

**ASSESSMENT OF FACTORS AFFECTING STUDENT'S PERFORMANCE
IN MATHEMATICS IN SECONDARY SCHOOLS. A CASE OF GOMBA
COUNTY IN GOMBA DISTRICT.**

BY

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**A RESEARCH REPORT SUBMITTED TO THE COLLEGE OF EDUCATION IN
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DEDICATION

This research project is dedicated to the Almighty God, who has given me the physical and mental strength to undertake and accomplish this work in the prescribed period of time: to my supervisor Mr. Onyesiga. Living who has encouraged me to have an optimistic outlook on life and Rev. Fr. Henry Sserwaniko for his inspiration and encouragement during my study period. without which I could not have made it to this level.

DECLARATION

I Nanfuka Susan with the registration number 1163-07184-06889 declare that this research dissertation on assessment of factors affecting student's performance in mathematics in secondary school. A case of Gomba County in Gomba district is original and has not been presented partially or in total to any institution for publication, academic award or other use.

Signature *Nanfuka Susan* Date: *09th/09/2019*

APPROVAL

This is to accept that this research dissertation has been under my supervision as a university supervisor and is now ready to be submitted for examination.

Nanfuka Suzan

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This project has been submitted with our approval as university supervisor.

Mr. ONYESIGA. LIVING

Signature

Date:

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ABBREVIATIONS

UNEB	:	Uganda National Examination Board
MOE	:	Ministry of Education
DEO	:	District Education Officer

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ABSTRACT

The purpose of the study was to assess the factors that affect students' academic performance in Mathematics in Gomba County Gomba district. The study had five objectives that included: (i) Investigating the extent to which instructional methods contribute to the student's performance in Mathematics at Secondary school level. (ii) find out the extent to which attitudes affect the performance in Mathematics in Gomba County. (iii) assess the extent to which teacher's experience affect study performance in Mathematics at secondary level in Gomba County. (iv) find out the extent to which teacher's qualification affect performance in Mathematics in Secondary schools in Gomba County. (v) Investigate the extent to which physical and financial resources affect the performance in Mathematics in Gomba County. The study was guided by Bruno's theory of Knowledge and Organization. The study employed the Survey design. The survey design was selected for the study because it involves describing, recording, analyzing and reporting conditions as they are. The study population comprised of 150 head teachers, 300 form four students, and 60 teachers of mathematics. This yielded a sample size of 15 schools based on the entry of boarding schools of each type of school. From each school, 1 Head teacher, 2 teachers of Mathematics and 45 students were sampled. Data was collected through a questionnaire, interview schedule for the County quality assurance and standards officer and observation schedule for the researcher. The data was manually coded and descriptive statistics used for analysis. Major findings of the study indicated that all the teachers had the minimum requirements for a secondary school teacher, that there are not enough teachers in the sampled schools in Gomba County and that supervision of curriculum implementation was minimal. only 17.9% of the students reported that their teachers always check their assignments. The study therefore concludes that majority of mathematics teachers in Gomba County secondary school were ineffective and inefficient in their teaching methods and strategies adopted, as they hardly

prepared and used critical professional records like the lesson notes and lesson plans. Also, the study concludes that some teachers had poor attitude towards incorporating learning activities during Mathematics lessons, while many students also displayed a negative attitude towards Mathematics lessons, mainly as a result of influence from their peers and teacher related factors. Basing on these conclusions, the study recommends that government should reduce the maximum number of lessons per week for teachers as this would avail them with adequate time to prepare and deliver the content effectively and efficiently; government should encourage aggressive in-service trainings in educational pedagogy and attitude change in Mathematics at sub County levels for practicing teachers; and that the school managements should examine teacher-student relationship which is a key factor in influencing students' performance.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter presents the background to the study, statement of the problem, purpose, objectives, research questions, and significance of the study, assumptions, limitations, delimitations, theoretical framework, conceptual framework and definitions of key terms.

1.2 Background to the Study

Education has been an important aspect of human life throughout the history of mankind. Education is one most fundamental instrument that can be used to bring about positive change in life of an individual and that of an entire society as far as development is concerned. According to Ballara (1992) on education and human rights, education is a human right and a necessary condition for the full exercise of other human rights. Education is one of the inalienable rights of every person and has been recognized as such in both the universal declaration of human rights of 1947 and the universal covenant of economic, social and cultural rights (Orodho, 2005). Indeed education is perceived as a cornerstone of economic growth, social development and the principle means of improving the welfare of individuals (Ibid).

According to the World Bank Development Report (1993), a household improves rapidly as people escape poverty and low education. This report further states that a nation's income and stability to acquire and apply new scientific knowledge depend on the level of schooling of its population. Schultz and Denison (1962), show that education contributes directly to the growth and national income by improving skills and productive abilities of labour force. Psacharopoulos and Woodhall (1985) concur with this view and argue that investment in human capital contributes to economic development. Emphasizing the importance of education to the individual Shanker (1993), as quoted by Huta, (2003:14) says: rich people know how they can pass on money to their children, they can pass on land, title deed but

there is one great gift that workers can give their children and that is education. That is the best basis for hope that the children will live better lives, be able to move to a job, to a position within their societies that is different and better than the one they enjoy.”

Uganda, like many other developing countries in the world, appreciates the vital role that education plays in equipping its citizens with appropriate knowledge, skills and attitudes to enhance the realization of self- reliance and to work actively towards the maintenance and development of their society (Republic of Uganda, 1988). Consequently, the Uganda Government is devoted to the development and expansion of the education. This is being implemented by the provision of Free Day Secondary Education (FDSE).

Currently, Uganda's education structure is 7.6.3 in which pupils and students are required to spend a minimum of seven years in primary school, six years in secondary school and minimum of three years in university. The secondary cycle forms an important structure of the system and builds on the foundation laid at primary school level. Secondary school level seeks to strengthen the general intellectual skills that are more relevant to many occupations and subsequent education. The Uganda Government has endeavored to increase secondary school's quality and relevance to education.

Performance in national Examinations levels, determines who would transit from one cycle to the next cycle of the education in their systems. Such assessments are therefore very important: researchers have attempted to identify the factors that affect performance of students in the Uganda Certificate of Education in public secondary schools.

Teacher education, ability, training and experiences are associated with student achievements in final examinations Raju, (1973). A study of high school students' examinations

performance in various academic disciplines in. found that fully certified teachers have statistically significant positive impact on students test scores relative to teachers who are not certified in their respective subject areas, as teachers who hold a degree in these subjects Green ward, Hedges and Laine.(1996). Studies conducted in United States on examination performance suggest that student achievement is higher when teachers have a minor or major university degree in the field they teach Wenglisky.(2000).

Beginning teachers are rarely totally prepared to meet core classroom requirements and their knowledge in those areas.

Teaching experience might be expected to make a difference in being prepared to manage classrooms because these areas of experience may be particularly problematic for beginning teachers Jepsen,(2005). Teacher with few years of teaching experience are less likely than more experience teachers to report being very well prepared to maintain order and discipline in the classroom.

Despite the commitments of parents and community to supplement government efforts contributing in the provision of Free Day of Secondary Education to raise funds for schools, there has been a challenge in financing secondary education which has been perceived as costly. The immediate consequence of cost sharing policy in education in Uganda since 1988 at the secondary level has been the payment of fees. The fees and other school related costs such as uniforms, textbooks and building facilities have become very expensive for parents to afford. Thus, the dream of many parents to give secondary education to their children is becoming out of reach for most of them, making secondary education a preserve for the rich. However, the demand of education by students from poor households led to government's preference for day secondary schools.

- ii. To determine how teachers' qualifications affect student's performance in Mathematics in secondary schools in Gomba County.
- iii. To establish the role resources play in student's performance in mathematics in Gomba County.

1.6 Research Questions

The study sought to answer the following questions:-

- i. How do the instructional methods used influence the performance in mathematics at secondary school levels?
- ii. Are teachers' qualifications related to the performance in Mathematics at secondary school level in Gomba County?
- iii. How do physical and financial resources affect students' performance in Mathematics in Gomba County?

1.7 Assumptions of the study

The study was based on the following assumptions:-

- i. The Uganda Certificate of Education (UCE) is an adequate measure to compare the examination performance among students in high and low performing schools.
- ii. The questionnaires and interviews are adequate instruments for collecting the data required for the study.

1.8 Significance of the Study

The study will help the Secondary Schools in the County to take appropriate action towards the performance of mathematics at Secondary School level. Benefit the quality assurance standards officers to take appropriate measures to the problems and this was not only beneficial to the County but also to the entire country.

1.9 Scope of the study

In terms of content, the study addressed factors inclusive of instructional methods used, student's attitudes, teacher's experience and qualification as well as adequacy of resources (physical and financial) as dimensions of independent variable. Student's performance in mathematics (the dependent variable), has been conceptualized to indicate scores obtained at UCE sitting. In terms of geographical scope, the study was undertaken in three government aided schools in Gomba County. The intension was to aid comparison purposes.

