



INFLUENCE OF MANAGEMENT OF THE LEARNING ENVIRONMENT ON STUDENT ACADEMIC ACHIEVEMENT IN PUBLIC SECONDARY SCHOOLS IN KAJIADO COUNTY, KENYA

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ABSTRACT

Learning is an intensive and interactive activity that puts physical facilities and academic achievement of parties involved to test. Buildings, classrooms, laboratories and equipment are crucial elements in the learning environment in schools. The research assessed the influence of the management of the learning environment on academic achievement in public secondary schools in Kajiado Central Sub County, Kenya. The research objectives were: to establish the influence of the management of school library resources on academic achievement in public secondary schools in Kajiado Central Sub County; to determine the influence of the management of classroom instructional assets on academic achievement in public secondary schools in Kajiado Central; to establish the influence of management of the state of classrooms on academic achievement in public secondary schools in Kajiado Central Sub County. The Dual factor theory by Frederick Herzberg was used to base the study's argument. The research utilized ex post facto research design. The target population was 2686 including 15 principals, 150 class teachers, 1200 form four students and 1350 form three students from public secondary Institutions within Kajiado Central Sub County. The Sub County Director of education for Kajiado Central Sub County was involved in the study. The research sampled 336 respondents distributed proportionally under the categories; 15 principals, 40 class teachers, 150 form four students, 138 form three students and 1 Sub

County Director of Education. Cluster sampling was used in selecting the 7 out of 15 public secondary schools within Kajiado central Sub County. Purposive sampling was utilized while selecting the Sub County Director of education as well as the principals. The class teachers were sampled through proportionate sampling technique. Self-administered questionnaires for principals, teachers and students were used. The questionnaires were semi structured to complement both the structured and unstructured type. A one-on-one interview session with the Sub County Director of education to collect research data was held. Before the researcher begun data collection, two schools; one in Kajiado North Sub County and the other in Kajiado South Sub County were used for the pilot study so as to test the validity as well as the reliability of the research instrument. The test and retest technique were used to test the consistency of data collected. The quantitative data was analyzed by use of Karl Pearson's Coefficient of Correlation, findings presented in tables and graphs. Themes were used to analyze the qualitative data based on the research questions. The study revealed that school librarians were necessary in schools so as to assist learners in navigating through the library materials. The study also revealed that libraries need to be well stocked, class rooms need to have adequate and proper furniture, teachers' tables need to be placed in classrooms so that the teachers may place their teaching materials. The study was able to report that adequate teaching aids needed to not only be available in schools, but be utilized during the teaching learning sessions. Additionally, crevices should be sealed, schools without a library to set up one. It is recommended that the ministry of education to keep tab of the learner enrollment in schools in order to supply adequate number of coursebooks, class teachers should give timely feedback to school managers on adequacy of classroom furniture as well as utilize teaching aids during lessons. Finally, the study recommended that school managers should ensure classroom floors are well cemented, and where possible fitted with tiles. In addition, it was recommended to the learners to avoid scribbling graffities on the classroom walls.

CHAPTER ONE

INTRODUCTION

The section captures scholarly work done outside the continent up to the research done within Kajiado County. The purpose of the study has been clearly mentioned, a concise justification to the study made as well as the scope the study has covered. The problem study has been mentioned and objectives highlighted in line with the research questions. The delimitations will be used to narrow down the potential limitation of the study.

1.1 Background to the research

Quality education should ensure that good academic standards are set so as to realize the best possible outcome from the summative examinations of learners. Academic achievement will ensure that individuals access opportunities which will make it a possibility for individuals to become self-reliant and allow these individuals to gain the necessary skills and attitudes to positively contribute to building a nation (World Bank, 2015).

Learning does not take place in a vacuum. It also takes more than four walls and a roof to provide the right learning environment. In London, a study done by Cuesta et al (2015) reported that some aspects of school infrastructure had an impact on educational outcomes. These aspects included infrastructural facilities such as the presence or absence of dining facilities. The study argued that for the learners to perform well, they needed to have a menu that took care of their well-being by providing all the right combinations of a diet. This would go a

long way in ensuring better brain development of the learners. On the other hand, the research did not look into other aspects of the learning environment such as library resources, instructional assets and the state of the classrooms, and whether they as well dictated the educational achievement of the learners in their examinations.

Cutshall (2017) did research in New Jersey on the impact of classroom size on the achievement rates of the learners. The findings reported that learners in congested classrooms performed poorly in their examinations as compared to learners in well-spaced classrooms. Congestion in classrooms made it difficult for the teacher to access and reach out to learners at the back row of the classroom. Furthermore, the study argued that well-spaced lockers in a classroom allowed the instructor to have better classroom management and ensure that all learners were able to access the writing board and to see clearly what was being written by the teacher. The study however, was not able to show how other aspects of the classrooms such as lighting, roofing and even the condition of the walls influence the learning outcome of the learners.

Research done in Pakistan by Naz *et al* (2013) argued that a learning institution needed to have quality buildings in order to realize good educational progress. The study reported that the effect of lighting and ventilation in the classrooms was a key consideration when it came to learners being able to get good legibility of the notes on the writing boards. Furthermore, the study indicated that ventilation in the classrooms was necessary to ensure the effect of heat, especially in the afternoon, did not make the learners fatigued and drowsy. The study indicated that good aeration would ensure the learners were able to get fresh air, which would go a long way to ensure respiratory diseases such as asthma did not become a problematic issue. Despite this, the researcher was not able to point out how the condition of the floor, walls and the roof had an impact on the educational outcomes of learners.

Research done by Chileya (2016) from Zambia noted that libraries were a necessity if academic achievement was to be realized. The study reported that learning Institutions with libraries performed better as compared to those schools that lacked a library. The libraries, according to this study, assisted the learners to do their assignments and use Information Communication and Technology services to browse and keep up to date with the current and emerging issues. In addition, the libraries needed to be within a conducive surrounding away from noise and disturbance. The study, however, was not able to look into the aspects that make libraries crucial for academic achievement. The aspects that this study did not shed light on include adequacy of the supplementary materials in those libraries, the accessibility and even the presence of a library assistant.

In Nigeria, Sabitu et al (2011) did research on academic achievement among secondary school students, which attributed poor academic performance to, among other factors, the lack of adequate classrooms as well as libraries. The study argued that these facilities were mandatory if better learning outcomes were to be achieved. The study reported that schools which had adequate classrooms for the learners had performed better than schools which had a lesser number of classrooms to cater for the school enrollment. On libraries, the study reported that schools with library facilities showed better scores as opposed to the schools which lacked one. The study reported that the libraries assisted the learners in providing a serene atmosphere for personal revision, as well as getting access to other learning resources. However, Sabitu et al (2011) were unable to look into specific aspects of the school facilities and their influence of academic achievement.

In East Africa, Laddunuri (2012) from Tanzania noted that poor infrastructural facilities as well as insufficient stationery in the school libraries contributed immensely to poor achievement rates in summative examinations. The study observed that the mere presence of libraries did not equate to educational progress, but the actual utilization of the resources in the libraries. Libraries needed to be utilized and be included as part of the teaching learning experience. In addition, the study indicated that libraries needed to stock the shelves with relevant, up to date learning materials. Despite this, Laddunuri (2012) did not ascertain how other library aspects impacted on learning outcome. The aspects that the study was not able to establish are accessibility, presence and relevance of the human resource as well as relevance of the supplementary materials those libraries were equipped with.

In other works, Sturmey (2018) did a study with the purpose of determining how best the classroom space would be used to ensure learners scored high grades. The study proposed adoption of certain approaches that would ensure the students maximally benefited from the lessons given by their teachers. Sturmey (2018) mentions room management as a situation where the teacher is expected to walk around the classroom as they teach so as to be able to maintain learners' concentration and alertness. This strategy would ensure that teachers were able to assist individual students who were stuck and needed assistance. The study further argued that most people spend half of their lives within indoor environments, which greatly influence their mental status, actions, abilities and performance and thus the environment within which learners spent most of their time acquiring knowledge and skills needed to be as conducive as possible. On the other hand, the study did not explore libraries as one of the factors which may have an influence on the achievement rates in the learning Institutions.

Komba et al (2013) did research in Moshi District, Tanzania, and reported that good academic performance was not achievable due to shortage of teaching and learning materials. The study brought forward findings which indicated that schools which did not have adequate stationery failed to fully register good scores in the examinations as opposed to the schools which were well equipped with the teaching-learning materials. In addition to this, the study added that ample environment for the learners ensured that they got the best out of the whole learning experience. However, the study did not make any recommendations on the state of the classrooms which the learners occupied. Komba et al (2013) were not able to look into how the state of the walls could affect academic achievement, whether the walls had any reference learning materials, whether the windows and walls would let in enough light and prevent strong draught entering the classrooms.

Additionally, Hong et.al (2016) carried out a study assessing how funding learning Institutions could improve academic achievement of learners in schools within Michigan district. Findings were that financial resources may not have any influence on the student's achievement in the short term. On the other hand, the findings revealed that in the long-term, the learners' academic achievement improved as a result of having constructed more classrooms. The study reported that inadequate facilities had a deleterious effect on achievement rates, so did lack of school stationeries. The study argued that learners were unable to make notes on their own or even perform take away assignments given by the teacher. On the other hand, the study was not able to point out specific indicators of learning environment which had an impact on academic achievement of students in learning Institutions which already had classrooms and library facilities.

In a study, Arnold (2020) reported that size mattered as far as classrooms were concerned. The study pointed out those learning Institutions which set up large classes for their learners negatively affected their academic achievement. The study reported that large classes made it difficult for the learners to interact and have discussions in the classrooms. Disparity and imaginary gaps among learners were created by the large distance among learners. However, the study was not able to shed light on the recommended class size. The study was also not able to look into other classroom factors apart from class size that had an impact on the teaching-learning process.

Lazear (2012) did a study to establish how the size of the class had a bearing on educational outcome in learning Institutions. The findings reported learners in small-sized classes performed better as opposed to the learners who occupied large classes. The small-sized classrooms allowed for a more meaningful interaction among learners,

creating a 'community-like' sense of belonging. The study argued that this disparity in educational progress was attributed to learners in large-sized classes tending to be disruptive and non-participatory during learning sessions. The learners in large-sized classes were also easily inclined to skip lessons without the teachers' knowledge. On the other hand, this study was not able to shed light on whether other factors of the classrooms such as the physical condition of the walls, doors and windows had an influence on school achievement of the learners.

A study done by Nye, et.al (2015) revealed that students in small-sized classes tend to perform better academically as compared to students in large-sized classes. The study reported that the small-sized classes allowed for class discussions and even active participation of learners during a lesson. The teachers in small-sized classes were able to reach out to learners easily and even spot the learners' who seemed drowsy or were not being attentive. On the other hand, the study was not able to look into other aspects of the learning environment such as the availability of instructional assets which were being used during curriculum implementation.

Blatchford et.al (2019) did research to establish the effect of sizes of the classrooms on the academic achievement of students. The findings showed that size does not matter as far as student content retention was concerned. On the other hand, the study indicated that class sizes determined which strategies a teacher was required to utilize so as to manage the learners in a classroom setting. The study recommended for adoption appropriate teaching methods by the teachers (Blatchford et.al, 2019). Furthermore, the study reported that schools with permanent learning facilities ensured that the learners were able to have a serene environment as opposed to learners who schooled in temporary or semi-permanent learning facilities. The study was not able to explore the effect of library resources, status of classroom floor or even the presence of graffiti on the classroom walls.

In Kajiado, a study done by Mokaya (2013) reported that the adequacy of the boarding facilities had an influence on academic achievement. The study argued that learners needed adequate boarding facilities so as to get adequate rest for the next day's work. In addition, the study revealed that only a few schools had adequate land which could allow for the expansion of facilities as well as being utilized by the learners as play fields for the co-curricular outdoor activities. The study was able to report that a good number of the schools within Kajiado County had not set up school facilities as recommended and guided by the government policies. On the other hand, Mokaya was not able to ascertain how classroom factors such as presence of lockable desks, cabinets where the teacher would

keep their teaching aids as well as classrooms which would accommodate delicate equipment such as projectors, influence achievement rates in summative examinations.

