INFLUENCE OF CLASSROOM DYNAMICS ON THE PERFOMANCE OF MATHEMATICS IN SECONDARY SCHOOLS IN KILIFI COUNTY, KENYA.

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A Research Project Report Submitted to the Graduate School in Partial Fulfillment of the Requirement for the award of the Higher Diploma of Post-graduate diploma in education in the University of Nairobi.

NAIROBI UNIVERSITY

DECLARATION AND APPROVAL

Declaration

This research project report is my original work and has not been presented for examination in any other institution of learning to the best of my knowledge.

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Signature:  Date: 10/11/2022

Approval

This Report has been dully submitted for examination with our approval as the supervisor appointed by the University.

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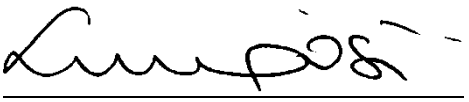
Signature  Date:10/11/2022.

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DEDICATION

To my parents Mr. Elijah Onchomba and Mrs. Jane Moraa Ogoti.

May God bless you for your untiring sacrifices and support.

ACKNOWLEDGEMENT

First of all, I would like to thank God for the love, guidance, wisdom and the protection throughout my life. It is through His grace that this work was duly completed efficiently. My sincere gratitude also goes to the colleagues, relatives and friends whose prayers, encouragement and support led to the successful completion of this research. Gratitude also goes to The University of Nairobi for giving the opportunity accorded to carry out this study.

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ABSTRACT

In my study the focus was to ascertain effect classroom dynamics have on the performance of mathematics in secondary school in Malindi. Classroom dynamics entails what makes a classroom and how the factors that make a classroom affect the performance of the students. In a classroom setup there is a teacher a student and above it there is an environment in which the learners are learning in. in the environment there is a background to the information they have gathered so far, their behavior to the subject being taught their orderliness in class and their capacity to comprehend the content being taught by the teacher and lastly their personal efforts towards achieving the target of learning in that classroom. This are the main facets of learning dynamics that occur in a classroom setup. A lot of studies have been done on the effect of classroom management and how it affects not only performance in mathematics but other subjects as well. Learners in Malindi Town of Kilifi County have continuously registered poor results in the Kenya Certificate of Secondary Examination Mathematics examination. Research shows that the learners have a very basic knowledge of mathematics concepts and that can be traced back to the interactions they have had in the classrooms. No study has been carried out to determine the variation of results and the comparisons of the results in a class where the right dynamics have been carried out and implemented in the classroom. The main aim of this study, therefore, is to analyze the effect of implementing good dynamics in the classroom and how they will influence the results in mathematics as a subject and its general contribution to the learning of mathematics across schools in Malindi subcounty. This study is based on memory storage and retrieval strength theory and the Social Development of Learning Theory by Lev Vygotsky. The collection of the data was through the use of filling the questionnaires and by observation, which was made on the variables of interest. Data was collected from three high schools which were sampled using sampling for the purpose of this project. The population sample consisted of 40 students from forms one, two and three and four including their teachers. The students were selected using random sampling which served the purpose of ensuring that every student that were in the accessible strata had an equal opportunity for being selected.

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LIST OF ABBREVIATIONS

GD	Group dynamics
KCSE	Kenya Certificate of Secondary Education
KICD	Kenya Institute of Curriculum Development
KNEC	Kenya National Examinations Council
TG	Target group

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Mathematics is a compulsory and basic subject in schools in Kenya. It is a science that mainly deals with study of numbers, shapes and how these two correlates. Across all levels of education from preparatory classes to primary level, secondary level and tertiary institutions mathematics is learned. Across the country Kenya and abroad mathematics is used in various transactions and many day-to-day activities that is the reason as to why the subject has been given much attention and has been passed as a compulsory subject in these institutions. In the learning environment and schools, it is also widely used various subjects borrow mathematics concepts so a knowledge in mathematics goes a long way in helping students maneuver the learning environment and benefit wholly from this phase of learning. Mathematics being an abstract subject needs a little more of an analytical and attentive mind.

Most of the learning of Mathematics takes place in the classroom and various dynamics are at play for learning to be termed as having taken place efficiently. In a classroom setup there is a teacher a student and there is the material or resources needed for transmitting this content. The Kenyan education sector sat down and came up with a curriculum that should be implemented to enable students learn Mathematics. In the process a well-organized syllabus was put forth to enable the implementers that is the teachers to work accordingly to enable learning to take place in the schools. The teacher acts as the bridge between the resources of learning available to the student who is the beneficially. Without the teacher learning would not take place as efficiently as is supposed to be.

The well planned out system of learning however is not giving out the results as was originally set by the ministry of education. The performance of mathematics has not been to par and as per the expectations, year in year out the results have been on a downward trend and despite the many interventions to remedy the poor performance a significant change has not yet been achieved.

In Malindi subcounty in Kilifi County the trend has also been the same across a number of the schools in the county. In my study I intended to find out how the various classroom dynamics affect the performance and the remedies that can be put to place to ensure that the downward trend is reversed and a good performance is realized. I intended to explore the contribution of the current dynamics used in the pedagogue of the subject in schools in Malindi sub county. I intended to research the favorable teaching environment that will make the learners more interested in learning mathematics. The learning of mathematics employs various techniques and strategies I aimed at exploring the contribution of this dynamics in the learning of mathematics and also learn the drawbacks of each and all techniques and dynamics. I also targeted to get a feeling from the learners of what they deem would be appropriate for them in the learning cycle so that they can efficiently learn.