1.10 Theoretical Framework

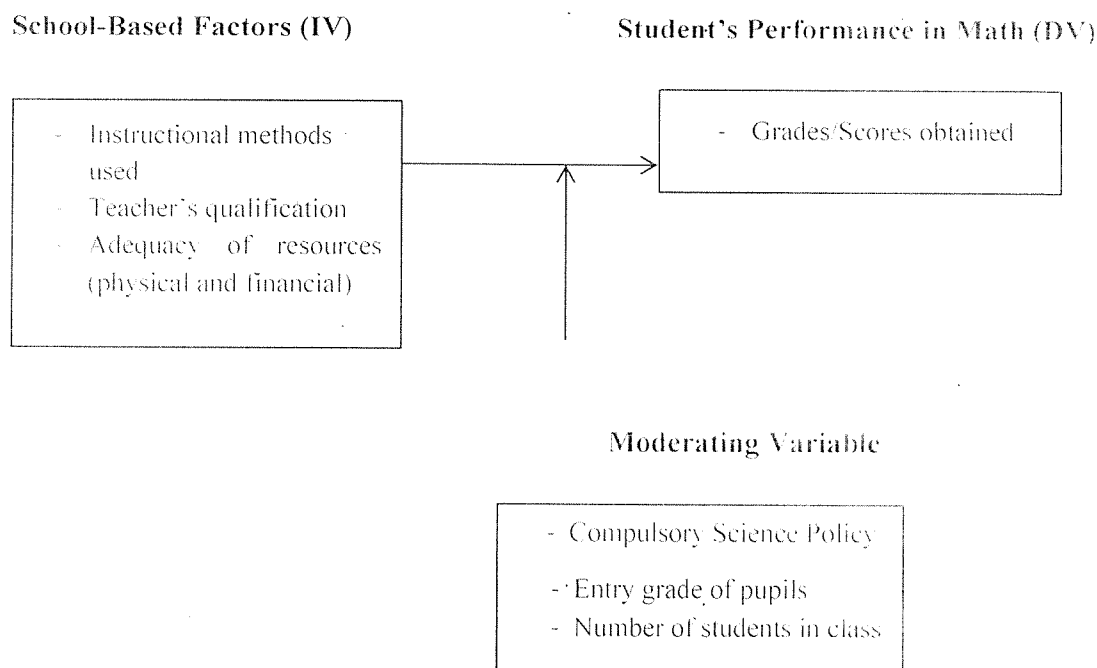
This study was informed by Brunner's (1996) theory of instruction. In this theory, Brunner points out that a theory of instruction is a prescription of rules for achieving knowledge or skills and providing techniques for measuring or evaluating outcomes. This theory facilitates the researcher with the factors affecting the performance of mathematics in secondary schools in Uganda. Brunner (1996) argues that a theory of instruction is concerned with what one wishes to teach can best be learnt. He specifies four salient features that the theory must embrace. These include: predisposition to teach, a group of knowledge structure, hierarchy and sequencing of (mathematics) content, and ability to reward and reinforce learning effects. These teachers of mathematics' needs to be adapted at all these four constituents of learning. To Brunner (1996), with sufficient understanding of the structure of a field of knowledge more advanced concepts can be taught appropriately at much earlier ages. This is achieved by planning and structuring learning experiences that raise the curiosity of the learner. The theory further emphasizes that the experiences provided should recognize the different levels of the learner's thinking. Brunner says that it is the responsibility of the teacher to identify the concepts that form the basic structure of the subject, in this case factors affecting the performance in mathematics. This theory was chosen because it provides knowledge on how teachers of mathematics can develop cognitive abilities of learners by preparation of

instructional products and processes. The theory further guides the teacher in structuring and sequencing of learning, activities, preparation before class instruction includes content familiarization, lesson plan preparation and sourcing of instructional resources.

1.11 Conceptual Framework

A conceptual framework is a model of presentation where researchers represent their relationship between variables in the study and show the relationship graphically or diagrammatically. According to Orodho.(2009) conceptual framework assists the researcher to quickly see the proposed relationship between variables. Teachers are the main unit of analysis in the study. Simon (1980) contends that the teacher factor such as experience, professional, academic qualifications and motivation are the input variables that interact and impact good learning to the students. In this study it is conceptualized that the teacher within a school set up is considered a central variable that other variables interact.

Fig. 1.1 Conceptual Framework showing relationship between School Based factors and their influence on student's Performance in mathematics.



Source: Adapted from Orodho (2012)

According to the conceptual framework above, student's performance in Mathematics depends on a number of factors which include teacher's qualification, experience of teachers, student attitude which may result into absenteeism or presence, adequacy of physical and financial resources and instructional methods used. Factors like the presence of the compulsory science policy, entry grade of pupils and the actual number of students in class are believed to have a moderating effect on the perceived relationship between the school based factors and student's performance in mathematics. Likewise, this study was related to

Tyler's Theory because if the school performance has to improve, the teachers must understand the objectives of the course.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This literature review examines the teaching and learning factors that affect the performance of Mathematics in secondary schools in general, and Gomba County in particular. It also dwells on the role of objectives in learning, preparation of learning experiences, teachers' instructional skills and students' attitudes towards mathematics. Finally, it looks at identification and use of suitable instructional resources, assessment and evolution of learning of Mathematics.

2.2 Instructional methods influencing performance in Mathematics

Classroom methodology is likened to school which depends on teacher / pupil ratio. A high school teacher / pupil ratio as 1:50 does not allow much personal attention and low ratio is not better either. However, teaching effectiveness increases with decreased teacher pupil ratio up to a certain point. Teaching style depends upon size of class. The teacher is critical in classroom methodology. He/she has to create the learning environments; specify the nature of learning activities and decide on the suitable learning resource. According to Nyongesa (2004), the difficulties that arise for teachers' methodology include: teachers inadequate presentation, pace of work, unsuitability of learning resources, topic sequencing and language levels.

Mereku (2003) found out that the general guidelines on the delivery of the curriculum in the syllabus and teacher's guidebooks recommend that teachers should use investigational or activity methods which are directed towards learning tasks, which encourages inquiry, creativity, manipulative and manual skill.. But the style of lesson presentation in the

guidebooks stress teaching strategies associated mainly with the exposition teaching method (Ibid).

The overloaded Mathematics curriculum affects the teachers' methodology. In an attempt to cover the syllabus, Mathematics is taught theoretically and students are not given time to discover things for themselves. Lack of learning resources and unsupportive head teachers may frustrate teachers (Ibid). Several studies in teaching methods of Mathematics have been carried out. Mereku (2003) investigated the extent to which a particular activity based teaching method is employed in teacher's classroom practice and not necessarily how effectively the method has improved learners performance. The study used a range of procedures for data collection. These were analysis of moved and discourse patterns in observed lessons and a survey of teaching skills used in teachers classroom practice

According to Bloom (1960), discussion and group technique is a learning activity where the teacher and learners talk together in order to share opinions, views or information about a topic or a problem. It makes an absolutely fundamental contribution to learning. A genuine discussion must start with some attempt to elicit opinions and knowledge from the learners to treat them seriously and to explore their consequences. In inquiry discussions, the teacher may not state the objectives, instead she/he arranges for the discussion to take place and the whole activity is open ended. The teachers serve as a leader and students carryout the discussion and arrive at a conclusion.. Learning is seen as the product of creative inquiry and active student participation. Examples of participatory activities, which fall under discussion, are whole class discussion, roundtables, committees and small groups. In these activities, there are techniques that provide opportunities for the learners to present their ideas, opinions and information and for the expression of differing viewpoints. They are interactive in nature.

Demonstration method is defined by Callahan and Clark in (1990), as one where students learn more by seeing than by hearing and demonstration combines seeing and hearing. The steps involved in demonstration includes:-

- Explanation and demonstration by demonstration. Imitation by observation. Evaluation by demonstration and observation. Re-demonstration if necessary. Observer imitation. Re-evaluation by demonstration and observation.
- A teacher planning for demonstration should consider the following factors:
Demonstrations from the front of the room are frequently ineffective therefore the teacher should demonstrate to a small group or an individual so that each person can see each step of the operation.
- Teacher should consider the use of videotaping demonstration. Demonstration should not be considered a onetime method of presenting materials. It may be necessary to repeat them for students whose performance indicates that they cannot imitate the demonstration.

Callahan and Clark in (1990) investigated that, small groups or syndicate and pair group involves forming groups from the whole class. The group should consist of between 3 to 5 members for syndicate groups and 2 learners for quick reference as pair groups. One can select learners to groups using their abilities, interest, friendship, gender, seating arrangement, ethnicity etc. in syndicate groups different topics are discussed and the finding shared by the rest of the class. During the group work, it should be ascertained that learners discuss/perform with a chairperson leading the discussion and the teacher goes round checking/assisting where possible. In addition to this, the teacher should also allow time for questions, clarifications and comments and ask learner to copy the point down; give concluding remarks and give the class follow up activities if necessary. These groups could also be utilized in a wider project wherein groups 5 – 6, the audience could work on a project.

Brainstorming is a technique of generating idea from the learners. It involves posing question or challenge to the learners and either the teacher or the leader of the group taking note of all the possible answers /responses before disclosing and evaluating them. The idea generated makes excellent springboard for discussion and problem solving. A project method has been defined by Callahan and Clark (1990) as of activity, individual or group involved the investigation and problems that is planned and carried to conclusion by students under the guidance of the teacher. It focuses on the need of providing opportunities for full involvement of the child in learning by allowing free interaction with situations in real life. As a result, the child develops into a descent worthwhile citizen. The study sought to establish teaching methods in Gomba County ensuring that teaching and learning resources are put in proper use to achieve the desired outcomes.

2.3 Effects of Academic and Professional Training of Teachers on Examination Performance

Good quality teachers should be able to impart knowledge, skills and positive attitudes. The quality of teachers was an important aspect in determining the level of performance and achievement in national examinations. It noted that, in Uganda, quality of teaching staff is often said to be the main determinant in the achievement of students in examinations. The quality of teachers is often judged on the basis of the teachers' academic and professional qualifications. As Nguru (1987) notes, it is not only the professional qualifications, but also their academic qualifications. Professional training is also said to be an important indicator of quality of teachers. Ong'uti (1987) asserted that trained teachers are asserts to institutions in which they are instructors. They have learnt the tricks of handling individuals' differences in the classroom situations.

The training of a teacher equips him/her with the skills of imparting contents to the pupils more effectively. It is true that the higher the professional training in relevant subject, the

better the performance of pupils, Raju (1973). The training of teachers has some impact on pupils' performance in examinations. Raju (1973) revealed that most rural schools lack properly trained teachers and have to accept unqualified teachers who may not be aware of modern trend in teaching methods and curricular. Training equips the teachers with the skills of imparting contents to students more effectively. Thus, the higher the professional training, the more the more effective a teacher should be and the better the performance by students in examinations. In a study on finding the problems of teaching English in Uganda secondary schools, it is noted the problem of untrained teachers as follows: they find it difficult to present a good model of spoken English themselves and hence to do any effective teaching of oral English, to look at course book critically and to evaluate the materials and methods in terms of their pupils needs and abilities or plan a sound scheme of work that is relevant to their situations.