1.2 Statement of the problem

The provision of free secondary schooling saw many students being enrolled in secondary schools, as per the government of Kenya report (2017). In addition, data from the Sub-County Director of Education's office shows achievement rates at secondary level within Kajiado Central Sub-County is significantly dropping. Kajiado County did not register a mean grade of an "A" in all public secondary Institutions in Kenya Certificate of Secondary Education, both in the year 2018 as well as the year 2022. Kajiado County has not put into record significantly adequate information on the possibility of the learning environment having an impact on academic achievement. A study done by Mokaya (2013) in Kajiado County looked into the influence of boarding facilities on pass rates and concluded that poor academic achievement in Kajiado County was partly caused by lack of proper boarding and dormitory related facilities in some of the learning Institutions within Kajiado County. The study, however, failed to look into how other aspects of the learning environment such as the school library resources, classroom instructional assets and the state of the classrooms instructional assets had an influence on academic achievement. In view of the aforementioned history of Kajiado registering low academic grades, the study sought to assess the influence of the learning environment on academic achievement in public secondary schools in Kajiado Central Sub County, Kenya.

1.3 Purpose of the Study

The study assessed the influence of the learning environment on academic achievement in public secondary schools in Kajiado Central Sub County, Kenya.

1.4 Objectives of the research

The following research objectives guided this study:

- i. To establish the influence of management of school library resources on academic achievement in public secondary schools in Kajiado Central Sub County.

- ii. To determine the influence of management of classroom instructional assets on academic achievement in public secondary schools in Kajiado Central Sub County.
- iii. To establish the influence of management of the state of the classrooms on academic achievement in public secondary schools in Kajiado Central Sub County.

1.5 Research questions

The research questions were as follows:

- i. What is the influence of the management of school library resources on academic achievement in public secondary schools in Kajiado Central Sub County?
- ii. What is the influence of management of classroom instructional assets on academic achievement in public secondary schools in Kajiado Central Sub County?
- iii. What is the influence of management of the state of the classrooms on academic achievement in public secondary schools in Kajiado Central Sub County?

1.6 Research Hypotheses

The above research objectives were guided by the following research hypotheses;

- H₀1: There is no statistically significant influence of management of the library resources on academic achievement in public secondary schools in Kajiado central Sub County.
- H₀2: There is no statistically significant influence of management of classroom instructional assets on academic achievement in public secondary schools in Kajiado central Sub County.
- H₀3: There is no statistically significant influence of management of the state of the classrooms on academic achievement in public secondary schools in Kajiado central Sub County.

1.7 Significance of the research

The research outcomes generated from the field will be used by the Ministry of Education as well as policy makers to improve the status of the physical infrastructure in public secondary schools in Kajiado Central Sub County. Improving the current status of secondary schools will have a possible impact on the educational achievement of

learners, since educating learners involves classrooms, use of teaching aids as well as library resources among other school facilities. The study outcomes will shape how the policy makers come up with policies which affect the curriculum implementation in schools, and help bridge the gap between the state of school physical infrastructure and academic achievement.

1.8 Justification of the study

The academic achievement of Kajiado Central Sub-County has been deteriorating over the years, and in 2018 and 2022 KNEC results, no student obtained a mean grade of an “A”. In the year 2019, the number of learners who scored a mean grade of an “A” was insignificantly low. Learners attend schools with the aim of acquiring knowledge and skills to better their future. Learners require an environment that would best suit them in order to make the best of the time and resources invested in their school life. For these reasons, it was crucial to explore the factors that have contributed to low academic achievement in public secondary Institutions within Kajiado central Sub County.

1.9 Scope of the Study

The study covered seven out of the possible fifteen public secondary schools in Kajiado Central Sub County within Kajiado County. The study focused on school library resources, classroom instructional assets and the state of the classrooms. The target group was a Sub County Director of education, principals and class teachers. By virtue of their stay and awareness of a learning environment, form three students and form four students within Kajiado Central Sub County were engaged in the research. The research instruments for the study included face to face interviews, self-administered questionnaires and observation checklists. The time frame for carrying out the study was three months.

1.10 Limitations to the Study

The study covered seven out of the possible fifteen public secondary schools within Kajiado Central Sub County. Objectivity of the responses to the survey instrument may have been affected by personal biases of the respondents completing the instrument. It was not possible to identify all variables influencing academic achievement in public secondary schools in Kajiado Central Sub County, which could result in less significant correlation between independent and the dependent variables.

1.11 Delimitations

The study compared the findings from works done by other researchers in the same field. In addition to this, the findings were compared such results against existing literature, previous researches as well as having a discussion with experts from a related field of specialization. Subjectivity of the responses was significantly eliminated by comparison of research findings against different sources such as having an observation checklist and use of secondary sources.

1.12 Assumptions of the study

The assumption was that the school administrators understood the purpose of the research and would answer honestly and to the best of their ability. All the respondents involved in the study were assumed to give an honest, truthful and accurate feedback as they took part in the study. In addition, the documents used in academic analysis were assumed to be valid and authentic. Moreover, an assumption was made that the academic results were acceptable instrument for evaluation of the students' academic achievement.

1.13 Operational definition of key terms

Learning environment: entail the physical facilities including and not limited to; a library, instructional assets and classrooms found within an educational institution.

School library resources: refer to the qualitative and quantitative aspects of a building which entails both the material and non-material facilities constructed for the purposes of maintaining learning materials for use, it can also be used for reference purposes and accessibility, storage and retrieval of information.

Classroom instructional assets: refer to the non-human materials and facilities that can be used to ease, encourage, improve and promote teaching and learning activities within a classroom set up such as a course book recommended by the Ministry of Education as suitable for use in schools in delivering the curriculum.

State of the classrooms: refer to the physical condition of the classrooms constructed for the purposes of teaching-learning activities and most evident, in a learning institution.

Academic achievement: an end result of a learning and teaching process which gives a measure to the extent by which an individual has mastered certain concepts over a given period of time by sitting for and excelling in an oral and/or a written examination offered by the Kenya National Examination Council.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter critically looks into the literature of this research. The review focuses on previous studies done by different researchers in Kenya and beyond, on the influence of the learning environment on academic achievement of learners in a school set up. Theoretical and conceptual frameworks have been captured. Steps have been taken to exhaustively widen the scope of literature to accommodate a multiplicity of studies in the same field, with a view of providing a thorough outlook on how academic achievement is regarded.

2.2 Empirical literature

This section discusses several subsections presented in subtitles that reflect the thematic areas captured in the study objectives of this research. The subtitles are school library resources, classroom instructional assets and the state of the classrooms in learning Institutions. A report by the World Bank (2015) asserts that education is viewed as a good in itself and more so a basic human right. It plays a very crucial role in ensuring that one is fully prepared in playing their respective role of developing the society. Education is a very crucial process through which an individual's life chances are determined. Education is essential for development in any nation. It greatly aids in reducing poverty, boosts the country's health, ensuring there is gender equality as well as playing a crucial role in maintaining stability. It plays a crucial role in narrowing inequality and bridging social stratification by providing individuals with skills and knowledge through empowerment, which goes a long way to ensure self-reliance.

A report from the education sector in 2016 reported that there was urgent need to provide funds for construction of additional 4,000 classrooms, 740 laboratories and other vital school infrastructural facilities so as to enable 100% transition from primary level to secondary school level. The facilities would ensure that the learners are able to have an ample learning environment which would go a long way to boost their academic achievement. The laboratories would assist the learners to put into practice the theoretical concepts learnt in classrooms through performing experiments, and in turn nurture potential young scientists. In addition, the report indicated that academic achievement went hand in hand with the infrastructural factors in learning Institutions, implying that

for better academic achievement, it was of paramount importance to ensure that learning Institutions ensured that classrooms as well as laboratories and other facilities were set up in schools.

2.2.1 Academic achievement

Academic achievement is an end result of a learning and teaching process which gives a measure to the extent by which an individual has mastered certain concepts over a given period of time by sitting for and excelling in an oral or written examination (Francis et.al, 2019). Chileya (2016) explored a study on academic achievement in Zambia. The study attributed low academic achievement to lack of well-equipped libraries. The study, however, did not explore specific aspects of the libraries affecting academic achievement in those learning Institutions. Another study on the factors influencing academic achievement was done by Zolgadr et al (2015). The findings revealed that academic achievement in learning Institutions was significantly deteriorating. The study attributed this observation to inadequate or even lack of stationeries in the learning Institutions. Zolgadr et.al (2015) looked into how the teaching aids would have a role to play in determining the learning outcome of students in elementary school. The study reported that the teaching aids were important in a learning set up since they provided a tool that would ensure the complex concepts could be easily understood by students. Abstract concepts could be made more concrete by use of realia in the classrooms during the teaching learning process. The study did not explore other aspects of the classroom instructional resources such as the adequacy or even the physical condition. The study did not look into other aspects of a learning institution such as school libraries and the state of the classrooms, which are also part of the learning environment within which curriculum implementation takes place.

2.2.2 School library resources on academic achievement in secondary schools

School library resources refer to the qualitative and quantitative aspects of a building which entails both the material and non-material facilities constructed for the purposes of maintaining learning materials for use, it can also be used for reference purposes and accessibility as well as storage and retrieval of information. Research done by Chileya (2016) from Zambia noted that the libraries were a necessity if good academic achievement was to be realized. The study reported that learning Institutions with libraries performed better as compared to those schools that lacked a library. The libraries, according to this study, assisted the learners to do their assignments and use I.C.T services to browse and keep up to date with the current and emerging issues. In addition, the libraries needed to be within a conducive surrounding away from noise and disturbance. The study, however, was not able

to look into the aspects that make libraries crucial for better academic achievement. The aspects that this study failed to shed light on include the adequacy of the supplementary materials stocked in the library, the accessibility and even the presence of a library assistant.

A journal by Gerrity (2018) focuses on the impact of school libraries on learners' educational achievement. The journal mentions the link between the students, librarians and the school libraries on quest for knowledge. Gerrity (2018) affirms that for quite some time now, there has been a focus on the impact of classrooms and its effect on school achievement. On the other hand, the critical role being played by school libraries has been ignored tremendously. The recommendations are that libraries should stock learning materials that, among other things, inspire a growing mindset in students as well as accommodate learner diversities in how they learn. Additionally, a curriculum that responds to dire needs of learners is recommended by Gerrity (2018). Nevertheless, the study reported that schools which had a library performed better as compared to the schools which lacked one. On the other hand, it was not clear as to whether the presence of a human resource in the library or even the accessibility of the libraries as a learning facility had an impact on academic excellence.

Ballen et.al (2018) emphasized on the need to have standards in our libraries that empower parties involved to fully benefit from such resources. A study was conducted on the library users on what they really needed. The findings were that the library users felt they needed to be inquired, engaged and collaborated in implementing all policies pertaining to library use. They felt that they were more on the ground to actually determine how best the libraries would be of use to them. For instance, the study reported that some libraries lacked up to date reference materials. However, the study was not able to ascertain as to whether the presence of trained library assistance could be useful in assisting the learners' in locating particular materials and retrieve them for learning. The study was also not able to ascertain if adequacy and relevance of the supplementary materials had an impact on learners' academic outcome.

A study done in Australia looked into whether the libraries had an influence on the learners' learning outcomes. According to Hughes et.al (2018), libraries were essential in assisting the learning transition of students from one level of learning to the other. In addition, the study indicated that libraries helped to address the diversity of individuals in respect to how they perceived education. On the other hand, the study did not consider that the mere presence of school libraries would actually not just help to raise the school grades, as other factors of the

library resources would come into play. Some of the factors include accessibility, relevance of the supplementary materials as well as accessibility of the school libraries.