In my research I intended to investigate how teachers and learners use group work for learning its drawbacks and what works best. The materials used by the teacher, the learning by self by the learners, the teacher preparedness and the learner engagement is to be studied so that there is a mutual benefit both to the learners and the teachers. As good performance is beneficial both to the teacher and the student. However more factors come to play for performance to be achieved.

1.2 Statement of the Problem

The purpose of this study was to determine the contribution of classroom dynamics on the excellence and performance of mathematics in high schools in Kenya. Mathematics subject is not well performed not only in Malindi sub county but also across the country. This has really taken stalk to the educators and the various stakeholders among them the teachers, students, the Kenya National Examination council and the Ministry of education at large. This brought about the need to research the various ways the teachers are teaching the subject, the materials being used for learning, the teacher preparedness before teaching. On the other hand, the involvement of the learners in the process of learning is also part of my concern, do students engage themselves in the learning process, do they have the right attitude and the exploration of group work as a means of learning will form my consideration and how they affect performance of mathematics

1.3 The Objectives of the Study

This study was meant to determine the contribution of good classroom dynamics and its correlation to attainment of success in mathematics in high schools. These are the main objectives of the research:

i. To describe how well group work among students contributes to the performance of mathematics in secondary schools in Malindi.

ii. To identify how resources used by teachers and students at large affect the performance of mathematics.

iii. To determine how self-learning and engagement of learners in a classroom affect performance of mathematics.

iv. To explore the teacher preparedness to class and how it affects the learner's

performance and learning at large.

1.4 Research Questions

i. To what extent group work affect the excellence of mathematics in high schools in Malindi sub-county?

ii. To what extent does resources used by teachers and students affect the excellence of mathematics in secondary schools?

iii. To what extent does self-learning and engagement of learners in a classroom affect performance of mathematics?

4. To what extent does teacher preparedness affect performance of students in high schools.

1.5 Justification of the Study

1.6 Scope

The objective of this study was to explore and inform how well the classroom dynamics can be implemented to achieve a higher trajectory in terms of the performance of mathematics in secondary schools in Malindi and in Kenya, having considered the factors that are being implemented currently and the changes that can be factored to make a change and boost the understanding of the subject in Kenya.

1.7 Limitations

The limitations of the study are:

- The sample size or respondents to be chosen did not give the exact picture or responses needed due to individual differences among learners and teachers.

- The research did not cover all the dynamics in the classroom as many factors contribute to the learning process for performance to be achieved.
- The research did not factor the entire population including learners in special schools and differently abled learners.

1.8 Assumptions of the study

These are the assumptions in the study

- The sample space gave the true picture of the effect of the various dynamics.
- The respondents gave positive feedback and will give the right information on the various dynamics and how they are affecting them.

1.9 Operational Definition of Terms

The following are the definitions of terms that were used in this study:

Dynamics – represents a set of environments that are prone to change over time in this case in a classroom.

Classroom – is an environment in a school where learners meet to takes and get their specific lessons.

Performance – this entails accomplishing of a given task in schools it means passing or getting a given grade in a subject.

Group dynamics- this involves behavior of people who are working together for a specific goal.

Collaboration- working with others to achieve a goal.

Mathematics – is an abstract representational system used in studying numbers, shapes, structure change and the relationship between these concepts.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

Chapter I investigates the literature on various dynamics in a classroom and how they affect performance according to various authors, journals and researches and further establishes the gap that led to my study on the contribution of classroom dynamics on performance of mathematics. It also elaborates on the theoretical framework and relationship of the various variables to the performance in my study.

2.2 Literature Review

2.2.1 Contribution of group dynamics in performance of mathematics.

According to (Jo. Budden, 2008) group work also known as collaborative working is a dynamic that refers to a relationship that entails the interaction of learners for the purpose of sharing ideas and learning together. He further states that group work in any subject contributes a lot to the learning process but a lot is at stake that makes the learning to be successful. The teacher has a vital role in implementing the learning by group work (John Dewey, 1984) states that learning takes place efficiently when the learner is actively involved in the learning process.

(Jo. Budden ,2008) further suggests that this groups work best when the teacher takes the time to study the learners and appropriate them correctly to the right groups that will make them learn.

This entails choosing the relevant topic to be discussed at the group levels, establishing achievable aims, the activity should engage all learners and lastly the teacher should ensure that the right rapport across group is established hence boosting cooperation and focus and learning in the groups.

According to (Paul Seligson, 2004) he suggests having groups that are balanced meaning, the group should not be having only the sharp or the slow learners but should be shuffled occasionally to ensure that learners do not get comfortable but can cooperate with any of the learners to ensure that concepts are well learnt. Different learners understand Mathematics concepts differently and because mathematics topics such as algebra, indices and logarithms require some high order thinking skills this will go a long way to success.