Raju noted that, teachers who do not possess proper academic qualifications and professional training do not teach their subjects effectively. He argues that, high qualifications make the teachers confident to teach their subjects and in turn serve as a source of inspiration to the students. Raju further suggested that a teacher should possess the following:-

- Theoretical knowledge about human behavior.
- Demonstrate teaching skills that can facilitate learning
- Possess knowledge of the subject matters.

Republic of Uganda (1964), as quoted by Hutta (2003), emphasizes that, teachers are a component of the school. He viewed performance as being caused by teachers since it is the teacher who matters most in a child's life in school. This clearly depicts that, if the teachers lack appropriate qualifications, self-confidence will be low and may lack enthusiasm due to

lack competence and inadequate knowledge of the subject, which then leads to poor performance.

Eshiwani (1993) noted that, school quality is heavily dependent on the quality of staff, their motivation and the leadership experience. This however explains the differences in performance between schools with similar levels of physical provision. Lewis as quoted by Eshiwani observes that: - teachers morale professional support, and awareness of education possibilities through adequate pre- and in-service training are critical determinants of curricula quality over and above that level of physical support that can be sustainable across an educational system as a whole not that found in the most well provided location schools quality can only improve through changes in teachers behaviour. Initiatives in the areas which support teachers and boosts morale providing access to information and advice, assist them to develop professional association and create peer group pressure and recognition of performance have the potential for wide spread impact and the responsibilities of extensive multiplier effect.

Mechanism for much more attention to enhancing the professionals that implies, amongst greater proportions of existing teachers cadres and new entrants, is an important key to sustain changes. Professional training and staff development programme therefore impart on teachers' effectiveness and influence students' performance in their exams.

There has been no recent research done in the Ugandan context to establish the influence of academic, professional training, training on students' academic performance on which these studies sought to establish.

2.4 Importance of adequacy of resources (Physical and Financial)

Use of media is essential in the teacher of Mathematics because: It increases learners' motivation by creating a conducive atmosphere which is stimulating, interesting and

intellectually rewarding. Motivation increases because of the learning resources' concreteness and appeal. The level of motivation will depend on how the teacher organizes the class for the utilization of the resource; it leads to sharing of ideas, thought, feelings and knowledge. This sharing leads to persuasion to change his / her attitudes or to adopt desirable responses or actions. It can be tailored to the abilities and needs learners each of which has a preferable way of learning e.g. through sight experience, learning etc. for example, media can be used to structure learning experiences for the under achievers. It enhances learning, increases perception, understanding and reinforcement and hence retention of what has been taught.

"According to Squanders (1974:23), 11% of what is seen is retained compared to 50% of what is both seen and heard. It adds life and can enrich a lesson by encouraging participation, appealing to the learners varied abilities and ensuring order and continuity of thought. Media enables the learner to acquire and strengthen skills in regarding, observing, listening and communicating ideas. Media can also be used to present facts, organize knowledge, stimulate, imagination and change attitudes Instructional media takes learning real because it enables the learner to come in contact with either the real thing she/he is learning, or purely visual materials of the items learnt."

A number of studies carried out in developing countries reported a more consistent relationship between pupils' achievements and the availability of textbooks than between achievement and another variables such as class size, teachers' salaries and boarding facilities. Studies by Schiefelbein and Farnell (1973) in Chile on availability of textbooks and their influence on performance found a positive correlation between textbooks and academic achievement. Availability of textbooks and their influence on performance found

a positive correlation between textbooks and academic achievement. This conclusion was also corroborated by Heyneman and Jamison (1974) who found a positive relationship between textbooks and pupil achievement in English in Uganda. Abagi (1997) observed that while teachers were crucial for quality education, their contribution will be incomplete if there are no important inputs such as textbooks. Abagi (Ibid) revealed more expenditure on teachers' salary between 1992 and 1997 in public schools in Uganda than on teaching and learning resources. Between 1980 and 1995, the World Bank has been investing in Africa especially on instructional inputs, mainly textbooks, teacher education and classrooms with a view to improving performance. Therefore the quality of teachers is a crucial element in the performance of any school. Kibui (1995), in a study that influence the examination performance of public and private primary schools in Nairobi, found that inadequate physical facilities like classrooms may affect teaching and learning environment. For example if children are crowded in their sitting positions: they find it difficult to write in their books. Teachers are also unable to move round the crowded class. This means that the teacher is not able to reach with ease all children in order to check their individuals work as they sit working in their places.

2.4.1 Student-teacher ratio

Teachers play an important role in the implementation of the curriculum and this particularly impacts on the quality of education offered. New Zealand has two main staffing components: that is, student number at each year level and base cents which every school receives regardless of the size and special needs staffing based on the number and severity of special needs students which is calculated as 2.5 teacher hours per week for high needs students, and 5 teacher hours for very high needs students. This is similar to the Ugandan Secondary school staffing model which takes cognizance of the number of subjects taught in a school, the number of streams and the lessons per week (MoES, 2009).

Table 2.1: Curriculum Based Establishment (C.B.E)

Teaching Load

Post	Four class Single stream	Eight classes Double stream	Twelve classes Triple stream and above
Head teacher	10 – 12	8 - 10	6 – 8
Deputy Head teacher	20 – 24	15 – 18	12 – 15
HOD - Job Group “N”	-	-	18 – 20
HOD - Job group “M”	-	-	20 – 24
Teachers	27	27	27

Source: Ministry of Education and Sports, 2017

Staff balancing has been a major issue in secondary staffing. According to the Ministry of Education (MOE 2003) there exists overstaffing in urban schools. In regards with the HOD establishments, there are varying trends in all the schools.

Table 2.2: HOD Establishment

Job Group	"M"	"L"	Total
National Schools	8	13	21
Provincial schools with 16 classes and above	6	13	19
Public schools with 12 – 15 classes	-	8	8
Public schools with 5 – 11 classes	-	1	1
Public schools with 1 – 4 classes	-	-	-

Source: Ministry of Education 2012

House teachers – Based on population of the school. That is, 1 house teacher for every 320 pupils:

Divisor = 27

CBE = $\frac{\text{Total shortfall} + \text{teachers required (T.R) from part 1}}{27}$

27

Shortfall from Establishment

Head teacher	(27 – 6)	=	21 periods
Deputy Head teacher	(27 – 12)	=	13 periods
Heads of Department – Job group "N"	(27)	=	Periods
Heads of department – Job Group "M"	(27-20)	=	7 Periods
House Teachers – Job group "M"	(27)	=	Periods

Total shortfall	=	43 periods
Number of teachers required (T.R)		
Teachers required from shortfall	Total Shortfall	1.59
	27	
T.R from part 1		29.37
Total T.R		30.96
		31

From table 2.1 and 2.2, the student – teacher ratio for the school was 18.1. Staff balancing has been a major issue in secondary staffing. According to the Ministry of Education and Sports (MoES, 2003) there exists overstaffing in urban schools. This is due to the fact that married teacher's request to be posted close to their spouses. However, the official policy is to have all public schools staffed with qualified teachers.

According to Okwach and Odipo (1997) there were varying teacher pupil ratio in Ugandan schools depending on whether the schools are urban, rural, public or private. They indicate the ratio of 3.6:1 for rural public, 34:1 for urban public and 25:1 for private primary schools. This belief is supported by Tindall (1988) who found out that large class sizes contributed to declining performance of students. According to Tindall small pupil teacher ratio was a solution to educational problems in inner city schools.

But this was not always true as proved by Okwach and Odipo (1997) who argued that it is not necessarily a small pupil teacher ratio that matters, but how a teacher organizes and motivates his/her class. They propose that savings made from increased class size could be utilized in teacher training or for the acquisition of other educational materials which are crucial for learners' achievements.

Maundu (1986) concluded that teacher qualification had a significant effect on pupils' performance in Science and Mathematics. He links the good performance of extra provincial schools to good quality of teaching given to other inputs. This view seems to be supported by Lockheed et al (1991) who concluded that teacher training levels had a significant effect on pupil achievement, although Thias and Corney (1972) while carrying out cost benefit analysis of education in Uganda found out that at upper secondary, teachers' experience had no significant effect on students' performance.

2.5 Importance of learning / teaching resources

Use of media is essential in the teacher of Mathematics because: It increases learners' motivation by creating a conducive atmosphere which is stimulating, interesting and intellectually rewarding. Motivation increases because of the learning resources' concreteness and appeal. The level of motivation will depend on how the teacher organizes

the class for the utilization of the resource, it leads to sharing of ideas, thought, feelings and knowledge. This sharing leads tones persuasion to change his / her attitudes or to adopt desirable responses or actions. It can be tailored to the abilities and needs learners each of which has a preferable way of learning e.g. through sight experience, learning etc. for example, media can be used to structure learning experiences for the under achievers. It enhances learning, increases perception, understanding and reinforcement and hence retention of what has been taught.

2.6 Summary

From the literature review, it was observed that most scholars have identified factors that affect examination performances in schools in developed countries. Factors such as instructional methods, academic & professional training of teachers and resources are examples of such factors. Mathematics performance among secondary school students' in Gomba County is below average thus, the need to identify the factors that affect performance of students in Mathematics in Secondary Schools. It is because of this view that the researcher picked interest in examining the performance of Mathematics among secondary school students' in Gomba County on a number of factors that will avail.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The purpose of the study will determine the factors that affect the students' UCE performance in Mathematics in public secondary schools in Gomba County. This chapter presents the research design, study area, study population, the sample and sampling procedures, data collection methods and instruments, quality control methods, data management and analysis, ethical procedures and anticipated limitations of the study.

3.2 Research Design

The research study will use a cross sectional survey design to investigate the effect of school-based factors on students' performance in Mathematics at UCE level in secondary schools in Gomba County. Survey method aims at obtaining data, which will be analyzed, patterns extracted and comparison of such data to be made. Similarly, survey design was used in this study because it enabled the researcher to collect data from a sample of informants that were used to examine the resources that influence the performance of mathematics in Secondary Schools in this County, basing on a number of parameters. According to Orodho (2009), survey design is intended to collect data by interviewing and administering a questionnaire to a sample of individuals. Information will be collected from a sample of students, teachers, head teachers and District Education Office in Gomba County by use of questionnaires, interview guides and observation schedules.