In other research done by Lance et al. al (2018), pertaining to the crucial role school libraries played, the study reported that there was a positive correlation existing among the learners, librarians and the library itself as far as education was concerned. The study argues that academic excellence would be more likely evident in schools having libraries as opposed to the ones that did not. Nevertheless, the study by Lance et al. al (2018) was not able to point out specific aspects of the school libraries such accessibility or even the presence of a human resource to assist the learners in retrieving learning materials.

According to LeMaistre et al. al (2018) libraries were a key component when it came to academic achievement. The study emphasized that, for this reason, Institutions needed to set up structures meant for library use, without waiting for a perfect moment or scenario to implement the same. The study failed to clarify is which specific aspects would dictate the suitability or lack of it, of those libraries.

In Uganda, research done by Lugya (2018) was determined to look into whether libraries would have an impact on school excellence. The findings reported that the school librarians needed to be empowered to adopt action plans that would make them more effective in their role in the learning Institutions. Nevertheless, the study failed to report how the relevance of the supplementary materials would have an impact on the learning outcome of the students.

In a study, Sturge (2019) noted that libraries seemed to be rooms filled with a buzz of activities involving the teachers, students and the librarians. The study argued that teachers would drop off students in the libraries where the librarians would take up the role of curriculum implementation. In addition, the study reported that there was little, if any, collaboration among the three parties involved, and this undermined how well the libraries were being utilized. Sturge (2019) did not report if the accessibility of those libraries to the learners had an impact on their academic achievement.

Krolak L. (2019) looked into the role which was played by school libraries in the learning Institutions. The study reported that in the 21st Century, it was important for the school librarians to work side by side with the teachers in planning out best ways to deliver the curriculum to the learners. The study further recommended a collaborative

approach to this matter. What the study never clarified, is how adequate the supplementary materials were in those libraries, or even the relevance of the materials the learners were being exposed to.

Another study done by Golden (2020) on how school libraries can ensure school achievement revealed that the role played by the school librarians was more important than what meets the eye. The study reported that the school librarians needed to be more than just library managers, but leaders as well. The study further reported that librarians needed to be more than just planners and service delivery personnel but also have good communication skills to ensure the library users fully benefited from these services. Golden (2020) did not address the issue of accessibility. The librarians may be leaders and assistants to the library users, but how often these libraries will be accessible to the users has remained unaddressed.

Ahlfeld (2020) did research on how school librarians could inspire and build intrinsic motivation not only to the students but to school instructors as well. The study recommended that the school librarians should as well be active readers and not just passive readers. The study reported that this would ensure that the students and their children fully make it a routine to use the libraries as often as they wished to. On the other hand, the study did not address the issue of the relevancy and adequacy of the learning materials the students and teachers were being exposed to.

2.2.3 Classroom instructional assets on academic achievement in public secondary schools

Instructional assets refer to the human and non- human materials and facilities that can be used to ease, encourage, improve and promote teaching and learning activities such as a course book endorsed by MoE as suitable for use in schools in delivering the curriculum. It refers to materials used in the classrooms for the purposes of ensuring an efficient and effective process of content mastery during teaching-learning experience.

Nevertheless, a study done by Reeve (2006) looked into the classroom role of teachers into ensuring their learners get good grades. The study had the objective of determining teacher learner interaction within a classroom set up. The findings were that at times learners are only passive individuals who only receive knowledge from their teachers. The recommendations were that teachers should nurture the learners and motivate, encourage and inspire the students to be active participants in a classroom set up. This, according to Reeve (2006), would ensure students also played a role in getting good grades. Further, the study reported that students can be passive or active in the classroom depending on whether they were engaged or simply alienated. In addition, the study indicated the

stationery would immensely assist the teacher in curriculum implementation. However, the study failed to establish as to whether physical condition of these resources had an impact in the level of academic achievement by the learners. Also, it was not clear as to whether the condition and distribution of such resources had an impact on the teaching-learning process.

In other studies, Sarma et.al (2013) did research that assessed how best teachers could engage learners during a lesson. The study assessed the teachers' ability and expertise in using the teaching aids specially to teach controversial yet crucial sessions such as control and prevention of HIV/AIDS. The study came up with findings that would report that teachers who were not creative enough to devise instructional teaching aids could not be able to effectively carry out such a lesson. On the other hand, Sarma et.al (2013) was not able to ascertain as to whether classrooms factors such as presence of lockable desks, cabinets where the teaching would keep their teaching aids as well as classrooms which would accommodate delicate equipment such as projectors, had an influence on academic achievement of summative examinations.

Tang et al. al (2018) did a study that had the intention of assessing how effective the audio-visual teaching assets were effective to the learners in teaching. The study was carried out during a reproduction lesson to secondary students, first without a teaching aid and then with a teaching aid. Findings were that the use of a teaching aid triggered interest in the learners who would be attentive to the end of the lesson. On the other hand, the research did not address the adequacy of the course books in the schools, which would be used by the learners in backing up and making follow ups on what is actually being taught during the lesson.

Teachers' attitude toward the use of classroom instructional assets in teaching science, engineering, technology and mathematics in tertiary Institutions was studied by Thibaut et.al (2018). The study reported that there was an academic performance discrepancy of learners between the schools that had the teachers use the teaching aids and the teachers who failed to do so. In addition, the study blamed the teachers' attitude saying the attitude a teacher had towards the usage of classroom instructional assets affected the delivery of content. The study recommended professional training for those teachers who were biased towards using the teaching aids. The study argued that learning Institutions needed to improve on their physical learning facilities if better grades were to be realized. The study failed to look into how adequate the classroom instructional materials were and how frequent the teaching aids were being used.

Furthermore, Ajoke (2017) conducted a study meant to establish how crucial the instructional classroom assets were in conducting an English lesson to learners who wanted to speak it as a second language. The findings showed that academic performance in the subject was higher for the learners who had the chance to get access to diverse instructional materials. This, according to Ajoke (2017) was as a result of the learners having an opportunity to interact with teaching models that would increase their content retention longer as opposed to the learners who never had access to such materials. The study however was not able to reveal whether availability and utilization of the course-books had an influence on academic achievement on the learners.

Among other factors mentioned by Ramli et.al (2018), which may have an impact in the learners' academic achievement, is classroom instructional assets. The researcher reports that teaching aids such as white boards and availability of laptops in the classroom would have an influence on how the learners performed in their studies. Nevertheless, the study fails to address the issue of frequency of use, as well as adequacy of the teaching aids in the classrooms during the teaching learning process.

Durdanovic (2015) mentioned that music lessons could hardly be conducted effectively and meaningful to the learners if the classroom assets were hardly utilized. In the study, Durdanovic (2015) looked into whether the teachers experience in their profession, the academic qualifications of the teachers as well as the learning institution a particular teacher was employed in, had an influence in how they chose the instructional material to use. The frequency of using the teaching aids during the music lesson was hardly addressed by the researcher.

A study done by Farida et.al (2018) focused on developing several models which could be used in teaching chemistry practical sessions with the view of bettering learners' academic performance. The study reported that classroom instructional materials should be developed with the learners' needs, abilities and interests in mind. Indeed, the researcher failed to address how often it was necessary to engage the students in the practical lessons, and whether the frequency had an impact on how they performed in chemistry subjects.

2.2.4 State of the classrooms on academic achievement in public secondary schools

State of the classrooms refers to the physical condition of the classrooms constructed for the purposes of teaching-learning activities and most evident in a learning institution. The levels of carbon iv oxide, the temperatures in the room as well as air circulation inside the classrooms formed the aspects that Asif et.al (2018) focused on in a

study done in selected schools and hospitals. The study reported that ventilation in a room affected the quality of air circulation. In addition, the study indicated that external temperatures played a big role in determining the internal temperatures of the rooms. The recommendation was that the building designers should always be keen when deciding the building orientation during construction. The study also ascertained that the doors and windows should open to the outside to accommodate emergencies. The study also mentioned that the standard measures of these doors and windows as per the recommendations by the government should be adhered to. However, Asif et.al (2018) failed to look into other aspects of the classrooms such as the condition of the floor; roof and even the writing board legibility had an impact on how the learners would perform in their tests. Moreover, the study was not able to ascertain whether the arrangement of desks, presence of graffiti or even lockable desks had an influence on performance as far as academics was concerned.

A case study on the impact of large classes on academic achievement was done by Epri, L (2016). The study indicated that prior to the increased enrollment of learners; the learning Institutions had not made appropriate arrangements to ensure the physical facilities adequately accommodated the learners. The surge in learner enrollments forced schools to create larger classes. The overstretched classrooms hindered good curricular implementation. These observations were attributed to teachers not being able to move about and reach out to the learners. In addition, the study indicated that increased learner enrollment was not in line with the teacher recruitments or even adequate land to set up more classrooms. On the other hand, the study was not able to look into specific aspects of the existing classrooms and whether these aspects had an impact on academic achievement by learners. The over enrollment seemed to also inhibit serendipitous discoveries by the learners especially in science subjects during hands on skills sessions.

Nocera et.al (2018) carried out a study with the intention of assessing the contribution of natural light to students' academic performance in the Mediterranean vintage schools. The study argued that use of natural light in classrooms would in the long run reduce electricity consumption, hence cut down costs. In addition, the study purported that natural light had an aesthetic beauty and reduced health cases among students. The study proposed that buildings should have highly reflective roof sheets and translucent ceilings to assist in lighting up the classrooms. All in all, the study reported that inadequate facilities had a deleterious bearing on academic

achievement. On the other hand, the study was not able to ascertain the impact of the classroom walls having graffiti, charts or any form of decoration would have on the educational outcome.

Closely related to the above study is work by Sabitu *et al* (2011) In Nigeria. In the article, *School types, Facilities and Academic achievement of Students in Senior Secondary Schools in Ondo State, Nigeria*, Sabitu affirms that poor academic achievement is attributed to among other factors, the lack of adequate classrooms. The study argued that the school facilities were mandatory if better academic achievement was to be achieved. The study reported that schools which had adequate classrooms for the learners had performed better academically than schools which had a lesser number of classrooms to cater for the school enrollment. On libraries, the study reported that schools with library facilities showed better scores as opposed to the schools which lacked one. The study reported that the libraries assisted the learners in providing a serene atmosphere for personal revision, as well as getting access to other learning resources. The study by Sabitu *et al* (2011) failed to address the aspect of the condition of parts of the classroom building such as the floor, whether it had ease of cleaning and walking around. Additionally, the study did not mention if writings and charts hung on the walls had a bearing on how the learners performed in their summative examinations.

Elsewhere, Naz *et al* (2013) argued that a learning institution needed to have quality building in order to realize good academic achievement. The study reported that the effect of lighting and ventilation in the classrooms was key consideration when it came to learners being able to get a good legibility of the notes on the writing boards. Furthermore, the study indicated that ventilation in the classrooms was necessary to ensure the effect of heat especially in the afternoon did not make the learners fatigued and drowsy. The study indicated that good aeration would ensure the learners were able to get fresh air, which would go a long way to ensure respiratory diseases such as asthma did not become a problematic issue. Despite this, the researcher was not able to point out whether the condition of the floor, the wall as well as the roof and even other accessories found in the classrooms had an impact on the academic achievement.

A study done by Deed *et.al* (2015) studied how teachers behaved and conducted themselves in a new teaching environment. The new environments had adopted an open system as opposed to the traditional system of constructing classrooms. The open system involves creation of open spaces where students and teachers will not be barred from each other by multiple walls and barriers. The study reported that the teachers and students who

were able to fit in the open system of classroom building set up reported to perform better in their respective academic roles. On the other hand, the teachers and students who could not adopt such a system found it difficult to settle in a new institution that adopted the open system. The study however, was not able to determine the extent to which the infrastructural facilities in the learning Institutions had an influence on academic excellence. The study failed to provide significantly adequate information to indicate how setting up classroom and other learning facilities affected the academic achievement of the learners.