According to (Sofroniou, A & Poutous, K., 2008) the learning through group work allows a student to gain a range of skills i.e., having an analytical mind, being a critical thinker, communicating effectively, techniques and problem-solving techniques. As the members in the group are solving and interacting using the various methods used to solve problems learners in the process are picking valuable skills and learning is taking place efficiently. Active learning suggested by Dewey is at play here as every learner is positively contributing to the learning of the various concepts and aims to be achieved by that group work.

(Kanev, K. & Kimura, S. 2009) say that learning by collaboration plays a big role in developing various ways of solving mathematics problems and creating a positive interest in learning. In the groups the various learners the strong and the weak interact freely without fear as they are with their peers. Learning among peer groups is efficient as in the process one gets a different perspective as a learner gets to understand that the mathematics problems and concepts can be

solved and learnt. It is a method where three groups of learners at different levels of learning are examined.

2.2.2 Learners' engagement and self-learning on performance

(John Dewey 1981) argues that students are mere receptors of knowledge, and the knowledge acquired by students is by active participation. In a class setup learning takes place when the teacher leads and shows the way and then actively engaged the learners in activities to cement the content and concepts of tackling the math concepts. The teacher acts as the mediator between the content and the learning of the students. The learning process thus becomes a depend process, where the teacher depends on the reception capacity of the students and the students depend on delivery of the content from their teachers. In the process interactions are taking place from one another and from the books as well these sums up learning as the process of accumulating knowledge.

Therefore, the teacher does a very important role in the learning process as the learners will easily relate concepts and their importance after being guided by their teachers appropriately through hands on classroom activities. According to (Hufta,2003) the poor teaching of learners through a limited engagement and absenteeism by their instructors has proofed to be a challenge in mathematics learning. The concepts in mathematics require full attention and availability of resource persons the teachers in their absence the learning process is derailed and the performance among learners isn't guaranteed. (Duighan, 1986) suggests that the behavior of the teachers also affects learning to a given level where the teacher does not care for the learners and engage them accordingly to their needs performance and learning does not take place.

Another aspect of learning that is also equally important is the classroom control, the policy and how the teacher manages a class determines if learning will take place efficiently or not. In a situation where learners are bored with lecture methods of learning instead of activity-based learning the class becomes unteachable and the learners become rowdy and switch off limiting the content reception.

Self-learning entails the act where the learner is actively involved in the learning process, here the learner has already learnt from the teacher and can now proceed to understand more about the concepts that have been taught. Conversely a learner can use resources to learn on themselves, through reading literature related to the topic, or by reading ahead of the teacher such that the concepts are familiar to the learner before the teacher comes to class to present the concepts in a classroom. Here the learner is participating actively and has the interest of the subject and is ready to learn. This learning requires the right attitude and should be coupled up with a proper background in mathematics. A learner that is struggling with basic concepts is like not to participate in self-learning but will wait until the appointed classroom time to learn, which in essence will affect the learner as in mathematics self-practice makes perfect.

2.2.3 Mathematics Learning and teaching resources available.

In Kenya according to the (Kenya Institute of Curriculum Development) the curriculum outlines the resources that are used for learning as the course books, from the Kenya literature Bureau publishers. The curriculum further outlines the topics to be tackled and gives the guidelines in those books, inclusive is the teacher's guide book that acts a s a guide to teachers on how they should administer or teach topics appropriately. In the teacher training as well, the teacher is guided on further resources that can be utilized by teachers in the quest for knowledge, however the ingenuity the teacher has will determine how well this can be utilized. There are other

resources that are available such as the online resources, revision guides and books and books that are dedicated to help simplify the concepts of math this is purely dependent on the zeal of the teacher and the resources availed for teaching in their schools.

ICT is also a mode of teaching that can be utilized for learning especially in times where classroom engagements cannot be done as in the pandemic season. The knowledge of using the ICT for learning will go a long way as the learners will have a different approach of learning than what they are used to in classes which will improve their understanding and relating of concepts and retention capacity.

2.2.4 Teachers' preparedness and effect on performance

According to (Duighan,1986) the way a teacher prepares for classes determines a lot how the learners turn out. This means if the teacher is always ready for classes and has the right materials and understands the concepts appropriately then learning will take place conveniently, however due to the behavior of some teachers due to low morale enough preparation isn't done for classes which in turn instead of simplifying the concepts makes the concept harder than is supposed to be.

Lack of preparedness by the teacher may be attributed to many factors; i.e., availability of teaching and learning resources, the time set apart for learning, the training received and the work load the teacher has. In the scenario where the resources for learning are inadequate the teacher will not comprehensively prepare to teach but will go to class and teach just the shallow basic concept, in turn instead of simplification of the concepts the learner gets confused. Some concepts in mathematics need thorough practice and reinforced assignments in the situation where the teacher isn't prepared enough the basic topic will be introduced and the learner remains in a state of confusion as their will be bombardment of concepts now and then.

On the other hand, missing of some resources such as math solids, graph boards and geo boards that will illustrate to learners the way to simplify their understanding of concepts that have shapes and diagrams makes it hard to perform in such topics. Mathematics is a contact subject and learning have to see and touch some of these shapes and be involved in making some of them this will spark their curiosity and they will endeavor to work towards performing and having the right mindset towards the subject. Some teachers may be lacking the resources above and the knowledge of utilizing them this in essence makes learning boring and difficult. Teacher preparedness can also be attributed to the time set apart for learning the subject, the time allocated for mathematics isn't sufficient enough to tackle the concepts appropriately as these concepts need time. Lastly the teaching load the teacher has may have a bearing on students' performance as the teacher should have ample time to prepare for classes and respond to feedback as well from the learners.