3.3 Study Area

This study will be conducted in Gomba County, which is one of the 18 Counties in Buganda, the central region in Uganda. Gomba County borders Singo County to the East and South East, Buddu County to the West, and Butambala County to the North. Gomba County is divided into Town councils and sub Counties. The population in Gomba County is high and evenly distributed in rural settlement patterns.

Gomba County was selected for the study because it is one of the poorest performing Counties in terms of student's performance in mathematics in the country UNEB.(2017). This has raised great concern among the parents, stakeholders, the religious organizations and political class who hails in this County. The performance in this subject is too low as compared to the index performance of other schools and counties within the Country.

3.4 Study Population

Best and Kahn (1999) and Orodho (2012) contend that, the target population is any group of individuals who have one or more characteristics in common that are of interest to the researcher. Public day secondary schools in Gomba County were of interest to the researcher for their continued dismal performance in mathematics at senior four (S.4). The targeted population of the study was 150 Head Teachers, 600 teachers, 4500 S. 4 students in the 15 sampled schools.

3.5 Sample and Sampling Procedure

Slavin (1984), observes that due to limitations of time, funds and energy, a study will be carried out from a carefully selected sample to represent the entire population. The sample to be selected in Gomba County will be composed of mixed secondary schools. However, only Public day secondary schools that have enrolled candidates for Uganda Certificate of Education (UCE) in the years (2018) were used.

The 15 schools comprised of 10% of the target population of 150 public schools. According to Gay (1992) for a survey design, a sample of at least 10% is a justifiable representation of the total population. The 10% of 150 public schools and their head teachers were selected. The researcher also sampled 10% of the population of teachers and students of the nine-day schools based on Ary, Jacob and Razaviah (1972) who observed that for a survey design a sample of 10% is also justifiable for data collection. Ten percent of the 600 teachers and

4,500 students were also included in the sample. The determination of sample size is shown in Table 3.1.

Table 3.1: Determination of the Sample

Category	Population (N)	Sample (n)
Schools	150	15
Head Teachers	150	15
Teachers	600	60
Students	4,500	450
DEO	1	1
Total	5401	541

For the purpose of the study, the identified 5 strata include boarding schools for boys and girls, mixed day secondary school, and day secondary schools for both girls and boys. Specifically, there were 3 boys boarding and 3 for the girls, 4 day secondary schools for girls and boys, 5 mixed schools. The researcher selected 15 schools from 150 secondary schools from the target population. These translated to 10% of the total schools in the County. According to Mugenda and Mugenda, (1999), for descriptive studies, 10% of the accessible population is an enough sample to be used. Each stratum was represented as follows:

- Boarding schools for boys - 3
- Boarding schools for girls - 3
- Day secondary schools for boys - 2
- Day secondary schools for girls - 2

- Mixed secondary schools

5

3.5.1 Schools

The study will target (150) public secondary schools in Gomba County. Due to the fact that the population from the sample drawn is not homogenous, stratified sampling will be used to obtain a representation of (15) sampled school. According to Krathwol, (1993) the researcher will classify the units in the sampling frame into strata on basis of a characteristics that if not properly represented in the sample, it may bias the inferences the researcher makes.

3.5.2 Head Teachers

Stratified sampling will be used to select head teachers from sampled schools to be included in the study. In stratified random sampling, the population was first divided into two or more exclusive segments called strata based on categories of one complete stratified sample (Orodho, 2009). All head teachers from the 15 sample schools under the study were included. One County quality assurance and standards was included in the sample.

3.5.3 Students

The sample will include 30 students from 15 sample schools. 10% of the total population in each school was sampled. The 15 schools have a population of 4500 S. 4 students.

3.5.4 Teachers

Stratified sampling will be used to select teachers from sample schools to be included in the study. The sample will include 5 teachers from each stratum. 10% of the total population of teachers in each school will be sampled. The 15 schools had a population of 600 teachers, out of these, 60 teachers were sampled for the study.

3.6 Research Instruments

The researcher used self-administered questionnaires and an interview guides to collect data from the head teachers, teachers, students and DEO on factors affecting the performance of Mathematics in public schools in Gomba County. The researcher will use observation schedule to supplement on the information that will be obtained through questionnaires.

3.6.1 Questionnaires

Best and Kahn (1999,) and Orodho (2009) contend that questionnaires enable the person administering them to explain the purpose of the study and to explain the meaning of the items that may not be clear. Questionnaires are used to obtain important information about the population, Mugenda and Mugenda (1999). The study used questionnaires because they can ensure anonymity, permit use of standardized questions, and they have uniform procedures, provide time for subject to think about responses and are easy to score. Questionnaires were used in the study because they are easier to complete and the researcher will easily detect a trend just by glancing at the responses Orodho.(2012).

3.6.1.1 Head teachers' Questionnaires

The questionnaires for head teachers will be used to collect data on the head teachers' gender and their schools types, effects of teachers preparedness in the student's performance, effects of teachers experience in the performance of mathematics, teachers qualifications and training, effects of increased enrolment on the quality of education, effects of student-teacher ratio in mathematics performance, effects of adequacy of teaching and learning resources in the performance of mathematics and strategies to the improvement of performance in mathematics in Gomba County.

3.6.1.2 Teachers' questionnaires

The questionnaires for teachers will be used to gather information on the teachers' gender, types of their respective schools, teacher qualification and training of teachers, duration by length of time in their present positions, effects of teacher preparedness on performance, the

use of teaching and learning aids in classroom situation, teachers preparation and use of professional documents in teaching, teachers attitude towards incorporating learning activities, effects of student's textbook ratio on performance, effects of adequate teaching and learning resources and strategies of improving the performance of mathematics in secondary schools.

3.6.1.3 Students' Questionnaires

The questionnaires for students will be used to gather information on students' gender, type of their respective schools, type of instructional methods used by their teachers, effects of availability and adequacy of teaching and learning materials on performance, effects of teachers good morals on students' performance, effects of teachers personal attributes on students' performance, various aspect of personal character of teachers on students' performance, effects of syllabus coverage on students' performance, effects of curriculum supervision on students' performance, effects class size on students' performance, effects fees payment on students' performance and strategies of improving performance in mathematics.

3.6.2 District Education Officer Interview Guide

DEO interview guide (Appendix D) was used to provide in-depth data e.g. qualitative data, which was not possible to get using a questionnaire. Interview guides was used to make it possible to obtain the data required to meet the specific objectives of the study. Mugenda (1999). DEO interview guide was used to gather information on gender, effects of increased enrolments on students' performance and strategies of improving performance in mathematics.

3.6.3 Researchers' Observation Schedule

The observation schedule (Appendix E) was from one of the research instruments. It was used to supplement information, which was obtained through the questionnaire. This was

included examining and recording data on the adequacy of teaching, learning and physical resources in the sampled schools.

Kothari and Pals (1993) note that observations are much better in overcoming the weaknesses of self-reported evidence. The authors add that the technique enables the researcher to collect direct information about human behavior. The areas to be observed were adequacy of teaching - learning and physical resources.

3.7 Validity and Reliability of the Research instruments

This section presents validity and reliability of the research instruments.

3.7.1 Validity of the Instruments

Orodho (2005) defines validity as the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. Validity therefore checks if the research instruments are doing what they were intended to do. Two instruments i.e. questionnaires and interview guides were submitted to the supervisors in the Department of Educational Management, Policy and Curriculum studies. The experts scrutinized the details of these instruments and gave their opinion in view of reviewing or adopting them for pilot study. Two schools had similar characteristics with the rest of the schools that were studied. Pilot study helped to make clarification and improved the content for use in the instruments that were administered for study. At the same time, the study helped the researcher attain a good art of conducting interviews.

3.7.2 Reliability of the Instruments

Reliability is the consistency of the instruments in measuring what it is intended to measure Wiersma.(1985). It's a measure of degree to which a research instrument yields consistent results after repeated trials Mugenda and Mugenda.(1999). The researcher used the split-half technique in investigating the reliability of the instruments. According to Mugenda and

Mugenda (1999), this technique administers an instrument once to two groups of subjects. The research instruments were therefore administered to sixty identical respondents made up of 30 male and 30 female teachers. The scored items were then randomly divided into two groups. The completed questionnaires were scored and analyzed. Spearman rank order correlation coefficient was calculated using the formula:

$$r = 1 - \frac{6 \sum (d)^2}{n(n^2 - 1)}$$

Where: r is the Spearman rank order correlation

\sum is the summation of subjects

n is the number of subjects

d is the deviations of the subjects between odds and even.

The coefficient obtained was used to determine the reliability index of co-efficiency by subjecting it to Spearman Brown Prophecy formulae. A split-half coefficient of 0.78 was obtained and considered substantially high enough to determine thereliability of research instruments.

$$\text{Split-half Coefficient} = \frac{r}{1 + r} = 0.78$$

Where r is Correlation Coefficient

According to Orodho (2005), a coefficient correlation (r) of about 0.75 and above should be considered high enough to judge an instrument as reliable. The researchers' value was 0.78 and the instruments were adopted for data collection.

3.8 Data Collection Procedure

The researcher obtained an introduction letter from the Department of Educational Management, Policy and Curriculum Studies at Kampala International University to carry out the study. Once obtained, the researcher acquired a research permit from the Ministry of Education (MoES). The permit legally allowed the researcher to conduct the study. The researcher then visited the selected schools and distributed the questionnaires to head teachers, teachers and students. The researcher interviewed the DEO in her office on the agreed date. The researcher used observation schedule to collect data from the head teachers, teachers, students and DEO.

3.9 Research Clearance and Ethical Concerns

The procedure for data collection involved getting a research permit from the National Council for Science and Technology to undertake research on: "Factors that affect student's Performance in Mathematics in Secondary Schools in Gomba County, Uganda". This procedure of getting clearance will follow all through the field work period by getting permission from the County Director of Education and School Management before distributing questionnaires. During the research process, the participants were assured of confidentiality and the researcher and research assistants safeguarded the information obtained.