Findings by Wan et.al (2019) focused on how a virtual environment could be created by use of technology to allow students and teachers interact without having to physically meet and interact in a confined room. According to the study, this would help in situations where there are absent teachers. The recommendation made by Wan et. Al (2019) was to ensure purchase and installation of computers and internet connectivity. All in all, the study was not able to establish the influence of other learning environments such as the classroom aspects and their influence to the academic achievement of the learners.

Moreover, a study done by Park et.al (2020) associated heat in the classrooms to learning outcomes by the students. The study indicated that countries experiencing longer hours of heat stress reported low academic performance among students as compared to countries having low or average hours of heat stress (Park et al, 2020). The study recommended adoption of air conditioners in the classrooms to reduce heat stress levels. The study however did not mention if the condition of the roof, or lack of one, could have an impact on academic excellence by letting in direct sunlight, rain or even wind.

In a study done by Raj (2017) whose chief aim was to determine reasons behind low scores in mathematics within selected public schools, it was reported that sound improvement in mathematics subject could only be realized, among other reasons, by ensuring adequate classrooms for teaching learning experience were set up within those learning Institutions that faced a significantly high shortage of adequate classrooms. Nevertheless, Raj (2017) failed to indicate the recommended physical state of the classrooms so as to ensure maximum return on investment as far as academics was concerned.

Blatchford et.al (2019) did research to establish whether the sizes of the classrooms had an impact on the academic achievement of students. The findings showed that size does not matter as far as student content retention was concerned. On the other hand, the study indicated that class sizes determine which strategies a teacher will be

required to utilize so as to manage the learners in a classroom setting. The study recommended the adoption of appropriate teaching methods by the teachers (Blatchford et.al, 2019). The study by this researcher failed to indicate if there was any correlation between classroom physical aspects such as the status of the floor, walls and the roof, and the impact they had on the academic outcome of students in their summative examinations.

Notably, a study by Ballen et.al (2018) done on university students to ascertain whether there was an influence of class size in implementing the Science, technology, Engineering and Mathematics in the selected universities, reported that the sizes of the classrooms did not have a direct impact on the performance of the science courses. Nevertheless, the study concluded that the female students performed better in small sized rooms as opposed to large sized rooms. The opposite was true when it came to the male students. Indeed, the researcher did not mention aspects of a classroom building such as the role played by absence/presence of the roof and walls on the learners' academic achievement.

2.3 Theoretical Framework

The study used the Dual factor theory. The theory was put forward by Frederick Herzberg (1959) and it is also known as Herzberg's motivation theory model. Herzberg, a behavioral scientist, was an American psychologist interested in people's motivation and job satisfaction. Herzberg conducted research by asking a group of people about their good or bad experiences at work. Based on the feedback, Herzberg developed factors for satisfaction and factors of dissatisfaction. The dissatisfiers included company policy, supervision, working conditions, salary, security and relations at the workplace. On the other hand, the satisfaction were achievement, interesting work, advancement, recognition and increased responsibility. The theory argued that the presence of motivators could cause employees to work harder than they would if the motivating factors were not provided to the employees. The theory further argued that the motivating factors were found within the actual job itself. Moreover, the employees felt less motivated when hygiene factors were not provided for at the workplace.

2.3.1 Application of the dual factor theory to the study

The theory was applicable in the study in that it argues that working conditions such as equipment and the working environment should be safe, hygienic and fit for purpose. In addition to that, the theory argues that equipment should be updated and well maintained. Presence of good working conditions will be a hygiene factor which will

ensure the individuals in a learning institution do not remain demotivated to perform their respective duties as per the designation. In this study, the researcher addressed the learning environment and its influence on academic achievement in public secondary Institutions within Kajiado Central Sub County.

The learning environment was equated to the working conditions referred to In Herzberg's theory. The theory argues that the education managers must stress upon guaranteeing the adequacy of the hygiene factors to avoid individual dissatisfaction. The study focused on whether the learning environment is fit for purpose, the purpose being acquisition of knowledge and skills by the learners in preparation for the summative examinations. The study assessed the influence of specific aspects of the learning environment on the academic achievement of learners within Kajiado Central Sub County.

2.3.2 Limitations of dual factor theory to the study

The learners may find the learning environment acceptable despite not appreciating some aspects of their learning environment. The theory is biased since it is based on the natural reaction of learners when asked to point out what makes them contented or rather discontented with their current learning environment. Learners may tend to blame their low academic achievement to external factors such as lack of adequate classrooms, and credit good academic achievement entirely on their individual efforts to perform well in their summative examinations. The theory's dependability is uncertain since responses had to be made by learners who might have ended up being biased or given different responses in similar observations.

2.4 Conceptual framework

In this research, school library resources, classroom instructional assets and the state of the classrooms were assessed to determine their level of influence on academic achievement on public secondary Institutions within Kajiado Central Sub County, as presented in figure 1

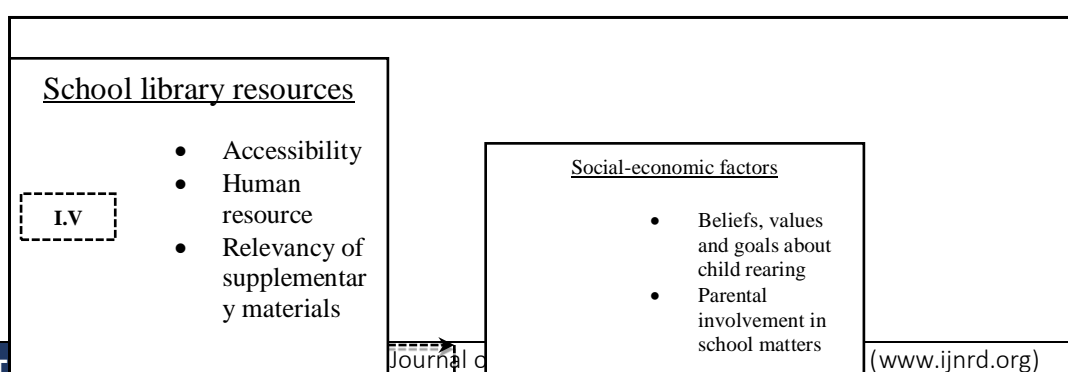




Figure 1 shows the objectives assessed in the research study. The intervening variables which the researcher may or may not be aware, nor have control over were clearly indicated. To relate the independent and the dependent variables in the study, the theory of Education Production Function was utilized in relating various inputs used to achieve a certain output. This theory explains that for any output to be produced, various inputs must come into play.

The school library resources had several indicators such as availability of a school library, and accessibility to the learners to the school library. The presence of a school librarian was also part of the study. Adequacy and relevance of the supplementary and revision materials stocked in the library was assessed. Classroom instructional assets had indicators such as adequacy of the course books, whether the course book-student ratio was per the Ministry of Education recommendation of 1:1. Additionally, physical condition of the furniture in the classrooms was studied. Availability and utilization of the teaching aids during the teaching-learning process was also part of what the study looked into. Moreover, the study assessed how often the available teaching learning resources were being utilized.

Additionally, the study had the intention of gathering data on the state of the classrooms occupied by learners in the selected learning Institutions. Similarly, the study assessed the physical condition of the floor, the walls and

ultimately the roof of classrooms in those selected learning Institutions. The walls were assessed as to whether they had graffiti, if the roofs were leaking or even if the floors have been cemented. The academic achievement in public secondary Institutions within Kajiado Central Sub-County for the last five years was studied. The dependent variable was the academic achievement of learners in their summative examinations. The academic achievement was the end result of the teaching learning process, that is, the effect as a result of the independent variables. The study assessed the influence of the learning environment on academic achievement on summative examinations.

2.5 Recap of Literature Review

Studies revealed that inadequate infrastructural facilities contribute to poor academic achievement in summative examinations. The study done by Laddunuri (2012) failed to ascertain how other library aspects impacted negatively on academic achievement. A well-planned school with a clean and safe learning environment is important for academic achievement. The safety of learners is paramount and schools need to ensure that policies and regulations on the same are implemented to the latter. The study fails to mention if there is an influence of library resources on academic achievement in public secondary Institutions (Stormey, 2018).

Good academic achievement can be compromised by shortage of teaching and learning materials. Schools without adequate stationeries fail to fully register good scores in the examinations as opposed to the schools which are well-equipped with the teaching learning materials. The study does not make any reports on the recommended state of the classrooms or even the recommended course book-student ratio (Komba et al, 2013).

Additionally, Hong et.al (2016) carried out a study assessing how funding learning Institutions could improve academic achievement of learners in schools within Michigan district. Findings were that funds may not have any influence on the student's achievement in the short term. On the other hand, the findings revealed that in the long term, the learners' academic achievement improved as a result of having constructed more classrooms. Only a few schools within Kajiado County have adequate land which could allow for the expansion of facilities as well as being utilized by the learners. On the other hand, the study was not able to ascertain as to whether classrooms factors such as presence of lockable desks, cabinets where the teaching would keep their teaching aids as well as classrooms which would accommodate delicate equipment such as projectors, had an influence on academic achievement of summative examinations (Mokaya, 2013).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter focuses on the approach used in the study. The section describes the research design used, target population, sample size, sampling techniques, research instruments, reliability as well as validity of research instruments, methods of sampling data which were applied by the researcher as well as the ethical issues which were put into consideration during data collection.

3.2 Research Methodology

The research utilized mixed methods approach so as to accommodate the qualitative and quantitative research approaches. Quantitative research dealt with measurements of the parameters of the learning environment that could be quantified, and their level of influence on academic achievement. The data collected was expressed in quantities and figures. Qualitative research was used based on the quality of the variables observed during the research. The research analyzed the relationship between learning environment and academic achievement.

3.3 Research Design

This work utilized ex post facto research design. Ex post facto research design encompasses examining how an independent variable may have an influence on a dependent variable. The researcher may not have the ability to manipulate the causes of a certain observation, and so can only try to predict the effect of such an observation (Creswell, 2014). The study assessed the cause-and-effect between the parameters of independent variable and dependent variable. The cause in the study were library resources, instructional assets and the state of the classrooms. The three components were the parameters of the independent variables. The effect in the research was academic achievement of learners in the Kenya Certificate of Secondary Education, which is the dependent variable.

3.4 Location of the Study

Study locale was Kajiado Central Sub-County, located within Kajiado County, which is one of the largest Counties in Kenya composed of 5 Constituencies, 25 wards, and 6 Sub-Counties. According to the Ministry of

Education, Kajiado County has 8 universities (including private and public), 5 registered colleges, 58 secondary schools (both private and public). The locale is within an Arid and Semi-Arid Land mostly inhabited by pastoralists whose main tool of trade is livestock keeping and majorly practice a nomadic lifestyle. There is adequate evidence from the Kajiado Sub County director of education indicating that Kajiado County has been registering low grades over several years in the Kenya Certificate of Secondary Examinations. In the year 2018 and 2022 no student scored a mean grade of an “A”, as the report by the Kajiado Central Sub county’s office indicated.

3.5 Target Population

The study targeted the 15 public secondary schools within Kajiado Central Sub County. The target population was 15 principals, 120 class teachers, 1200 form four students, 1350 form three students. The Sub County director of education was also targeted for the study, totaling to a target population of 2686 individuals all from Kajiado Central Sub County.

3.6 Sampling procedures and sampling techniques

Proportionate stratified random sampling was used to put the public secondary schools in stratas, namely sub county public secondary schools, county public secondary schools, extra county public secondary schools. Additionally, random sampling was used to select sub samples from each stratum so as to give each public secondary school an equal chance of inclusion in the study. After the sub samples were formed, seven schools were sampled out of the possible 15 public secondary schools within Kajiado Central Sub County. This was to ensure complete enumeration of the selected clusters and avoid bias. In addition, this sampling method went a long way in cutting down cost yet ensuring efficiency in the sampling process. The SCDE was purposively sampled since the respondent holds a managerial position enabling the respondent to be in a position to address educational matters within their jurisdiction. Additionally, the principals were sampled by purposive sampling technique so as to provide the feedback required.