2.3 Theoretical Framework

In my research there are many theories that try to explain the performance of learners in mathematics in my study I considered the memory storage and retrieval strength theory and the Social Development of Learning Theory by Lev Vygotsky. In the memory storage and retrieval strength theory it suggests that the mind has two capabilities that is the storage of capacity and the retrieval capacity. This contributes to the learning and passing of concepts because learning entails understanding concepts and the test of learning is performance and performance is directly proportional to the ability of retrieving learnt concepts. The social development of learning theory suggests that learning is a social process meaning interactions have to take place for learning to have taken place. A lot of interactions take place between the teacher and student, student and student, student and class all this are all social processes and they are all inevitable in

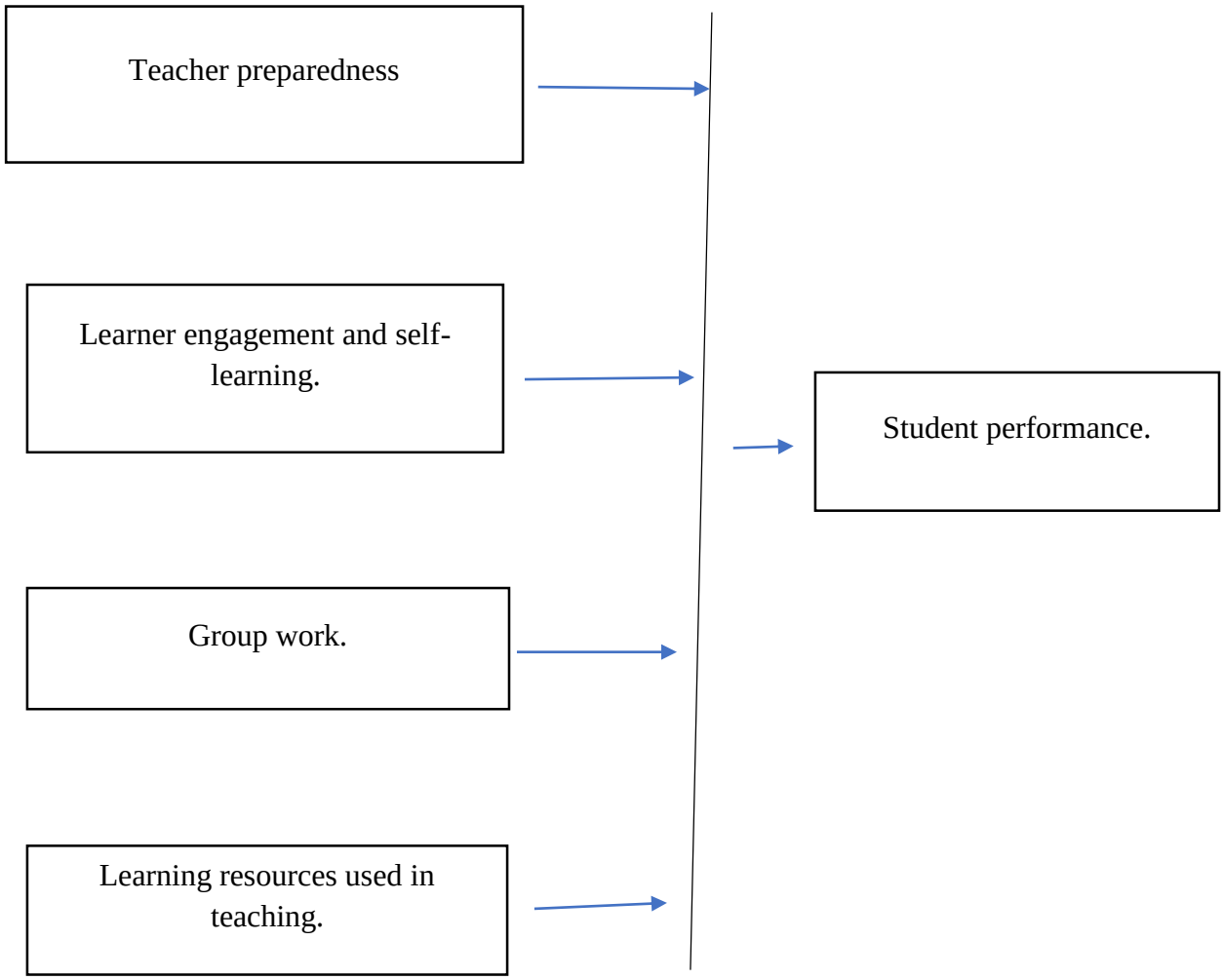
learning. A student who isolates themselves from this process is deemed to not have learnt and learning cannot take place accordingly as knowledge and concepts have to be shared for the mathematics concepts to be fully learnt.