3.10 Data Analysis

The data obtained from respondents was recorded in readiness for analysis. Kerlinger (1973) defines analysis as categorization, ordering manipulating and summarizing data to obtain answers to research questions. Quantitative data collected by using a questionnaire was analyzed by the use of descriptive statistics and frequency tables. The information was displayed by use of bar charts, tables and pie charts in Rose form. This was done by tallying up responses, computing percentages of variations in responses as well as describing and interpreting the data in line with the study objectives and assumptions.

The data was collected using interview guide which was qualitative in nature. It was analyzed using content analysis technique, which is the best suited method of analysis. Content analysis is defined by Creswell. (2003) as a technique for making inferences by systematically and objectively identifying specific characteristics of messages and using the same approach to relate trends. According to Mugenda and Mugenda. (2003) the main purpose of content analysis is to study the existing information in order to determine the factors that are explained in a specific phenomenon.

Content analysis uses categorization for making valid and replicable inferences from the data to their content (Kothari, 2004).

CHAPTER FOUR

RESEARCH FINDINGS, INTERPRETATIONS AND DISCUSSIONS

4.0 Introduction

The purpose of the study was to determine the factors that affect the performance of mathematics in secondary schools in Gomba County.

In the Chapter, data is represented, analyzed and discussed as regards the factors affecting students' performance in Mathematics in Secondary School in Gomba County as guided by the objectives of the study and research questions. The study sought information from students, teachers and head teachers using questionnaires and interviewed DEO using an interview guide and observation schedule.

Data analysis was done using frequencies and percentages and then the analyzed data was presented in form of tables and figures. Finally, findings of the study were discussed in light of the literature related to the factors affecting the performance of students in Mathematics in Secondary schools in Gomba County. Data analysis, presentation of study findings and discussion were guided by the following objectives:

- a) To investigate how instructional methods contribute to the students' learning and performance in Mathematics at secondary school level.
- b) To determine how teachers' qualification affect the learning and performance in Mathematics in secondary schools in Gomba County.
- c) To investigate the extent to which physical and financial resources affect students' performance in Mathematics in Gomba County.

4.1 Response Rate

The study had targeted a sample size of 541 respondents. However, on administering the research tools, 526 participants responded, giving a response rate of 97.2%. According to Mugenda and Mugenda (1999), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Also, Richardson (2005) cited Babbie (1973, 165) and Kidder (1981) state that 50% is regarded as an acceptable response rate in social research. Therefore, a response rate of 97.2% is perfect for the study.

4.2 Demographic Characteristics of the Samples

This section presents some of the demographic aspects of the respondents, especially those that have a great bearing on the interpretation of data collected on the various objectives of the study. Accordingly, the main demographic features of the respondents featured in this section include: Gender of both the students and the teacher, Number of years of service for teachers in the current station, categories of schools, names of departments and nature of the school, length of time served as a principle as well as in the current station.

4.2.1 Distribution of respondents by Gender

During the data collection, the researcher aimed at establishing gender parity in the distribution of students, teachers, head teachers and DEO. This was because the respondents were purposively sampled to have equal gender representation. The data from 15 schools were analyzed. Information obtained was through self-administered questionnaires in which the respondents were asked to indicate their gender. The results are presented in Table 4.1.

Table 4.1: Distribution of respondents by Gender

Respondents	Male		Female		Total
	N	%	N	%	
Students	300	66.7	150	33.3	450
Teachers	32	53.3	28	46.7	60
Head teachers	9	60	6	40	15
DEO	1	100	-	-	1

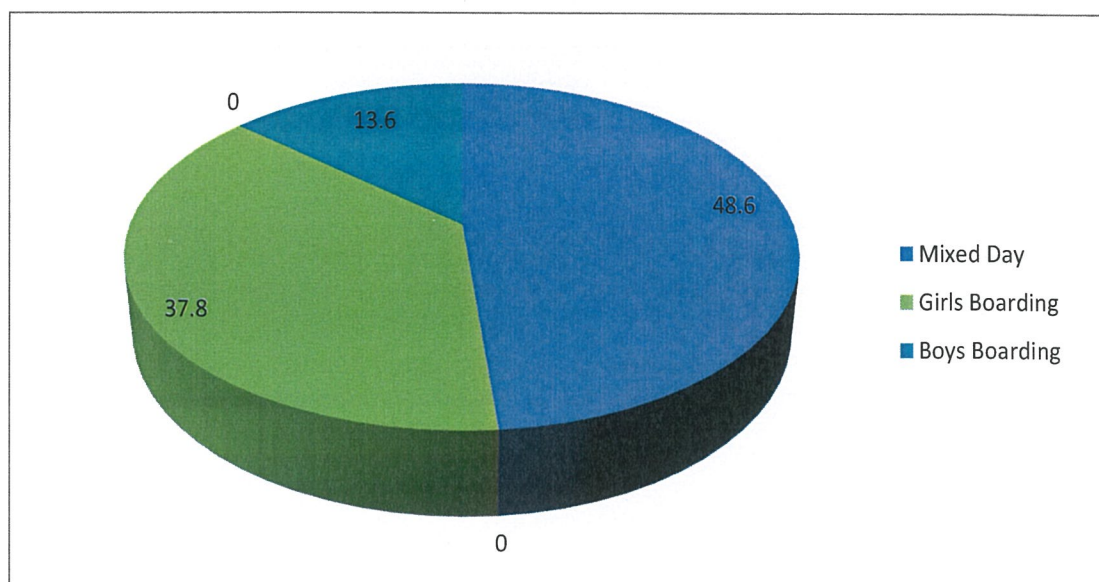
Source: Primary Data, 2019

Table 4.1 above indicates gender parity in the distribution of students. The table shows that male respondents (66.7%) were more than the female respondents (33.3%). The gender distribution further shows significant differences such that the male teachers comprised 53.3% while the female teachers comprised of 46.7%. The situation of the head teachers was perhaps more fascinating. Out of the fifteen head teachers that participated in the study, 9(60%) of them were males while 6(40%) were females. As for the DEO, there was only one such officer and who happened to be a female.

4.2.2 Distribution of the sampled schools by type

The study sought information from the head teachers, teachers and students on the distribution of the sampled schools by type. This was necessary to provide good scenery for understanding the effect of qualitative expansion of secondary schools on education in the County. The data obtained were obtained through questionnaires given to the head teachers, teachers and students. The respondents were asked to indicate the type of their schools. The results are indicated in Figure 4.1.

Figure 4.1: Distribution of the sampled schools by their type



Source: Primary Data, 2018

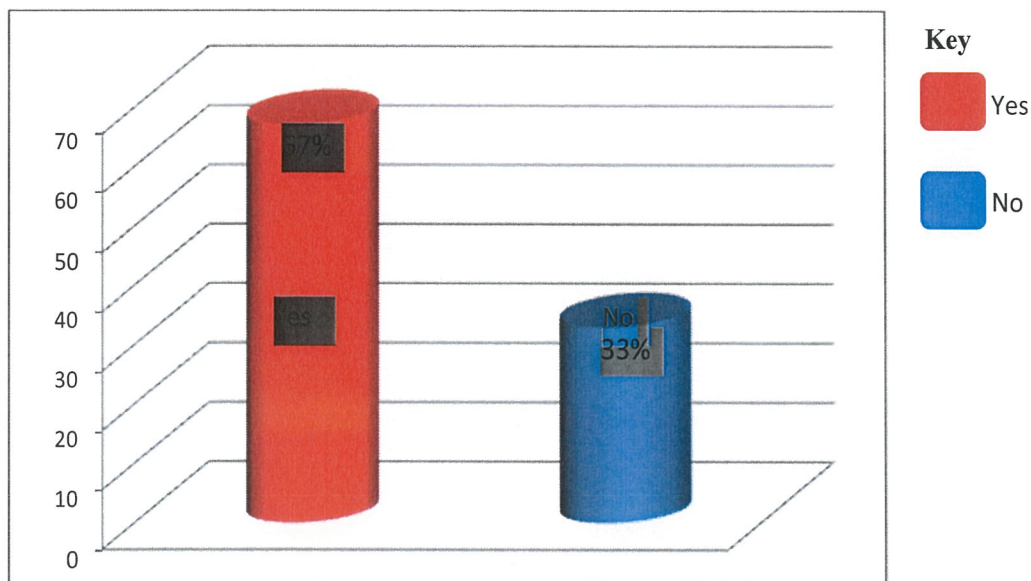
Figure 4.1 indicates the distribution of schools representing a variety of schools in Gomba County in terms of their type. Analysis of the responses collected for this question indicated that 13.6% of the schools were boys boarding while 48.6% were mixed day. The girl's boarding constituted 37.8%. These types of schools are well represented in significant proportions. These provided good scenery for understanding the effects of the

4.3 Instructional methods and performance in Mathematics

4.3.1 Teachers use of participatory methods of teaching

This section focused on instructional methods and performance in mathematics. This was necessary to establish whether the teachers in your secondary schools in the County applied participatory methods of teaching rather than lecture methods which are instrumental in enhancing student's performance. Students were asked using questionnaires whether the teachers involve them in learning activities. The results are presented in Figure 4.3.