The class teachers were selected by proportionate sampling technique. The technique first divided the population into sub-populations and then applied random sampling technique to each sub-population. Class teachers were grouped as per the class they represented from form one to form four, then one class teacher for each of the

streams was randomly selected to avoid bias. The Form four and Form three students were selected by use of systematic sampling. The technique ensured respondents were randomly selected using a sampling interval such that every tenth student in the class register was picked. The researcher selected every 10th number from the population, such as every 10th student in the class register. This was meant to eliminate bias by giving equal chance of each student being selected in the sample.

The sample size was calculated by a formula proposed by Mugenda and Mugenda (2013), which recommended that for a population less than 10,000 subjects, three hundred and eighty-four subjects should be sampled. The researcher came up with the sample size for each category of participants as shown below:

$$nf = n/1 + (n/N)$$

Sample size: 384

$$\text{Hence, nf will be } 384/1 + (384/2929) = 340 \text{ sample size}$$

Where;

N=Estimated population size

n= the desired sample size whenever the individuals are less than ten thousand

nf= as the desired size for a sample having less than ten thousand individuals

Additionally, in reaching up to a conclusion about the sample size, the researcher considered Creswell (2014) feedback on sampling methods. The researcher used purposive sampling as recommended by Creswell (2014) that mentioned sampled respondents should be able to give adequate feedback that would assist the respondent carry out their study and generalize the findings to a given population.

3.7 Sample Population

Out of the possible target population of 2686, a sample of 348 respondents; including one Sub-County Director of education, 15 principals, 40 class teachers, 152 form four students and 140 form three students were sampled for the study

Table 3.7: Target population vs. Sample population

Respondents	Target population	Sample population	Sample population Percentage (%)
Sub-County Director of education	1	1	100
Principals	15	15	100
Class Teachers	120	40	33
Form Three students	1350	140	10
Form Four students	1200	152	13
TOTALS	2686	348	13

A sample fraction of at least ten percent of the target population was chosen from each school hence giving a sample size of 348 respondents distributed proportionally under the categories 15 principals, 40 class teachers, 152 form four students, 140 form three students and 1 Sub County director of education so as to give a total of 348 respondents for the study.

3.8 Construction of research instruments

Self-administered questionnaires for students and teachers were used. For the principals, research administered questionnaires were utilized. The questionnaires were semi structured in that both the structured and unstructured type of questionnaire was used. The questionnaire had four main sections. The first section assessed school library resources. The second section sought to get answers on classroom instructional assets. The third section collected data on the state of the classroom. Lastly, the fourth section sought data on the academic achievement of the sampled schools over a span of five years. A five-point Likert scale was used to gather and rate data in the questionnaires. In addition, a face-to-face interview allowed collection of feedback from the SCDE on academic achievement of the area under study. Prior to the interview, lead questions were prepared for purposes of data collection. Probing method was used to sought clarifications and relevant feedback while interviewing the respondents. Probing ensured that the feedback remained succinct, so that the questions answered only the research objectives of the study. Observation checklists were designed and used to sample data in the selected

schools within Kajiado Central Sub County. Moreover, documentary reviews were done so as to acquire data on past academic achievement in the summative examinations for the year 2018 to 2022 in the area under study.

3.9.1 Testing for validity

The research utilized the criterion validity which measured the magnitude to where the research apparatus measured the intended item(s). Predictive criterion validity was used to measure an outcome by the research instrument with a later outcome of the same research instrument being used in the study. The accuracy of data collection by the research instrument is termed as validity of a research instrument. To test the validity of the questionnaires, the questionnaires were first subjected to data collection in two other sub counties to one sub-county director of education, twelve principals, thirty class teachers and one hundred students. The feedback collected was measured against data from reliable sources. Similarly, observation checklist was used to fill in data from two other sub counties before comparing the collected data with data from secondary sources. To test validity of the questions for the interview, two sub county directors of education from those sub-counties were questioned separately and their responses were compared with data from secondary sources.

3.9.2 Testing for reliability

To test the reliability of the research tool, a pilot study was done in two other public secondary schools not included in the research study. These schools are located within Kajiado North Sub County and Kajiado South Sub County. Among other reliability tests for research instruments, Kothari (2004) mentions that test-retest technique is applicable. While conducting the pilot study, the test-retest technique was utilized. The Cronbach's Alpha was used to measure coefficient of internal consistency. The minimum satisfactory level of reliability of the research tool was ≥ 0.7 . Reliability can be scaled down on the following cut-off points; excellent reliability ≥ 0.90 , high reliability 0.70-0.90, moderate reliability 0.50-0.70 and low reliability of ≤ 0.50 (Hinton et al, 2004).

3.10 Data Collection Procedures and Methods

Data collection procedures and methods involved self-administered questionnaires, interview schedule as well as observation checklists and documents reviews. An introductory letter from Mount Kenya University was acquired. In addition, a research permit was acquired from the National Council for Science, Technology and Innovation meant to secure consent for the sole purpose of sampling schools. The research permit was presented

to the SCDE officer at the Kajiado Central Sub County education office for a go-ahead to carry out the study within the research locale. Once the questionnaires had been developed, they were pre-tested with a sample collected from two other secondary Institutions from Kajiado North Sub-County and Kajiado South Sub County which was not involved in the target population. Moreover, the questionnaires were enhanced to improve their authenticity. Two kinds of questionnaires were used in data collection namely, self-administered and researcher-administered questionnaire. The researcher-administered questionnaires were used when collecting data from the school principals, since school principals had busy schedules and still willing to participate in the study. This process reduced delays getting feedback, and still allowed the researcher to have a feel of the happenings on the ground by fully participating in the exercise. The questionnaires were put in sealed envelopes and then hand-delivered to all the sampled public secondary schools. After ten working days, the questionnaires were retrieved from the respondents. An observation checklist was procedurally filled by the researcher as per the observation being made in the selected schools.

3.11 Data analysis Procedures and techniques

Descriptive statistics of Karl Pearson coefficient of correlation was applied in analyzing quantitative data using the Statistical package for social sciences version 20. The Karl Pearson coefficient of correlation was used to describe the correlation between the parameters of the independent variables and the dependent variable being studied. The degree of relationship was expressed by coefficients which range from the correlation ($-1 \leq r \leq +1$). When the value of the correlation coefficient was +1, then the two variables under study were said to be perfect and positive. Again, when the value of the correlation coefficient was -1, then the two variables under study were said to be perfect and negative. On the other hand, there existed no correlation between the variables under study if the value of the correlation coefficient was 0.

Descriptive analysis of the data was used in presenting the analyzed data in percentages, means, standard deviations, frequency tables, pie charts as well as graphs.

The Karl Pearson correlation of coefficient's formula used was as below:

$$N \sum dx dy - \sum dx \sum dy$$

r =

$$\frac{\sum dx \sum dy}{\sqrt{N \sum dx^2 - (\sum dx)^2} \sqrt{N \sum dy^2 - (\sum dy)^2}}$$

The deductive approach was used to analyze qualitative data. In this approach, the research questions were used to group the data and then the similarities and differences were sought. The type of qualitative data analysis used was content analysis, which is the procedure for the categorization of verbal or behavioral data for the purpose of classification, summarization and tabulation. Content analysis was done by descriptive and interpretive procedures. The steps followed for the qualitative data analysis were organizing the data, identifying framework, sorting data into framework, using framework for descriptive analysis and finally interpreting the findings. The qualitative data was analyzed thematically and then a report of the analyzed data was written so as to ensure validity of research outcomes by cross verification from two or more sources. The qualitative software used for data analysis was Open code 3.4.

3.12 Ethical Consideration

An introductory letter from Mount Kenya University was sought. The research permit was acquired from the National Council for Science, Technology and Innovation and presented to the SCDE, seeking approval to carry out the research. School principals were contacted before class teachers and the students were allowed to fill in the questionnaires. The purpose of the study was explained to the respondents taking part in the study. In addition to this, the respondents participated in the study by virtue of their own consent. Privacy of all participants was re-affirmed. All participants who took part in the study were handled as anonymous during the study. Participants taking part in the study were assured utmost confidentiality.

CHAPTER FOUR

4.1 RESEARCH FINDINGS, ANALYSIS AND PRESENTATION

4.1 INTRODUCTION

The chapter primarily focuses on analyzing of data collected from the field as reported by the research participants. The research findings have been presented logically with tables. The findings of the research were guided by the following research objectives:

- i.To establish the influence of management of school library resources on academic achievement in public secondary schools in Kajiado Central Sub County.
- ii.To determine the influence of management of classroom instructional assets on academic achievement in public secondary schools in Kajiado Central Sub County.
- iii.To establish the influence of management of the state of the classrooms on academic achievement in public secondary schools in Kajiado Central Sub County.

4.2 RESEARCH PRESENTATION, INTERPRETATION AND DISCUSSION

Data will be presented in table forms. Each table will have a title and a detailed description of the presented data. Discussions have been made in line with the study objectives.

4.2.0 Response rate

The response rate by the participants towards answering and returning the questionnaires is as indicated below:

Table 4.2: A table showing the response rate of research participants

Issued questionnaires	Returned questionnaires	Return rate (%)
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Principals	15	15	100
Teachers	40	35	86
Students (F₃)	138	130	94
Students (F₄)	150	140	93

As the table above shows, the return rate for principals, teachers, form three and form four students had a response rate of above 80%. Additionally, the sub-county director of education was utilized in this exercise of data collection. This response rate was adequate enough to allow the research to proceed with data analysis and interpretation (Mugenda, 2013).

4.2.1 Management of school library resources

The first objective of the study was to assess the influence of management of school library resources on academic achievement in public secondary schools in Kajiado Central Sub County.

4.2.1.1 Principals response on management of school libraries

The feedback from the questionnaires filled out by fifteen principals on the management of school libraries presented the following data:

Table 4.2.1.1: Library accessibility

	Frequency	Percent	Valid Percent	Cumulative Percent
Often	1	6.7	6.7	6.7
Rarely	7	46.7	46.7	53.3
Never	7	46.7	46.7	100.0
Total	15	100.0	100.0	

Seven principals out of the possible fifteen reported that libraries were not accessible to learners, because a school lacked one. Additionally, seven more principals reported that students rarely assessed the library because a teacher was not available at a particular time. There was only one respondent who reported that the library was often accessible to learners whenever they required to use it.

Principals were asked to give their opinion on whether their schools had employed a qualified librarian.

Table 4.2.1.1: Presence/absence of a librarian

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Does the school have a library assistant?	15	1	2	1.93	.258	.067
Valid N (listwise)	15					

The standard deviation was 0.258, and a mean of 1.93 was realized when the data was analyzed. Fifteen respondents gave feedback to this question.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	1	6.7	6.7	6.7
No	14	93.3	93.3	100.0
Total	15	100.0	100.0	

Additionally, only one of the fifteen respondents mentioned that the school had outsourced a library assistant. As part of the questions in the questionnaire, the respondents were asked on how purchases are made for stationery materials found in the library. An opinion was sought on whether they made purchases themselves or tasked the government and well-wishers to do so

Table 4.2.1.1: Principals on outsourced library materials

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Donations	1	6.7	6.7	6.7
Not applicable	12	80.0	80.0	86.7
Requisition	2	13.3	13.3	100.0
Total	15	100.0	100.0	

The respondents reported that in the cases where library materials were outsourced, requisition forms had to be filled out and suppliers asked to supply. On the other hand, in the event the stationery materials were part of some donation from a well-wisher, then the respondents were not in a position to vet such materials. Nevertheless, twelve respondents observed that they lacked a library hence they could not comment on the same.