My research focused on self-learning, engagement of learners, resources used for learning and use of group work for learning all which according to the two theories above are dependent for a good score in the students to be achieved. There has to be an interaction between the experts and the learners to a given level such that there is transfer of knowledge and through reinforced practice the mind comprehends the concepts and stores them such that their use is guaranteed for the future. Knowledge in secondary schools is gained through reinforcement and more reading and exercises without this performance isn't certain.

2.4 Conceptual framework

The conceptual framework highlights the variables at play and their connection. It helps in understanding how classroom dynamics affect the performance of mathematics in secondary schools.

Figure1: Conceptual framework.



The framework shows the relationship between the goal of learning which is performance (dependent variable) and the independent variables which need to be well utilized by the student for them to achieve academic excellence.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Chapter Three outlines the research design, the respondents or the target population, instruments of research, methods of data collection, procedures, data analysis and the ethical issues. And how they will help in understanding the classroom dynamics and performance of mathematics in secondary schools in Malindi.

3.2 Research Design

The survey design was used in collecting the data that will help in giving in establish the patterns and how performance and classroom dynamics correlate. The survey design entails collecting information from the students and teachers through administering questionnaires, personal interviews and personal observation schedules that will give the necessary data for determining the relationships and hence contributing to knowledge. The survey will involve a sample of teachers and students who will receive the questionnaires and give responses that will be used to analyses interpret and come up with conclusions.

3.3 Target population.

The research was carried out in high schools in Malindi Town, where a few of the students will give feedback on the various questions that will be in the questionnaire that will guide my research. The students had different capabilities in mathematics so that the responses can be varied. The mathematics teachers will also be involved in giving responses on the questions of interest regarding the performance of mathematics in secondary schools.

3.4 Sampling Procedure

The schools I used as my sample space Town were selected using purposive sampling whereby the sample is a representation of the whole population of teachers and students in Malindi Sub-County. In my research I used schools from the categories of high performing, average performing and low performing. This is aimed at ascertaining whether the problem under investigation affects students in high performing schools or only those in average and low performing schools. I intend to use a random sample to give a picture of the rest.

3.5 Data Collection Tools

I chose two instruments in the collection of data for this study that is questionnaires for the teacher and students and an interview guide to capture responses from interviews from the teachers and students and observation.

3.5.1 Questionnaires

The respondents of the selected schools were given a variety of questions to respond to and then the responses were recorded and used to draw conclusions.

3.5.2 Interviews

In interviews a sample of guide questions directed to the respondents were administered and captured in a record book and analyzed later to ascertain the influence of the various dynamics at the level of the teachers and students.

3.6 Validity and reliability

The valid and reliable instruments are tools that ensured the right and consistent data was achieved from the research being carried out. I intend to use reliable questions and interview questions that will ensure the right data is achieved to boost the results and responses from the respondents.

3.7 Methods of data analysis

The method I intend to use in analyzing my data in the research is quantitative analysis for the primary data from the questionnaires and the data is further to be represented in graphs and percentages using data analysis tools. The secondary data from websites, journals and interviews was analyzed using correlation coefficient statistic. To establish a viable pattern between the dependent and independent variables in the research.

3.8 Operational definition of variables

The variables under consideration in this research are

i. Group dynamics – entails learners working in groups, the teacher makes use of groups in the learning of mathematics.
ii. Self-learning- the student is actively involved in learning mathematics and is focused in mathematics.
iii. Learning resources available- the learning resources involves the sufficient classes, books, calculators, learning aids and revision books.
iv. Teacher preparedness- entails how well the teacher is prepared for teaching here factors such as how well the teacher is trained and how the teacher utilizes their training to

prepare convenient lesson plans and schemes of work to ensure learning is seamless and beneficial to the learners.

3.9 Ethical Considerations

Since the study was done in secondary schools, I had to seek permission from the relevant bodies and before I engage students in the task of responding to the various research questions, I also carried out the research whereas concealing the names and responses of the various respondents in my research.

Chapter 4

RESULT FINDINGS, INTERPRETATIONS AND DISCUSSIONS

4.0 Introduction

The aim of this study was to establish the influence of the various dynamics in a classroom and how the dynamics affect the performance of the learners in schools in Kilifi County Malindi, sub- county.

In this chapter, the data is discussed, analyzed and further interpreted as regards the influence of classroom dynamics on the performance of Mathematics in high schools in Malindi Sub County that is located in Kilifi County. And it is as in the aims of the study and the guiding questions in the research. The information was obtained from students and teachers who filled questionnaires and answered interviews using an interview guide and thereafter an observation schedule was recorded in the schools. The analysis of the data was conducted using frequencies and also the percentages. The results were further analyzed and then presented using tables and figures. Finally, the findings from the conducted study were interpreted and then discussed in accordance to the literature on the dynamics in a classroom environment in Malindi, Kilifi County. The analysis of this data, and the presentations findings and discussion were guided by the following aims:

i. To describe how well group work among students contributes to the performance of mathematics in secondary schools in Malindi.

ii. To identify how resources used by teachers and students at large affect the performance of mathematics. iii. To determine how self-learning and engagement of learners in a classroom affect performance of mathematics.

iv. To explore the teacher preparedness to class and how it affects the learner's performance and learning at large.