Figure 4.2 Students response on whether teachers use participatory methods of teaching mathematics in their schools



Source: Primary Data, 2018

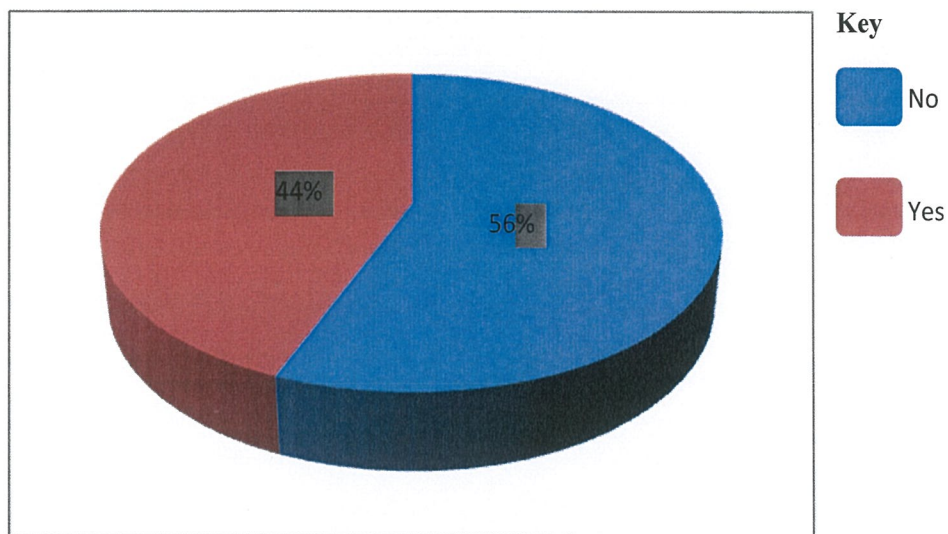
From the results in Figure 4.3 majority of the students 67% reported that teachers engage them in participatory methods. This illustrated that majority of the teachers in public secondary schools in Gomba County involved students in learning activities rather than lecture methods which are instrumental in enhancing the performance in the County. The findings are in collaboration with Jepsen (2005) who argued that teachers classroom management, were necessary to maintain order and discipline in the classroom, implement new methods of teaching e.g. participatory methods.

4.3.2 Use of teaching and learning aids by the teachers

The researcher further sought to establish from the students whether teachers used teaching and learning aids during mathematics lessons. This was necessary so as to demonstrate mathematics concept to enhance a better understanding of the subject. Students were asked

to indicate using questionnaires whether the teachers used teaching learning aids in mathematic lessons. The results are represented in Figure 4.4.

Figure 4.3: The use of teaching learning aids by the teachers in class room situations



Source: Primary Data, 2018

According to the findings in Figure 4.3, 252 (56%) of the student indicated that teachers never used teaching learning aids in classroom learning situations to explain concepts and topics while 198 (44%) confirm that teachers use teaching learning aids while teaching in class. The results depict that majority of the teachers in public secondary schools in Gomba County rarely used teaching learning aids to demonstrate mathematics concept to enhance a better understanding of the subject by the students. The findings are not in line with the study of Cock craft committee (1982), which reports about the teaching style and methodology that, Mathematics teaching at all levels should include opportunities for, exposition by the teacher discussion between teacher and students and between the students themselves, appropriate practical activities, consolidation and practice of fundamental skills and

routines, problem solving including the application of mathematics to everyday situations and investigational work.

4.3.3 Views on the effects of teachers preparedness in mathematics performance

This section sought to establish teachers and head teacher's views on the effects of teacher's preparedness in the performance of the mathematics. This was necessary to increase the quality of teaching and to enhance the teachers required skills in the classroom management to meet the complex and changing demands they face in classroom teaching. The respondents were asked to indicate using questionnaires, their views on the effect of teacher's preparedness in the performance of the subject.

The results are indicated in Table 4.2.

Table 4.2: Effects of teacher preparedness on Mathematics performance

	Teachers		Head teachers	
	Frequency	Percentage	Frequency	Percentage
Great extent	28	46.7	9	60
Moderate extent	24	40	5	30
Little extent	8	13.3	1	10
Not at all	0	0	0	0
Total	60	100	15	100

Source: Primary Data, 2018

From the Table 4.2, 60% of the head teachers posited that teacher's preparedness influence the performance of mathematics in their schools to a great extent and 30% to a moderate extent. Similarly 46.7% of the teachers indicated that teachers preparedness influence the

subject performance to a moderate extent. This depicts that to increase the quality of teaching, the teachers require skills in the classroom management to meet the often complex and changing demands they face in their classrooms. The findings concur with Kremer (2003) who indicated that the class management has been identified as a major influence on teacher performance, a key source of teacher job related stress, in general an essential prerequisite for student learning (Kremer, 2003).

4.3.4 Effects of teachers classroom management on the academic performance in mathematics

The researcher aimed at establishing teacher's preparedness on various classroom contexts. The information was obtained from the teachers and head teachers using questionnaires. This was necessary to enable the teachers prepare so as to maintain order and discipline, to implement new methods of teaching so as to enhance better students' performance. The results are indicated in Table 4.3.

Table 4.3: Effects of classroom management on academic performance in mathematics.

Variables on Classroom Management	Mean	Standard Deviation
Maintain order and discipline	4.5714	0.77326
Implement new methods of teaching	4.5306	0.78915
Implement county curriculum and performance standards	4.2755	0.58821
Use of student performance assessment techniques	4.3776	0.68138

Table 4.3 indicates how teachers and head teachers were prepared with compelling classroom contexts. The researcher established that they were prepared to maintain order and discipline in classrooms, implement new methods of teaching, use of student performance assessment techniques, implement the curriculum, improve performance standards as shown by the

subject mean scores of 4.5714, 4.5306, 4.3776 and 4.2755 respectively. This depicts that the teacher's ability to maintain order and discipline in the classroom, implement new methods of teaching are key aspects of teacher classroom management that help teachers in offering quality education of mathematics to the student. The findings are in collaboration with Yator (2003) who observed that discipline of students is crucial if any institution has to perform, he further argued that discipline plays a vital as far as performance is concerned.

4.4 Teacher Training, Qualifications and Availability in Secondary Schools in Gomba County

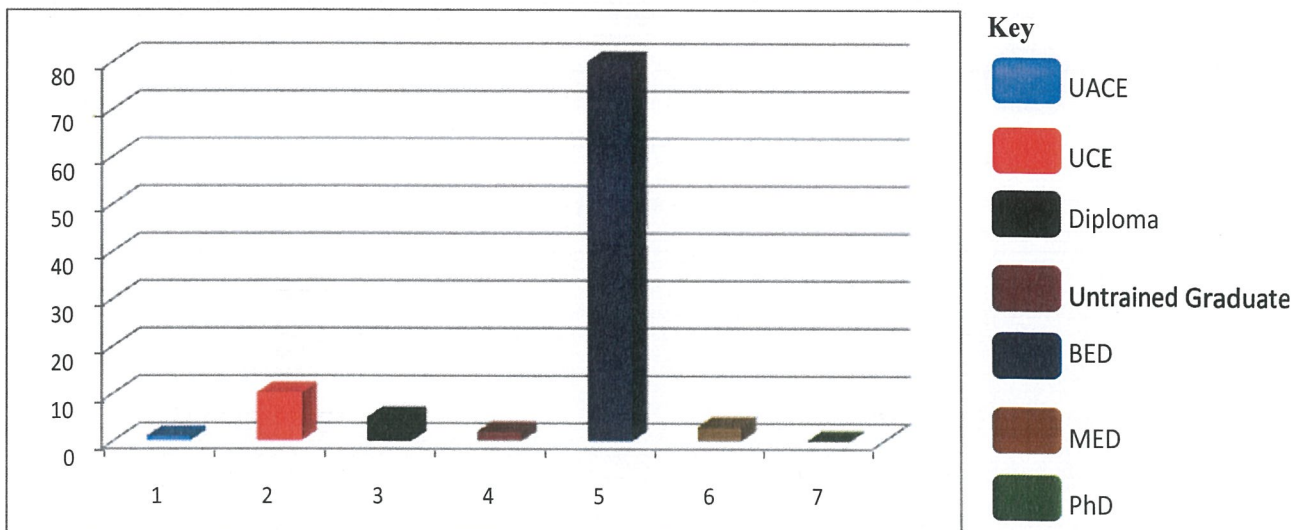
One of the main objectives of the study was to establish the situation of teacher training, their qualifications and their availability in school. This section discusses the findings on this issue.

4.4.1 Teacher Qualifications

In the head teacher's questionnaire, the respondents were asked to indicate the qualifications of the teachers using in their respective schools. This was necessary because teacher qualification affect student's performance. The results are indicated in Figure 4.4.

Source: Primary Data, 2018

Figure 4.4 : Teacher Qualifications



The findings indicated in Figure 4.6 reveals that majority of the teachers 80% are qualified with BED, while 5% are untrained teachers. It was notable that teachers qualified with Diploma certificates have 7%. The remaining categories of teacher qualification were in total less than 10%. Most of the head teachers responded approving that academic teacher qualification influence Mathematics. This finding on performance and teacher qualification concur with Muller and Alexander and Middle school Mathematics achievement found out that students taught by certified qualified teachers scored better in Mathematics achievement tests than those taught by uncertified teachers. The same views are held by Laczko-Kerr & Berlier (2002) and Darluga –Hammod (1999) who found out a positive association between achievement and teacher qualification.

4.4.2 Teacher training

In the head teachers' questionnaire, the respondents were asked to indicate the number of times their teachers attend in-service courses. This was necessary because training of teachers equips them with necessary teaching skills to impart on the content to the learners.

4.5 Availability and Suitability of Teaching and Learning Resources

This section sought to establish from the students, using questionnaires the availability or even the adequacy as well as the suitability of the teaching and learning materials in the secondary schools in Gomba County. This was necessary because availability of textbooks for students have a positive correlation with students' achievements. The findings are therefore presented in subsections to ensure an exhaustive discussion of the issues.

4.5.1 Availability of Teaching and Learning Materials

Here the main question was whether the teaching and learning materials were available, and perhaps, if they are, then what are the sources of these materials. In other words, who provides these materials? And are the available materials adequate? To begin with, the students were asked whether they had adequate Mathematics textbooks. Their responses are presented in the Table 4.5.

