chairs. ( )
   c) Poor ventilation and lighting. ( )
   d) Insufficient sanitation facilities. ( )

Appendix 2 Questionnaire for Students

Instructions: This questionnaire is to collect data for purely for academic purposes. All information will be treated with strict confidentiality. Do not write your name or any identification on this questionnaire. Please answer your questions honestly.

Section A

1. Form a) 1. ( ) b) 2. ( ) c) 3. ( ) d) 4. ( )

2. Age: a) Below 13 ( ) b) 13-15 ( ) c) 15-17 ( ) d) 18 and above ( )

Section B: School infrastructure on learning environment

3. How would you rate the condition of the school infrastructure?
    a) Excellent. ( )
    b) b Good. ( )
    c) Average. ( )
    d) Poor. ( )

4. Does the availability of adequate classroom affect your learning?
    a) Yes. ( )
    b) No. ( )

5. Does your school have a library or study areas?
    a) Yes, and well equipped. ( )
    b) Yes, but poorly equipped. ( )
    c) No. ( )

6. Does access to clean water and proper sanitation facilities impact your ability to concentrate in school?
    a) Yes. ( )

b) No. ( )

7. Does your school have well-maintained roads or pathways leading to your school?
   a) Yes. ( )
   b) No. ( )