4.1 Group work and performance

As per the sample statistic a higher percentage that is 50% of the total responses indicate that there is a relationship between group work and performance. The contribution of group work on performance cannot be underestimated, although a high percentage of (42%) of schools have not yet fully utilized the use of group work in the learning environment, hence ideas and concepts are not well and fully shared amongst the learners.

Table 2; Group work performance graph.

	Frequency of respondents			
Responses.	**Strongly Agree**	**Neutral**	**Strongly disagree**	**Total frequency**
Group work learning is highly used in schools.	**25(50%)**	**4(8%)**	**22(42%)**	**50**

Learning in groups is better than individual learning.	**23(46%)**	**10(20%)**	**17(34%)**	**50**
Teachers encourage group work	**15(30%)**	**11(22%)**	**24(48%)**	**50**
The groups used are well balanced.	**28(56%)**	**5(10%**	**17(34%)**	**50**

Special interest is on the group distribution where 56% of the learners are not well balanced in the groups, and teachers are not involved in designing and grouping students accordingly. The students are also at liberty to hop from one group to the other without informing the teachers concerned. A number of 46 % of the students also stated that they understood better in the groups than in classroom meaning they can benefit well if this groups are well utilized and implemented in the learning of mathematics.

The fact that a number of students prefer learning in groups than learning in the classes shows that there is a gap that needs to be filled by the teachers concerned to make the classroom environment better so that learning can take place appropriately in the classes.

The group work dynamic of learning should be in the forefront especially in Mathematics and sciences to boost the performance of Mathematics and Sciences in general.

4.2 Teacher preparedness and performance

In the teacher training institutions, the teachers are given a blueprint on the steps or the requirements that a teacher should have before reporting to classes, hence the teachers should have a thorough preparation before classes, however from the statistic 40% of the teachers who responded indicated that they do not follow the guidelines as the forty percent do not carry the required tools to class due to poor preparation. The teacher is vital in implementing the classroom dynamics and without preparation performance will not be guaranteed.

Table 3: Teacher preparedness table.

	Frequency of respondents			
Responses.	**Agree**	**Neutral**	**Disagree**	**Total frequency**
Teacher punctuality	**4(40%)**	**2(20%)**	**4(40%)**	**10**
Lesson preparation	**5(50%)**		**4(40%)**	

and syllabus coverage		**1(10%)**		**10**
Assignment and feedback to learners.	**8(80%)**	**1(10%)**	**1(10%)**	**10**

Among the teachers sampled 40 percent agreed that they miss some classes but plan on compensation, they also noted that classes are not attended on time due to a huge workload and time taken to transit from one class to the other.

On the marking of exercise books and assignments 80% of the teachers noted that it is not prompt due to partly the laziness of the students and the time taken to mark the assignments is long due to inconsistencies and human errors.

4.3 Resources availability and performance

The resources available in the classroom for learning mathematics are limited from the responses as 57.5% of the respondents indicate and hence it is hard for the learning process to take place swiftly. As indicated by the 35% they do not do consultations due to the lack of resources to learn then consult. The books available are only coursebooks and the student to book ratio is also very small as in the responses given by the students and teachers. 57.5% of schools are not furnished with internet facilities and for those which are having it, the accessibility is limited to

the computer labs and major offices hence teachers cannot do proper research on the concepts they are to teach. With appropriate resources the students can highly improve and get better results in Mathematics.

Table 4: Learning resources in Mathematics.

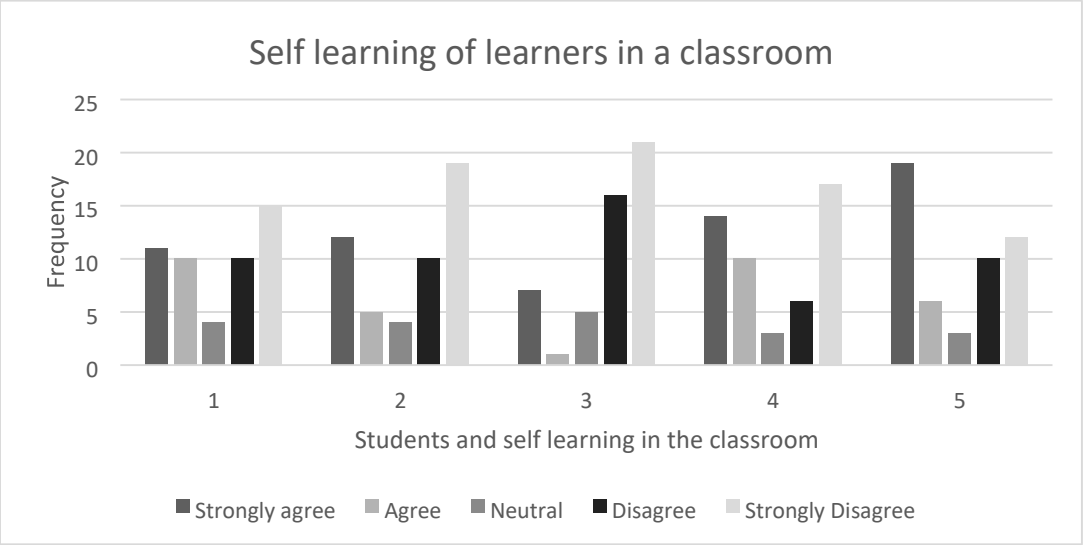
	Frequency of respondents			
Responses.	**Agree**	**Neutral**	**Disagree**	**Total frequency**
Students do self- learning and practice	**28(70%)**	**3(12.5%)**	**9(22.5%)**	**40**
Students are motivated and consult teachers	**16(49%)**	**10(25%)**	**14(35%)**	**40**
Students have learning resources and materials.	**11(27.5%)**	**6(15%)**	**23(57.5%)**	**40**

Due to the inadequacy of the resources for learning 70% of the students deem self-learning as being impaired. More should be done by the stakeholders to improve facilitation to the schools to enable the school to avail resources needed by learners and teachers hence positive results will be achieved.