Figure 4.5: Possession of Mathematics Textbooks

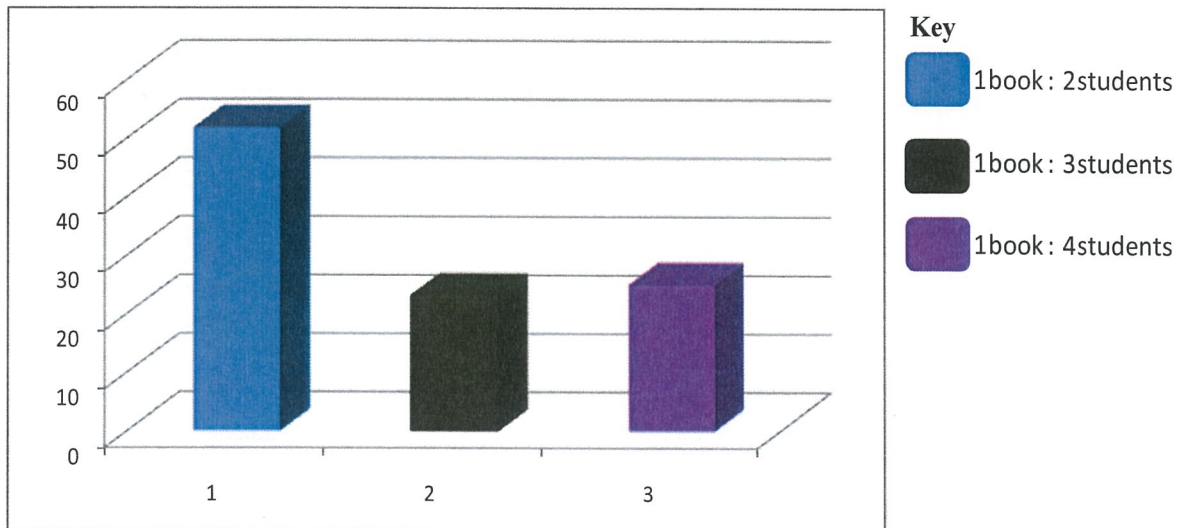


Source: Primary Data 2018

From Figure 4.5, the responses of the students sampled for the study indicated that half of the students have adequate textbooks while half of them do not. This being the case, the

students were asked to indicate the ratio in which they share these textbooks since some of them said they were not adequate. They responded as presented in the Figure 4.9.

Figure 4.6: Ratio of Mathematics Books to Students



Source: Primary Data 2018

From the Figure 4.6, one can see that whereas the recommended ratio is that of 1:2, only 233 (51.8%) of the sampled students indicated having the Mathematics textbooks shared in that ratio. Otherwise, 104(23.2%) indicated sharing them in the ratio. of 1:3 while 113(25%) indicated sharing them in the ratio of 1:4. This tells how clearly the textbooks are not adequate given that almost half of the student respondents share these books in a ratio below the recommended one. The findings indicated in Figure 4.8 on the adequacy of Mathematics text books does not concur with Schiefelbein and Farnell, (1973) who argues that availability of text books and their influence on performance, have a positive correlation between textbook and achievement since half of students do not argue that students share the recommended student – textbook ratio while half of the students affirms the ratio shared correct.

Figure 4.6 reveals that about 49% of students indicate that student textbook ratio is not adequate. These findings which contradict with Abgai, (1997) who observes that while teachers were crucial for quality education their contributions will be incomplete if there are no important inputs such as textbooks.

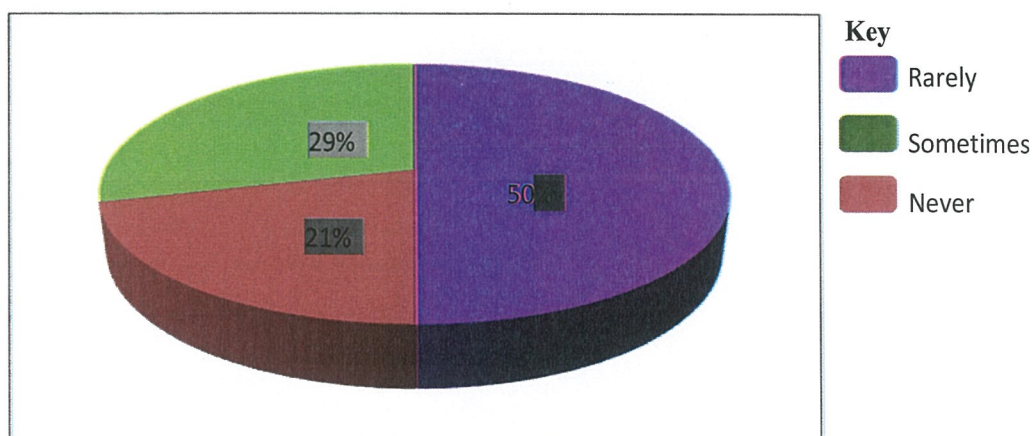
4.5.2 Coverage of syllabus

Another dimension of adequacy of the Mathematics textbooks is in terms of whether they cover the content of teaching to their satisfaction. This aspect is important since if the books do not cover the syllabus content satisfactorily, it would then mean that the teachers have to source for more books since what is available is not sufficient in terms of the syllabus coverage needs. Accordingly, the students were asked to indicate the extent to which the books they have cover the syllabus to their satisfaction.

4.5.3 Use of Teaching and Learning Materials

It is one thing to have the teaching and learning materials and another thing all together to have them put to good use. Accordingly, the student respondents were asked to indicate whether their teachers often use teaching aids in class. Their responses are as presented in Figure 4.7.

Figure 4.7: Frequency of teachers using teaching aids



Source: Primary Data 2018

The findings presented in Figure 4.7 paint a picture of a situation where the teachers do not quite make use of the teaching aids adequately. This is evidenced by the fact that 129 (28.6%) of the student respondents reported that their teachers use these teaching aids sometimes while 235 (50%) of them reported that their teachers rarely use these materials. It is worthy of noting that 96 (21.4%) indicated that their teachers have never used the teaching aids. It has always been argued that effective teaching proceeds not such abstractly, but by way of using teaching aids such as real objects, charts and so on, otherwise, it turns out to be rote learning. The situation in Gomba county.

County is therefore one where the teachers are not taking advantage of the services of teaching aids in working towards effective teaching which is an indicator of quality education. Instead, perhaps because of increased enrolments, they resort to rote teaching and learning possibly to cover the syllabus since the inspection requires them to complete the syllabus at specified times.

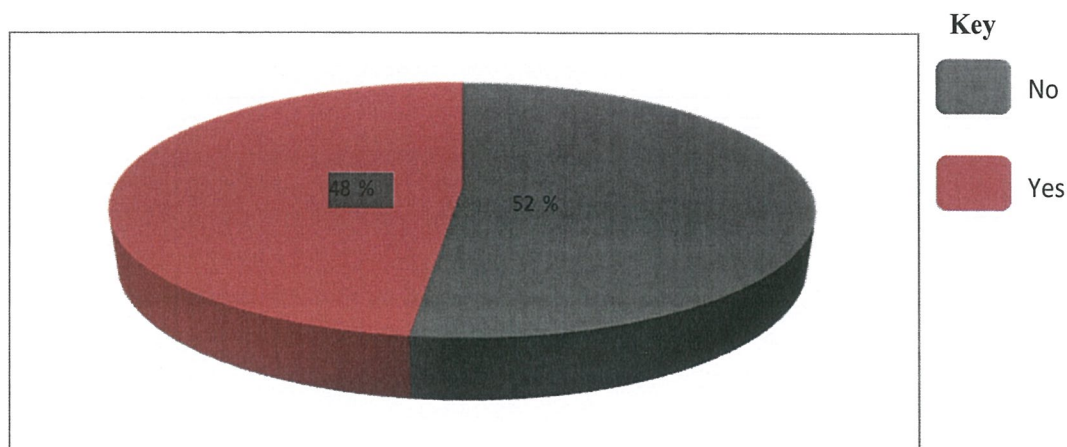
The findings indicated in Figure 4.7 shows that 50% of the teachers do not use teaching aids when teaching. The findings contradicts with that of Squanders (1974) who observes that 11% of what is seen is retained compared to 50% of what is both seen and heard, it adds life and can enrich a lesson by encouraging participation, appealing to learners varied and abilities ensuring order and continuity.

4.5.4 Functional Library

Just like having teaching and learning materials does not always mean using them, so is their usability. In other words, whereas schools may have certain teaching and learning facilities, they may be there in principle but are either not usable or are not functional. The student respondents were therefore asked to indicate whether their schools have functional libraries. To begin with, they were asked whether their schools have a library and if they do, the

students to state whether it the library is well equipped. Their responses are as indicated in Figure 4.8.

Figure 4.8: Possession of Functional Library



Source: Primary Data 2018

The findings in Figure 4.8 on this issue show that 217 (48.2%) indicated having a functional library, meaning, a library that is stocked and which serves the purposes of lending and borrowing. However, a majority 233 (52.8%) clarified that they did not have a functional library as such. In other words, most of the schools do not appear to have functional libraries. Again this is one area where there is some need for stakeholder involvement in the provision of such services. The results from Figure 4.13 shows that 51.8% of the students indicated that their schools do not have functional libraries. These findings contradicts with Wilkins (1940) ascertains that it is not by grandeur nor by the beauty of its buildings and their finishing that a library will attract its readers but by the rich collections within its walls.

4.5.5 Student-textbook Ratio in Mathematics

The research aimed at establishing the student-textbook ratio in sampled schools and then determining whether there was any correlation between the student-textbook ratio and the

performance. The data of the 31 schools was analyzed according to the category of schools. There were 8 boys and girls boarding secondary schools, and 7 mixed day secondary schools which were tabulated and analyzed. Information on student-textbook ratio was obtained from the teachers questionnaire which contained items on the total number of mathematics reference books available in school. Mathematics is one of the compulsory subjects at UCE. It thus became necessary to analyze data from the students are indicated in Table 4.4.

Table 4.4: Student Text Book Ration in Mathematics

Book Ratio	Frequency	%
One for each student	7	11.7
One for two students	18	30
One for three students	35	58.3
Total	60	100

Source: Primary Data 2018

Table 4.4 shows that majority (58.3%) o students have student-textbook ratio of one for three students in Mathematics. While for a student-textbook ratio of one for two students had 30% in Mathematics. Only 11.7% students had one course book each for Mathematics.