Additionally, the questionnaire sought the opinion of the school managers concerning the academic achievement.

Table 4.2.1.1: Principals feedback on academic performance

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Average	1	6.7	6.7	6.7
Below average	13	86.7	86.7	93.3
Not applicable	1	6.7	6.7	100.0
Total	15	100.0	100.0	

One respondent mentioned that their school performed averagely, another one respondent mentioned that their school was yet to participate in the final examinations by KNEC. Also, thirteen respondents mentioned that the academic performance of their school was below average.

Table 4.2.1.1: Hypotheses testing by one sample test for principals on academic performance

One-Sample Test

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Is the overall academic achievement of this school influenced by the existing physical facilities of the school?	1.784	14	.096	.333	-.07	.73

To test the hypothesis, one sample test was used. The data analyzed is as presented in the table above. The t test value was 1.784. the test had 14 degrees of freedom

4.2.1.2 Teachers' response on management of school libraries

The opinion of teachers regarding matters management of school libraries was sought. The following table presents responses on accessibility to school libraries;

Table 4.2.1.2: Teachers responses to accessibility of the school library

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	1	2.9	2.9	2.9
Valid No	20	57.1	58.8	61.8
Valid Sometimes	13	37.1	38.2	100.0
Valid Total	34	97.1	100.0	
Missing System	1	2.9		
Total	35	100.0		

One respondent mentioned that the school library was always accessible for the learners to utilize. Of the 35 respondents, twenty of them reported that the school library was not always accessible to the learners. Thirteen of the respondents mentioned that the library was at times accessible to learners. Respondents who gave an affirmative response on accessibility to school libraries gave a reason that the school had outsourced a librarian who could be available throughout the day. The respondents who gave negative responses reported that the school did not have a library. Additionally, the respondent who reported that the library was at times accessible, added that the language teachers would create time between lessons so as to allow learners time to borrow or return books from the library.

The respondents gave varying reasons as to whether a librarian was present or not. The responses have been tabulated below:

Table 4.2.1.2: Teachers responses to availability of a school librarian

	Frequency	Percent	Valid Percent	Cumulative Percent
disagree	19	54.3	54.3	54.3
neutral	4	11.4	11.4	65.7
agree	12	34.3	34.3	100.0
Total	35	100.0	100.0	

Four of the thirty-five respondents mentioned that they weren't sure on how to put their responses. Fifty four percent of the respondents stated that the school lacked a librarian, or since the school did not have a library. The respondents who were undecided on whether a school librarian was available, added that the language teacher was utilized as the school librarian.

More ever, the respondents were asked to give their opinion on how relevant the library materials were to the content being taught in classrooms.

Table 4.2.1.2: Teachers responses to relevancy of library resources

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly disagree	1	2.9	2.9	2.9
disagree	18	51.4	51.4	54.3
agree	7	20.0	20.0	74.3
strongly agree	9	25.7	25.7	100.0
Total	35	100.0	100.0	

Twenty-five-point seven percent of the respondents indicated that materials in the libraries were relevant to content taught in the classrooms. Three percent of the respondents strongly disagreed and reported that the learning materials in the libraries were not relevant to the learners. More than half of the respondents added that libraries were full of learning materials yet such materials were irrelevant, too complex, too shallow or completely not in line with the current syllabus.

When sought to respond to their opinion on matters academic performance in their respective schools, the following information was captured:

Table 4.2.1.2: Teachers responses to academic performance of schools

	Frequency	Percent	Valid Percent	Cumulative Percent
Average	16	45.7	45.7	45.7
Below average	19	54.3	54.3	100.0
Total	35	100.0	100.0	

More than 45 per cent of the respondents indicated that the level of academic performance in their respective schools was average. On the other hand, more than half of the respondents reported that academic performance in Kajiado Central Sub County was low.

One-Sample Test

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
To which extent is the academic achievement negatively influenced by the existing physical facilities	4.761	34	.000	.400	.23	.57

To test the hypothesis, one sample test was used. The data analyzed is as presented in the table above. The t test value was 4.784. the test had 34 degrees of freedom

4.2.1.3 Learners' response on management of school libraries

Table 4.2.1.3: Learners' responses on library accessibility

	Frequency	Percent	Valid Percent	Cumulative Percent
accessible	4	1.5	1.5	1.5
rarely accessible	4	1.5	1.5	3.0
not accessible	262	97.0	97.0	100.0
Total	270	100.0	100.0	

Ninety seven percent of the participants stated that the school library was not accessible to the learners. One point five percent of the respondents either reported that the school library was accessible, or rarely accessible to the learners.

On whether school had a library assistant, the following feedback was gathered;

Table 4.2.1.3: Learners responses on availability of a library assistant

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	32	11.9	11.9	11.9
no	238	88.1	88.1	100.0

Total	270	100.0	100.0	
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The respondents who gave an affirmative response to the question on whether a school library assistant was available scored an 11.9% of the total responses to this particular question. The respondents who reported that schools lacked a library assistant were 88.1% of the respondents

On the adequacy of materials found in the library, the following data was gathered;

Table 4.2.1.3: Learners responses on adequacy of library materials

	Frequency	Percent	Valid Percent	Cumulative Percent
well equipped	6	2.2	2.2	2.2
moderately equipped	4	1.5	1.5	3.7
inadequately equipped	47	17.4	17.4	21.1
not applicable	213	78.9	78.9	100.0
Total	270	100.0	100.0	

Only 2% of the respondents indicated that the school library had adequate materials. Another 1.5% of the respondents reported that the school library was moderately equipped. More than 17% of the respondents indicated that the school library was inadequately equipped. Additionally, more than 70% of the respondents reported that the school lacked a library.

4.2.1.4 Sub- County education officer response on management of school libraries

The sub-county education officer stated that only three schools had managed to set up a well-equipped library. Concerning management of school library resources, the SCDE had this to say:

“My office monitors academic performance of schools within my area of jurisdiction. I have to partly blame how poorly school libraries are being managed in some schools. It is not unusual to find a fully stocked library with books bundled up in a corner or still sealed in boxes”.

Additionally, the SCDE reported that due to financial constraints, schools that were lucky enough to have a running library seldom employed a qualified librarian but opted to utilize the language department to be in charge of those libraries.

On whether the books supplied to schools were relevant to the learners, the SCDE mentioned that feedback from the consumers of the knowledge indicated that a few subjects had indeed erroneous sections, and added that this was to be looked into by the education officials mandated with publishing on behalf of the ministry of education.

When asked to comment on how the academic performance fared within their area of jurisdiction, the SCDE responded this,

“Academic performance of learners leaves a lot to be desired. We, as a sub county, cannot compare with other sub counties within this County. We have, so far, been academic dwarfs.”

4.2.2 Management of classroom instructional assets

The research determined the influence of management of classroom instructional assets on academic achievement in public secondary schools in Kajiado Central Sub County.

4.2.2.1 School principals

The questionnaire administered to the school principals required them to respond to questions on the frequency of coursebooks being delivered to their respective schools;

Table 4.2.2.1: Frequency of delivering course books to schools

	Frequency	Percent	Valid Percent	Cumulative Percent
Annually	4	26.7	26.7	26.7
Valid when need arises	11	73.3	73.3	100.0
Total	15	100.0	100.0	

The respondents reported that purchases of the classroom furniture such as seat, lockers and teacher tables was done whenever need arose, which accounted for 73.3% of the respondents. Four of the fifteen respondents that took part in the study made yearly purchases of classroom furniture.

The principals gave the feedback on the utilization of teaching aids as indicated in a table below;

Table 4.2.2.1: Principals' responses to availability of electronic devices

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	13	86.7	86.7	86.7
No	2	13.3	13.3	100.0
Total	15	100.0	100.0	

The respondents gave an affirmation on that their school indeed had other electronic gadgets which could be used in the teaching process, all except two respondents.

The two respondents added that the school was still new and it was still working on setting up classes and other school necessities.

Table 4.2.2.1: Principals responses on utilization of teaching aids

	Frequency	Percent	Valid Percent	Cumulative Percent
always	1	6.7	6.7	6.7
sometimes	10	66.7	66.7	73.3
Valid rarely	3	20.0	20.0	93.3
not sure	1	6.7	6.7	100.0
Total	15	100.0	100.0	

Only 6.7 % of the respondents reported that teachers in their work stations always used teaching aids whenever they had a lesson. The respondents which reported that teachers often remembered to utilize the teaching aids were 66.7% of the respondents. Three of the fifteen respondents mentioned that they rarely saw teachers utilize the teaching aids during the teaching learning process. One respondent was not sure how often the teachers utilized the teaching aids.

4.2.2.2 Teachers

The table below presents data on what teachers reported concerning the adequacy of course books in their respective schools;

Table 4.2.2.2: Teachers responses on adequacy of course books

	Frequency	Percent	Valid Percent	Cumulative Percent
Inadequate	21	60.0	60.0	60.0
Valid Adequate	14	40.0	40.0	100.0
Total	35	100.0	100.0	

Sixty percent of the respondents reported that coursebooks were inadequate in their respective schools while 40% of the respondents reported that the coursebooks were adequate.

The table below showing feedback from the teacher respondents on physical condition of classroom furniture;

Table 4.2.2.2: Teachers' opinions on physical condition of classroom furniture

	Frequency	Percent	Valid Percent	Cumulative Percent
Adequate	16	45.7	47.1	47.1
Valid Inadequate	18	51.4	52.9	100.0
Total	34	97.1	100.0	
Missing System	1	2.9		
Total	35	100.0		

When asked to comment on the physical condition of the classroom furniture, 51.4% mentioned that was inadequate, adding that new furniture was required. Additionally, 45.7% of the respondents mentioned that physical condition of the furniture was in good condition and adequate.

When the respondents were asked on whether they agreed or disagreed with the utilization of teaching aids, the following feedback was collected;

Table 4.2.2.2: Teachers' responses on utilization of teaching aids

	Frequency	Percent	Valid Percent	Cumulative Percent
Highly inadequate	2	5.7	5.7	5.7
Valid Adequate	24	68.6	68.6	74.3
Inadequate	9	25.7	25.7	100.0
Total	35	100.0	100.0	

Moreover, 5.7% of the respondents reported that utilization of teaching aids was highly inadequate, 25.7% of the respondents reported that utilization of teaching aids was inadequate, while 68.6% of the respondents reported that utilization of the teaching aids was adequate.

4.2.2.3 Students

The students were asked to make comments on the adequacy of coursebooks in their schools. The feedback has been presented in a table as below;

Table 4.2.2.3: Learners' responses on adequacy of course books

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Over surplus	2	5.7	5.7	5.7
Under surplus	24	68.6	68.6	74.3

Adequate	9	25.7	25.7	100.0
Total	35	100.0	100.0	

As the table above indicates, more than half the respondents reported that there was an under surplus of coursebooks. These respondents stated that students shared a coursebook with at least one other learner in the classroom. Moreover, 5.7% of the respondents reported that there was an over surplus of coursebooks in their respective schools. Additionally, 25.7% of the respondents indicated that the coursebooks in the respective schools were adequate and in a ratio of 1:1.

Additionally, the questionnaire required the learners to make comments on the physical condition of the furniture in their respective classes. The data has been presented in a table form as shown below;

Table 4.2.2.3: Learners' responses on physical condition of chairs

	Frequency	Percent	Valid Percent	Cumulative Percent
not adequate	12	4.4	4.4	4.4
poor	40	14.8	14.8	19.3
Valid fair	213	78.9	78.9	98.1
good	5	1.9	1.9	100.0
Total	270	100.0	100.0	

The table above indicates that in 78.9% of the schools, the chairs in the classrooms were available and in fair condition. More ever, 14.8% of the respondents mentioned that the furniture in their respective schools were in poor condition, adding that the chairs either lacked a back rest or the back rests were not firm enough. Additionally, 4.4% of the respondents indicated that the schools lacked adequate furniture. The respondents that reported that furniture was in good condition was 1.9% of the respondents.