4.4 Self-learning amongst learners.

From the learners 50% have delegated the responsibility of learning to the teachers, parents and colleagues and are not taking the major role of getting involved in the process of learning. The individual learning of mathematics amongst the students is poor as learners have developed attitudes as per the statistics a big percentage of the learners do not attempt assignments given by teachers and if and when they do, they copy the assignments. 46% of the learners are not self-motivated and have an attitude towards mathematics which implies that learning will not take place as they will have abdicated that role,

Figure 5: Self learning among learner's graph.



A further 45% of the students do not also consult in their weak arears despite frequent assignments and exams being done and revision taking place in the classes. Few students bother to buy revision books and papers to enable them do practice sufficiently.

The classroom dynamics i.e., group work, learning resources, self-learning and teacher preparedness are vital in the performance of mathematics and stakeholders should hold brief and work towards improving these dynamics and many others to improve the performance of mathematics and its attitude in the society in general.

Chapter 5

SUMMARY, CONCLUSIONS AND RECCOMENDATIONS

5.0 Introduction

Chapter Five constitutes of a brief of the main findings in this research. The conclusions from the study on the classroom dynamics and its influence on performance and the recommendations that should be carried out are explained to influence a positive trajectory

5.1 Summary

From the aims of this study, the responses, findings and data analyzed these are the major findings. The results are discussed through the three aims of the study as outlined below

5.1.1 Inadequate learning resources affect the teaching of Mathematics in the classroom

The lack of resources in the classroom contribute to around 40% of the negative results achieved in the performance of mathematics. For a teacher to teach perfectly and influence concept retention and mastery the tools of learning should be availed sufficiently. In the absence the teacher is forced to modify other teaching skills which may not be sufficiently beneficial to the learners. The

5.1.2 Teachers do not implement peer learning widely through group work

The research indicated by 48% that the peer learning is not widely used due to the fact that the time is short and learning during the short period of the school calendar is limited to class time

only. The teacher is in a hurry to finish the required workload and syllabus and hence most of the techniques the teacher may have may not be well utilized and implemented

5.1.3 The learners do not have good learning habits and techniques

A percentage of 70% of the students are not self-driven and cannot study mathematics by themselves this limits them from performing better as mathematics is a contact subject and thorough practice has to be done to boost its performance. If the culture of self-learning and practice is implemented the performance will be positive and the general attitudes towards the subject will be changed.

5.1.4 Teacher preparedness is very key in learners learning and performance

The 40% of the teachers that do not prepare well for classes should make a change as preparation is very vital in the learning process the preparation should be both psychologically and physically to ensure the learning has taken place. In the absence of the teacher's drive the students will not learn well and benefit sufficiently.

5.2 Conclusion

The objective of the research was to determine how classroom dynamics contribute to the performance of mathematics, and from the findings there is a great relationship of the way the classroom is managed and the performance that will be attained in that class. The teachers play a very crucial role in the passing of knowledge to the learners and that should be taken with utmost dedication. There are many teaching methods and aids that teachers can use to teach which are not implemented. If the teachers will implement teaching with aids and harnessing students'

capabilities through thorough practice in groups and individual learning success will be attained. The students as well should develop an attitude of engaging themselves in self-learning and doing exercises by themselves this will improve their individual retention and understanding not only in Mathematics but other subjects as well.

5.3 Recommendations

From findings these are the recommendations that can be implemented to improve the performance of the learners.

1. More should be done by the mathematics teachers as learning flows down from the teachers to the students, in terms of organizing the classroom and the learners accordingly be it in groups or in sitting arrangement to ensure learning is taking place.

2. The teachers should as well break down the content for the students in such a way that the learners can comprehend the content through prior preparation and class preparedness.

3. The schools should furnish the teachers and schools with enough teaching aids and resources necessary for the teaching of the mathematics subject.

4. More research should be done by the teachers on how well the learners can be motivated to have the attitude of self-drive and practice that will translate to better performances in the subject Mathematics.

5. A conducive environment should be established by the teacher in the classroom to ensure that the learning process is well attained from the classes and this will improve the performance of the learners

5.4 Recommendations for Further Research

From the research findings, these are the recommendations for further research:

1. This study analyzed use of group work among learners and how it contributes to their performance, more study can be done on how well the groups and content learnt in the groups can be harnessed by learners for their benefits and to what percentage will group work benefit the slow learners especially and what topics can be well understood using the group work dynamic of learning.

2. More study can also be done on the contribution of the other classroom dynamics that affect the performance of students in a class.

3. A study can also be conducted on the syllabus content of mathematics that learners are subjected to and how well the teachers can use it to guide learners so that a positive performance can be attained.

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APPENDICES

Appendix II: Data Collection Instrument

I. Appendix: Transmittal letter

Dear Respondent,

Re: Data Collection Participation

I am a Post-graduate Diploma student at the University of Nairobi, I am carrying out a research study on **INFLUENCE OF CLASSROOM DYNAMICS ON THE PERFORMANCE OF MATHEMATICS IN MALINDI SUB COUNTY, KENYA**.

In my research I have identified you as one of the people that could be of assistance with your responses and I thus request your participation in the research. You will be required to complete a questionnaire. Your responses will be treated with utmost confidentiality. The information you provide will be used only for academic purposes.; please give the information as accurately as possible.

Thank you very much.

Yours faithfully,

ONGERA JOB OGOTI.

Appendix 2: Research questionnaire for teachers and students.

This questionnaire is meant only to collect data for academic purposes. All information will be held with confidentiality. Do not put any name on this questionnaire.

Answer all questions as indicated by either filling in the blank or ticking the option that applies.

PART A: BACKGROUND INFORMATION.

INSTRUCTIONS:

1. Please mark the relevant box with a (□)

2. If explanations are required, please keep it clear and concise.

Section A

1. Gender

Male ☐ Female ☐

2. What type of school are you ...?

Mixed day secondary school [ ] Girls boarding secondary school [ ]

Boys boarding secondary school [ ] mixed day and boarding high school [ ]

3. Is the student teacher ratio in the school sufficient?

Yes [ ] No [ ]

PART B: GROUP WORK LEARNING. (FROM OBJECTIVE ONE)

1) To what level do you agree with the following statement on influence of using group work on performance of mathematics, in secondary schools in Malindi Sub-County Kilifi Kenya?

2) Where 5- Strongly agree; 4- agree; 3-neutral; 2- disagree; 1- Strongly disagree

	1	**2**	**3**	**4**	**5**
Group work learning in mathematics is highly used in the school					
Learning in groups during mathematics learning sessions is better than learning in class.					
There is freedom in participation in groups than in a normal classroom hence better understanding of concepts.					
The learning in groups provides more learning as knowledge is shared than in a normal classroom.					
The groups used for learning mathematics are balanced with sharp learners and the slow learners.					

The teachers always encourage use of group work and assignments are given in groups.					

In your own opinion how do you think group work affects performance of mathematics in secondary schools in Malindi sub- county Kilifi county Kenya.

……

……. ……..

……

…

PART B: LEARNING RESOURCES OF MATHEMATICS (FROM OBJECTIVE TWO)

3) To what level do your agreement with these statements on influence of learning resources used on performance of Mathematics in secondary schools in Malindi sub-county Kilifi County Kenya?

Where 5- Strongly agree; 4- agree; 3-neutral; 2- disagree; 1- Strongly disagree

	1	**2**	**3**	**4**	**5**
There are enough textbooks and classrooms in the school.					
The school has enough mathematics revision books and papers for learning Mathematics.					

The school has enough common solids, teachers sets and common solids for teaching geometry concepts.					
The school has an active use of audio-visual materials for teaching and learning mathematics.					
The school has internet facility for research and easy learning of mathematics.					
There are enough graph boards for construction of graphical questions and related questions.					

PART B: SELF LEARNING OF LEARNERS IN A CLASSROOM (FROM OBJECTIVE THREE)

4) What is your level of agreement with the following statement on influence of self-learning on performance of mathematics in secondary schools in Malindi Sub County, Kenya?

Where 5- Strongly agree; 4- agree; 3-neutral; 2- disagree; 1- Strongly disagree

	1	**2**	**3**	**4**	**5**
The students do self-practice and assignments given on time and submit them for marking.					

The students understand the concepts after classes better when they read alone after being taught.					
The students are highly motivated to learn mathematics and have a positive attitude towards mathematics.					
There is thorough consultation amongst friends and teachers on the concepts that are difficult and challenging.					
Mathematics revision materials are used by the students.					

PART B: TEACHER PREPAREDNESS. (FROM OBJECTIVE FOUR)

5) What is your agreement with the following statement on influence of teacher preparedness on performance of mathematics in secondary schools in Malindi Sub County, Kilifi County Kenya?

Where 5- Strongly agree; 4- agree; 3-neutral; 2- disagree; 1- Strongly disagree

	1	**2**	**3**	**4**	**5**
The teacher arrives to the classes on time and does not miss classes.					
The teacher introduces the lesson appropriately in a simpler and very comprehensive way.					

There is a clear sequence of learning of the topic being taught and previously learnt concepts.					
The teachers prepare notes and has a coherent way of presenting the topic as in the schemes of work and lesson plans.					
The teacher gives assignments and marks them during and after every class session.					

Thank you for your cooperation.

Appendix III: Observation schedule.

OBSERVATION SCHEDULE

a) Adequacy of Key Teaching, Learning and Physical Resources in secondary schools in Malindi Sub-County.

Resources	Availability	Adequate	Inadequate

Chalk boards	yes	yes	
Exercise books			
Teaching aids			
Desks			
Library			
Calculators			
Mathematical tables			20
Geometrical sets			