Table 4.2.2.3: Learners' responses on physical condition of lockers

	Frequency	Percent	Valid Percent	Cumulative Percent
not adequate	7	2.6	2.6	2.6
very poor	7	2.6	2.6	5.2
Valid poor	199	73.7	73.7	78.9
fair	57	21.1	21.1	100.0
Total	270	100.0	100.0	

Two-point six percent of the respondents reported that lockers were inadequate in number. Further, 2.6% of the respondents mentioned that the condition of the lockers was very poor. Moreover, 73.7% of the respondents mentioned that the condition of the lockers was poor, and these respondents added that the lockers were not

lockable, and in some cases, the tops came off and it would be difficult to make good writing on books during a lesson.

Table 4.2.2.3: Learners' responses on physical condition of teachers' tables

	Frequency	Percent	Valid Percent	Cumulative Percent
not available	187	69.3	69.3	69.3
Valid good	83	30.7	30.7	100.0
Total	270	100.0	100.0	

According to the table above, more than half of the respondents mentioned that the classrooms lacked a table for teachers. The respondents added that teachers were forced to hold their teaching materials during the lesson, or in some instances use one of the learner's lockers to place the teaching aids. Additionally, more than 30% of the respondents reported that teachers' classroom tables were in good condition and fit for purpose.

The table below presents learners' feedback on how frequent the teaching aids were being used during the learning process;

Table 4.2.2.3: Learners' responses on utilization of teaching aids

	Frequency	Percent	Valid Percent	Cumulative Percent
often	115	42.6	42.6	42.6
rarely	19	7.0	7.0	49.6
Valid always	95	35.2	35.2	84.8
never	41	15.2	15.2	100.0
Total	270	100.0	100.0	

The respondents who mentioned that teaching aids were often used in the classroom accounted for 42.6%. Moreover, 7% of the respondents reported that teaching aids were rarely used. Thirty-five-point two percent of the respondents mentioned that teaching aids were always used during lessons. Additionally, more than fifteen percent of the respondents reported that teaching aids were never used during the teaching process.

4.2.2.4 Sub- County Director of education response on classroom instructional assets

The sub county Director of education stated that unlike previous years, the government had removed capitation to schools for purchasing of course books and instead, made supplies to schools in the course of the year.

Additionally, the SCDE mentioned that there were reported cases of schools which received double orders of the same coursebooks, shortage of orders per enrollment, as well as delayed orders. For example, the SCDE mentioned this;

“My office is fully aware of the challenges our schools are going through in assessing the course books being supplied by the government. We are also aware the challenges the government officials in charge of supplying these course books go through while trying to establish and reach out to those schools”.

Additionally, the subcounty Director mentioned that during their visits to schools, one of the aspects their check as part of performance contracting with the principals is how well the classroom furniture have been maintained. The SCDE argued that it was a horrible scene in some of the schools within the sub county since they lacked adequate classroom furniture, adding that other schools had learners using broken lockers and seats.

On matters how well teaching aids were being utilized in schools, the SCDE reported that during school visitations, it was notably evident that about a half of the schools were still reliant on chalk-black board way of teaching. The SCDE added that only about a third of the schools had invested on sourcing other types of teaching aids. Whether or not the teaching aids were being utilized, this was not determinable at the time of visit.

4.2.3 Management of the state of the classroom

The research established the influence of management of the state of the classrooms on academic achievement in public secondary schools in Kajiado Central Sub County.

4.2.3.1 Principals

The principals gave the following feedback when asked to comment on the current state of the classrooms in their learning institution;

Table 4.2.3.1: Principals' responses on the state of classrooms

N	Valid	15
	Missing	0
Std. Error of Mean		.126
Std. Deviation		.488
Variance		.238
Percentiles	25	1.00

50	2.00
75	2.00

The standard deviation was .488 with a standard error mean of 0.126.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid in good condition	5	33.3	33.3	33.3
in poor condition	10	66.7	66.7	100.0
Total	15	100.0	100.0	

As evident in the table above, five of the respondents mentioned that the physical condition of the classrooms was in good condition, while ten of the respondents mentioned that the physical state of the classrooms was in poor condition.

On the source of funds to set up new classrooms, the following data was gathered;

Table 4.2.3.1: Principals' responses on source of funds for classroom construction

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid County Development Fund	9	60.0	60.0	60.0
Parents sponsors/well wishers	4	26.7	26.7	86.7
Total	15	100.0	100.0	100.0

Nine out of the fifteen respondents mentioned that the school relied on County Development Funds to set up classrooms. On the other hand, 26.7% of the respondents mentioned that the school relied on either parents or community for funding. Additionally, 2 respondents mentioned that the school relied on well-wishers or even sponsors to get funds to construct new classrooms.

When the respondents were asked what they felt were areas of improvement as far as management of the state of classrooms was concerned, the following data was gathered;

Table 4.2.3.1: Principals' responses on improvement areas in managing state of classrooms

	Frequency	Percent	Valid Percent	Cumulative Percent
More classrooms are required	10	66.7	66.7	66.7
School dining hall facilities be set up	1	6.7	6.7	73.3
Valid School library facilities need to be set	3	20.0	20.0	93.3
School laboratory facilities required	1	6.7	6.7	100.0
Total	15	100.0	100.0	

Ten respondents mentioned that more classroom facilities were required in the school, three respondents mentioned that school library facilities needed to be set up. Additionally, one respondent mentioned a school laboratory while another mentioned a school dining hall facility.

4.2.3.2 Teachers

The following table gives feedback from teachers on their take about the physical state of classrooms;

Table 4.2.3.2.1: Teachers' responses on the current state of classrooms

	Frequency	Percent	Valid Percent	Cumulative Percent
New	11	31.4	31.4	31.4
Old	13	37.1	37.1	68.6
Valid In good condition	11	31.4	31.4	100.0
Total	35	100.0	100.0	

More than 30% of the respondents stated that the classrooms were newly constructed, 37.1% mentioned that the classrooms were old buildings, while 31.4% of the respondents mentioned that the classrooms were in good condition.

Data from the respondents on the physical state of the classroom floor has been presented as below;

Table 4.2.3.2.2: Teachers' responses on state of the classroom floor

	Frequency	Percent	Valid Percent	Cumulative Percent
Very good	1	2.9	2.9	2.9
Good	14	40.0	40.0	42.9
Valid Poor	17	48.6	48.6	91.4
Very poor	3	8.6	8.6	100.0
Total	35	100.0	100.0	

Forty-eight-point six percent of the respondents reported that the floor was in poor condition. Additionally, 40% of the respondents mentioned that the floor was in good condition, 8.6% stated that the floor was in very poor condition, whereas 2.9% of the respondents mentioned that the classroom floor was in very good condition. The respondents who mentioned that the floor was in very poor condition added that floors with crevices made learners spend more time cleaning.

Data from the respondents on the physical state of classroom walls was tabulated as below;

Table 4.2.3.: Teachers' responses on state of the classroom wall

	Frequency	Percent	Valid Percent	Cumulative Percent
Very good	1	2.9	2.9	2.9
Good	14	40.0	40.0	42.9
Valid Poor	17	48.6	48.6	91.4
Very poor	3	8.6	8.6	100.0
Total	35	100.0	100.0	

Forty-eight-point six percent of the respondents reported that the wall was in poor condition. Additionally, 40% of the respondents mentioned that the wall was in good condition, 8.6% stated that the wall was in very poor condition, whereas 2.9% of the respondents mentioned that the classroom wall was in very good condition. The respondents who mentioned that the walls were in very poor condition added that the walls lacked charts and print out materials and also had graffiti drawings.

When tasked with giving feedback on physical state of the roof, the following feedback was collected;

Table 4.2.3.: Teachers' responses on state of the classroom roof

	Frequency	Percent	Valid Percent	Cumulative Percent
Very good	1	2.9	2.9	2.9
Good	14	40.0	40.0	42.9
Valid Poor	17	48.6	48.6	91.4
Very poor	3	8.6	8.6	100.0

Total	35	100.0	100.0	
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Forty-eight-point six percent of the respondents reported that the roof was in poor condition. Additionally, 40% of the respondents mentioned that the roof was in good condition, 8.6% stated that the roof was in very poor condition, whereas 2.9% of the respondents mentioned that the classroom roof was in very good condition. The respondents who mentioned that the roof was in very poor condition added that roofs were leaking, and that there was inadequate air circulation leading to the rooms overheating during a lesson.

4.2.3.3 Students

The respondents were expected to give feedback on how they rated the classroom floor on its level of suitability;

Table 4.2.3.3: Students' responses on state of the classroom floor

	Frequency	Percent	Valid Percent	Cumulative Percent
poor	191	70.7	70.7	70.7
fair	35	13.0	13.0	83.7
good	44	16.3	16.3	100.0
Total	270	100.0	100.0	

From the table above, more than 70% of the responses mentioned that the state of the floor was poor. Those respondents added that floors had crevices and were difficult to clean or sweep. Additionally, 13% of the respondents stated that the floors were fairly kempt, while another 16.3% mentioned that the floors were in good condition.

Learners were asked to give feedback on the state of the wall. Data has been presented in a table below;

Table 4.2.3.3: Students' responses on state of the classroom wall

	Frequency	Percent	Valid Percent	Cumulative Percent
very poor	11	4.1	4.1	4.1
fair	202	74.8	74.8	78.9
good	49	18.1	18.1	97.0
very good	8	3.0	3.0	100.0
Total	270	100.0	100.0	

Over 70% of the respondents reported that the wall was in a fair state. Moreover, 4.1% of the respondents reported that walls were in very poor condition, 18.1% mentioned that the walls were in good condition, while 3% of the respondents mentioned that walls were in very good condition.

Respondents were asked to state how they would rate the physical state of the roof. Below is feedback from the respondents;

Table 4.2.3.3: Students' responses on state of the classroom roof

	Frequency	Percent	Valid Percent	Cumulative Percent
very poor	3	1.1	1.1	1.1
poor	13	4.8	4.8	5.9
Valid fair	9	3.3	3.3	9.3
good	245	90.7	90.7	100.0
Total	270	100.0	100.0	

Over 90% of the respondents said that the classroom roof was in good condition, 3.3% mentioned that the roof was fairly alright, 4.8% reported that the roof was in poor condition, while 1.1% of the respondents mentioned that the roof was in very poor state.

4.2.3.4 Sub- County Director of education on management of the state of the classrooms

In an interview, the SCDE reported that the county development fund, county government, ministry of education and even the parents were key organ in helping public secondary schools set up classrooms. Additionally, the SCDE pointed out the following;

“Due to financial constraints, a good number of classrooms have not been started yet, and/or are yet to be completed.”

4.2.4: Observation Checklist

The table below presents feedback on classroom floor;

Table 4.2.4: Classroom checklist

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid available but not in good condition	4	57.1	57.1	57.1

available and in good condition	3	42.9	42.9	100.0
Total	7	100.0	100.0	

From the data, the researcher observed that more than half of the classrooms were not in good condition, while 42.9% were in good condition.

The researcher made the following observations about the classroom painted walls;

Table 4.2.4: Classroom wall checklist

	Frequency	Percent	Valid Percent	Cumulative Percent
available but not in good condition	4	57.1	57.1	57.1
Valid available and in good condition	3	42.9	42.9	100.0
Total	7	100.0	100.0	

The researcher observed that more than half of the schools, had classrooms that were not in good condition while 42.9% of the schools had classroom walls in good condition.

The following table was generated after the researcher collected data on the physical state of the roof;

Table 4.2.4: Classroom roof checklist

	Frequency	Percent	Valid Percent	Cumulative Percent
available and in good condition	5	71.4	71.4	71.4
Valid available but not in good condition	2	28.6	28.6	100.0
Total	7	100.0	100.0	

The researcher observed that more than 70% of the schools visited had classrooms that had well functional roof. Additionally, 28.6% of the schools had classrooms which were not in good condition.

The following table presents data on the state of the available classroom teaching aids;

Table 4.2.4: Classroom roof checklist

	Frequency	Percent	Valid Percent	Cumulative Percent
not available	3	42.9	42.9	42.9
available but not in good condition	2	28.6	28.6	71.4
available and in good condition	2	28.6	28.6	100.0
Total	7	100.0	100.0	

The researcher observed that in 43% of the schools, the classrooms did not have a proper roof, 28.6% had a roof that was not in good condition, another 28.6% had roofs that were in good condition.

4.3 SUMMARY OF THE RESEARCH FINDINGS

The discussion of the result findings has been summarized as per the objectives of this study.

4.3.1 Management of school library resources

The sub county Director of education reported that only five of the fifteen public secondary schools had been able to set up well equipped school libraries. Additionally, the SCDE mentioned that it was not unusual to visit a school and find boxes of text books bundled up in the corner of store rooms which were acting as temporary libraries. Part of the reason given by school managers for such observation was that the school lacked a library that would be used to fit and display such learning materials.

The principals who said that the library was accessible often accounted for 6.7%. additionally, 46.7% of the respondents said that school libraries were rarely accessible since the school did not have a library assistant, or never accessible to learners since the school did not have a school library. Moreover, one respondent mentioned that a librarian had been hired, twelve respondents reported that a librarian was not available in the school. One respondent mentioned that library materials were received from donations, two respondents mentioned that the library materials were acquired through making requisitions and twelve of the respondents mentioned that the question was not applicable since the school lacked a library.

Teachers who said that the school library was accessible to learners whenever it was deemed fit made up 2.9% of the respondents. The teachers who felt that the learners could not access the library accounted to 57.1% of the respondents. 37.1% of the respondents mentioned that the library was accessible from time to time depending on the availability of the teacher in charge of the school library. 2.9% of the respondents reported that the school lacked a library. Additionally, 54.3% of the respondents reported that the school did not have a school librarian, while 11.4% could not decide on whether to term the teacher in charge of the library as the librarian or not. 34.4% of the respondents stated that the school had outsourced a school librarian. On relevance of the library materials, 2.9% of the respondents strongly disagreed that the library materials were relevant to the content being taught in classrooms. 51.4% of the respondents disagreed on the relevancy of the library materials, terming such materials

as too shallow, too detailed, or being of outdated edition. 20% of the respondents reported that the materials were relevant to classroom content, while 25.7% of the respondents strongly agreed to such materials being relevant to classroom content.

In line with accessibility of school libraries, 1.5% of the student respondents mentioned that the school library was accessible. A further 1.5% of the respondents stated that the school libraries were rarely accessible. Moreover, 97% of the respondents mentioned that the school did not have a library, or that one which the school had was not running. When asked to comment on availability of a school librarian, 11.9% of the respondents mentioned that a school librarian was available. 88.1% of the respondents mentioned that the school did not have a school librarian. Additionally, 2.2% of the respondents mentioned that the school library was well equipped. 1.5% of the respondents stated that school libraries were moderately equipped since they had a few revisional materials the learners could borrow to carry out their personalized assignments. Moreover, 17.4% of the respondents stated that the library materials were inadequate. 78.9% of the respondents reported that the school did not have a library and so the school had not outsourced a library assistant.

4.3.2 Management of classroom instruction assets

The sub county Director of education mentioned that the government had stopped capitulation of schools to make independent purchases of course books, and instead had chosen to make deliveries. On the flip side, the SCDE observed that as a result of such change, several schools had experienced delays in coursebook deliveries to schools. Additionally, the SCDE observed that several schools did not keep an up-to-date permanent inventory record book to monitor loss or damage of school properties. Moreover, the SCDE reported that it was not unusual to walk into classrooms during the follow up visits and encounter a teacher solely relying on chalk and board method of teaching.

Annually, 26.7% of the principals reported that they received course books, while 73.3% reported that the school outsourced coursebooks whenever the need arose, to back up what the government was providing. 86.7% of the respondents confirmed that schools had purchased electronic gadgets to be utilized in schools. However, 13.3% of the respondents mentioned that either the electronic gadgets were not available or were not in working condition to be utilized by teachers in the classroom. Additionally, three of the respondents mentioned that the electronic gadgets were rarely used in classrooms, a further ten mentioned that at times such electronic gadgets were being used in the classrooms, and only one respondent mentioned that the teaching aids were either always, or rarely used during the teaching learning process.

When asked about the adequacy of coursebooks, 60% of the teachers gave an affirmative response. 40% of the respondents strongly agreed, adding that the coursebooks were over surplus. 45.7% of the respondents mentioned that classroom furniture was adequate, while 51.4% stated that the degree of adequacy had not been met. 2.9% of the respondents skipped this question. In addition to this, 68.6% of the respondents agreed that the teaching aids were being utilized in classrooms, while 5.7% could not make a decision. 25.7% strongly agreed and stated that teachers ensured the teaching aids were always used during the teaching learning process.

Students gave a 5.7% response rate reporting that learner-coursebook ratio was a 1:1, implying that each learner had access to their own coursebook. 68.6% mentioned that there was under surplus of coursebooks, while 25.7% felt that the ratio was adequate. 2.6% of the respondents mentioned that they had no access to a locker, or that the lockers' condition was unbearable. 73.7% of the respondents reported that the condition of the lockers was poor, while a further 21.1% stated that the condition of the lockers was fair. On physical state of the teachers' tables, 69.3% mentioned that it was not available. Furthermore, 30.7% of the respondents mentioned that the teacher's table was available and in good condition. 42.6% of the respondents reported that teachers often utilized the teaching aids during a lesson. Additionally, 7.0%, 35.2% and 15.2% mentioned that teaching aids were rarely used, used often or were never used, respectively.

4.3.3 Management of the state of the classroom

In an interview, the SCDE reported that the county development fund, county government, ministry of education and even the parents were key organ in helping public secondary schools set up classrooms. Additionally, the SCDE pointed out that due to financial constraints, a good number of classrooms which had been started had not been completed.

More ever, three of the fifteen principals as respondents, mentioned that libraries were a pressing factor required in the schools. Additionally, one respondent mentioned that dormitories needed to be set up, and another ten respondents believed that classrooms were of paramount importance. Additionally, one respondent believed that the school required a laboratory to be set up as a matter of urgency. From the data gathered on physical state of classrooms, five respondents mentioned that classrooms were in good condition, while ten respondents stated that the classroom blocks were old structures, which were poorly maintained.

Also, 40% of the teacher respondents stated that the classroom floor was poor. A reason given to this is that the floor had been cemented but had developed several major crevices, making it difficult to clean the classroom. 48.6% of the respondents mentioned that the floor was well cemented and equally easy to clean. 2.9% of the respondents mentioned that the floor was in very poor state since it had potholes which during school holidays would germinate grass species. On the other hand, 8.6% of the respondents stated that the floor was in very good condition since it had been tiled and that made cleaning very easy. More ever, 17.1% of the respondents mentioned that the classroom walls were in very poor state, terming such walls having several graffiti writings.

Additionally, 51.4% stated that the state of the classroom walls since they lacked a white board, a graph board, learning charts or even smooth finishing to create a conducive environment for learning. More ever, 31.4% of the respondents reported that the classroom walls were well painted, smooth finishing and with several learning charts and a white board. Additionally, 71.4% of the respondents stated that the classroom roof was good and served its purpose of keeping rainwater out and preventing strong sunlight seeping into the classrooms. Additionally, 25.7% of the respondents reported that the classroom roof was in a poor condition since when strong winds occurred, the iron sheets would repeatedly bang on the lintel and rafter of the roof, leading to sands falling on the ground. Only 2.9% of the respondents reported the roof being in very good condition and serving its purposes as expected.

The data collected from the students indicated that 70.7% of the respondents indicated that the physical state of the floor was poor. The respondents gave reasons as the classroom floor having several crevices making it difficult to clean on time. Also, 13.0% of the respondents mentioned that the classroom floor was in a fair state classroom had been cemented and were easy to clean. Contrary to this, 16.3% of the respondents stated that the classroom floor was in good condition and had tiles which made cleaning easy. Accordingly, 4.1% of the respondents rated the classroom wall as being very poor. The respondents claimed that the wall had graffiti markings and no learning material had been pinned on the wall.

On the contrary, 3% of the respondents mentioned that the classroom walls were in very good condition and had learning charts, and had been repainted recently. 18.1% of the respondents reported that the classroom walls were in good state and had whiteboard and graph board in place. Additionally, 74.8% of the respondents reported that the classroom walls were in a fair state, since although they had graffiti writings, learning charts and graph board were in place.

Respondents were asked to rate the physical state of the classroom roof, and 90.7% mentioned that the roof was in good physical state. More ever, 3.3% of the respondents mentioned that the classroom roof was in fair state since although the iron sheets were intact, they had started developing minute holes. Additionally, 4.8% of the respondents reported that the classroom roof was in a poor state, while 1.1% of the respondents mentioned that the classroom roof was in a very poor state.

5.0 CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1: Introduction

The chapter captures conclusions and recommendations based on the research findings. The general objective of this study was to establish the influence of the management of the learning environment on academic achievement in public secondary schools in Kajiado Central Sub County, Kenya. Specific objectives of this study were; to establish the influence of the management of school library resources on academic achievement in public secondary schools in Kajiado Central Sub County, to determine the influence of the management of classroom instructional assets on academic achievement in public secondary schools in Kajiado Central and to establish the influence of management of the state of classrooms on academic achievement in public secondary schools in Kajiado Central Sub County.

5.2: Conclusions to the study

The conclusions to this study were solely based on the research objectives of the study.

5.2.1: Management of school library resources

It was concluded that how school libraries are managed has an influence on the academic performance of learners. School libraries should be accessible for learners to utilize the resources and do personalized assignments. A

school librarian is necessary to assist the learners in navigating through the library materials. School libraries should be stocked with relevant learning materials, arranged in a manner that can allow quick access.

5.2.2: Management of classroom instructional assets

Inadequacy of coursebooks negatively affects academic performance. Learners may have difficulty in completing assignments if the learner-coursebook ratio is not 1:1 as the ministry of education recommends. Inadequacy of the class furniture negatively affects academic performance. Learners need to have proper seats and desks which are lockable. Each classroom should have a teacher's table to place or set up their teaching materials. The graph board and whiteboard should be available and easy to write on. Teaching aids should be utilized during a lesson, since lack of utilization has a negative impact on how learners perceive and retain content.

5.2.3: Management of state of the classrooms

Classroom floor which has crevices or not cemented negatively affects academic performance. The learners take a lot of time cleaning, time that could have been used for personal study. Graffiti on walls and lack of relevant charts on the walls negatively affects academic performance of learners. Additionally, based on objective three, it was concluded that there was no significant relationship between physical state of the roof and the academic performance.

5.3: Recommendations for practice

In accordance with the conclusions for each objective reached at above, the researcher made the following recommendations for practice;

- i. It is recommended that schools without a library to set up one. Additionally, the school library should be made accessible to learners and a trained librarian be hired. Moreover, the school managers should ensure that the learning materials in the library are relevant to the learners.
- ii. It is recommended that the ministry of education to keep tab of the learner enrollment in schools in order to supply adequate number of coursebooks. Class teachers should give timely feedback to school managers on adequacy of classroom furniture. Moreover, the subject teachers should utilize teaching aids during lessons.
- iii. Finally, the study recommended that school managers should ensure classroom floors are well cemented, and where possible fitted with tiles. In addition, it was recommended to the learners to avoid scribbling graffiti on the classroom walls.

5.4: Recommendations for further research

- i. A study should be carried out to determine the influence of management of school dining facilities on academic performance.
- ii. Additionally, a study should be carried out to establish the influence of management of school laboratory facilities on academic performance in science subjects.

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