Table 4.5: Trend in student textbook ratio

Years	One per book	Two per book	Three per book
2013	6.9	41.6	51.5
2014	8.8	23.1	68.1
2015	8.6	22.6	68.8
2016	9.7	35.3	55.0
2017	6.5	33.7	59.8
2018	8.6	22.6	68.8

From the Table 4.5, we can infer that the majority of the students shared one book among three students in all the years. The trend was as follows: 51.5% for 2013, 68.1% for 2014, 68.8% for 2015, 55% for 2016, 59.8% for 2017 and 68.8% for 2018, we can also note that the lowest percentage of students was one textbook per student which was as follows: 6.9% for 2013, 8.8% for 2014, 8.6% for 2015, 9.7% for 2016, 6.5% for 2017 and 8.6% for 2018. The findings from Table 4.5 and 4.6 indicate that majority of the students do not have the recommended student's ratio of one for two students. This students text book ratio does not corroborate with the studies carried out by Schiefelbein and Farnell (1973) in Chile where they argue that availability of text books and their performance found a positive correlation between textbooks and academic achievement. The same views were held by Heyneman and Jamison (1974) who argue that while teachers are crucial for quality of education, their contribution will be incomplete if there are no important inputs such as textbooks.

Table 4.6: Availability and adequacy of key teaching, learning and physical resource in low performance schools

Observation / Learning Resources	Available		Adequate		Not Adequate	
	f	%	f	%	f	%
Classrooms	3	75	0	0	5	100
Desks	4	80	0	0	5	100
Chalk boards	5	100	5	100	0	0
Textbooks	4	80	0	0	5	100
Exercise books	3	75	0	0	5	100
Teaching Aids	3	75	0	0	5	100
Library	0	0	0	0	0	0

Source: Primary Data 2018

The data in Table 4.6 reveals that although in all the low performance sampled schools, the teaching and learning resources were available, they were however inadequate. Such resources include classrooms, textbooks. The inadequacy of such key teaching, learning and physical resources may explain why these schools perform dismally in Mathematics at secondary level. To exacerbate the problem of the inadequacy of physical resources in the sampled schools is the notable absence of libraries, which hare essential resources in the improvement of Mathematics performance.

4.5.6 Effects of Adequacy of Teaching and Learning Resources on Mathematics performance in secondary schools.

This study sought information from students, head teachers and teachers on effect of adequacy of teaching and learning resources on Mathematics performance at secondary school in Gomba County. From the study findings, the DEO, head teachers and teachers

concluded with the fact that adequacy of teaching and learning resources, have an effect on the Mathematics performance in high and low performance secondary schools. The study also sought to establish from head teachers, teachers and students whether learning materials were adequate in their schools. This was necessary because adequacy of learning/teaching material is critical in enhancing student's performance since they are used to reinforce previous learning, model for problem solving and explains concepts. The information gathered is presented in Table 4.7:

Table 4.7: Adequacy of Learning Materials in Mathematics Performance in secondary Schools

Responses	Head teachers		Teachers		Students	
	f	%	f	%	f	%
Adequate	12	80	46	77	378	84
Not Adequate	3	20	14	23	72	16
Total	15	100	60	100	450	100

Source: Primary Data 2018

The data analyzed in Table 4.7 reveals that learning materials are adequate with 80 % of head teachers, 77 % of teachers and 84 % of students confirming the situation in Mathematics performance in secondary schools. High performance schools records good performances in Mathematics as revealed in Table 4.8. The findings from Table 4.7, concur of the head teachers, teachers and students with Grant and Searl (1997) who observes the use and adequacy of learning resources is critical in ensuring that learners develop an appreciation and enjoyment of Mathematics by doing Mathematics through a variety of appropriate

practical activities. They further observe that the use of resources and the resulting activities enhance students understanding of Mathematics concepts. They are used to reinforce previous learning, model problem solving and explain concepts.

4.7 Strategies to improve Mathematics performance at secondary school level.

This study sought information from DEO/head teachers, teachers and students using questionnaires and interview schedule for DEO, on strategies of improving Mathematics performance at secondary school level. This was necessary because employing teacher with high academic and professional training, improved learning and performance among students. The results are indicated in Table 4.8.

Table 4.8: Strategies for Improvement of Mathematics Performance

Strategies	Principals		Teachers		Students	
	Principals					
	f	%	f	%	f	%
Employ teachers with high academic and professional training	3	20	12	20	59	13.0
Increase learning, teaching resources	3	20	19	31.0	108	24.0
Curb teachers and students absenteeism	3	20	5	8.3	56	12.5
Parents to give students enough time to study at home	3	20	5	8.3	56	12.5
Admit students with high entry marks	3	20	19	31.0	171	38.0
Total	15	100	60	100	450	100

Source: Primary Data 2018

From the information in Table 4.8, all the respondents noted that employing teachers with higher academic and professional training, increased learning and teaching resources.

Curbing both students and teachers absenteeism and admitting students with higher entry marks were important factors that can improve Mathematics performances. However, there were conflicting opinions from the head teachers, teachers and students on the above mentioned factors were more important than others in the improvement in Mathematics Performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The chapter discusses the summary, discussions, conclusion, implications of the findings and recommendations based on the findings. The purpose of the study was to determine the factors that influence Mathematics performance in Secondary Schools in Gomba County. This chapter gives a summary of the findings, conclusions and recommendations drawn from the findings in connection with the factors affecting performance of students in Mathematics in Secondary school of Gomba County.

5.1 Summary of the Findings

The study sought for some demographic characteristics of the sample population by gender of students, teachers and head teachers, level of education or qualifications of teachers and head teachers and length of time teachers have served in the position. However, of prime importance were the findings of the study as per the objectives of the study. A summary of the findings are therefore as presented below:

As regards teacher qualifications/training, all the teachers had the minimum requirements for a secondary school teacher. In addition, half of the teachers attended in- service course between 1 to 2 times in a year while 12.5% attended in-service over three times a year. Up to 37.5% of the teachers had not attended any in-service courses. There were some impressions through the interviews held with DEO that the teachers who train at the university in the parallel programmes are 'not well prepared' as the regular ones since, to the officer, 'this training has been commercialized' and is not imparting the necessary teaching skills.

With regards to teacher availability, and in view of the various views given concerning the adequacy of the teachers, the study concluded that there are not enough teachers in the

sampled schools in Gomba County. At the same time, in terms of availability and suitability of teaching and learning materials, half of the students have adequate textbooks while half of them do not. The few books there are shared in the ratio of 1:3 while 25% share them in the ratio of 1:4. The books were found adequate in terms of coverage of the syllabus while 13 (23.2%) found it to be shallow in coverage of the content. However, the well-established schools in the divisions are the ones that have adequate teaching and learning materials while those that are not well equipped with these teaching and learning materials are the upcoming ones.

The teachers do not quite make use of the teaching aids adequately since only 28.6% of the student respondents reported that their teachers use these materials sometimes while 50% reported that their teachers rarely used them with 21.4% indicating that their teachers have never used the teaching aids.

In terms of suitability of the teaching and learning materials, the study established that 73.2% confirmed having a library in their schools while 26.8% indicated that they did not have a laboratory. However, the study further wanted to find out whether these libraries were well equipped. At the same time 75% of the student respondents' schools had that are well equipped libraries while the rest attend schools which either do not have libraries or they have them but are not well equipped. At the same time, 48.2% indicated having a functional library while 51.8% indicated that they did not have a functional library as such.

It was established that students' lack of mastery of prerequisite skills cause difficulty in the new topic. It should be noted that the syllabus is developed in such a way that knowledge and skills acquired at one level becomes a prerequisite for the next level. The topics are taught in a spiral manner, whereby facts and skills are repeated at subsequent intervals, but each time at a broader and deeper perspective for enhanced understanding (NCTDC, 2002).

The concepts are thus developed from the stage of exploration to complete mastery or from the intuitive level to the analytical level. That the teachers pace of covering the topics did not allow them bring to the level of students, the abstract concepts in some of the topics. Algebra is an example of such topics, in which Mathematics may be considered as a language. It was also found out that, teachers rarely incorporated learning activities in Mathematics lessons.

Furthermore, it was found that only half of the Mathematics teachers always exercised the characteristics of an effective teacher as it relates to Mathematics curriculum. In addition, it was found that half of the teachers prepare and use the critical professional records in the teaching of Mathematics. It was established that lesson plans and lesson notes were the professional records that were rarely prepared and used, because teachers felt they didn't have time to prepare, due to the large workload they had. This explains why learning teaching activities were rarely used in Mathematics instruction.

The other objective was to find out the influence of use of learning resources on incorporation of learning activities. It was found that the Mathematics course book used in secondary Mathematics syllabus was the second Mathematics published by Uganda Literature Bureau (ULB). Teachers preferred this title because they thought concepts in it were well explained, that it had adequate and appropriate examples and exercises.

Concerning the Mathematics course book to student ratio was good. However, teachers seemed not keen to ensure that the activities in the course book were carried out. Besides the text book, common teaching/learning resources were rarely used in Mathematics lessons. As such, teaching/learning activities were rarely integrated in the Mathematics lesson.

The other scenario was to establish the teachers and students incorporating learning activities in Mathematics lessons. From the results of the findings, it can be inferred that teachers

attitude towards the teaching of the Mathematics was good inspite of the various shortcomings that are associated with the teaching of Mathematics in the secondary schools. The study found that a high percentage of teachers never wanted the teaching career. A high percentage of them said they were overloaded such that they could not prepare professional documents like the lesson plan. Further it was found that half of the students perceived Mathematics teachers as having a positive attitude towards learning activities in Mathematics.

5.2 Conclusions

This study investigated the experiences of incorporating learning activities during Mathematics instruction in secondary schools in Uganda. This was in relation to teachers' and students' experiences of incorporating learning activities in Mathematics. The study concludes that majority of mathematics teachers in Ugandan secondary school were ineffective and inefficient in their teaching methods and strategies. they hardly prepared and used critical professional records like the lesson notes and lesson plans. Teachers mainly taught by guiding students through examples and giving those exercises in a particular textbook adopted as the course book. Besides the textbook, common instructional resources like charts, real objects, models and nets of solids were rarely used during Mathematics lessons. In addition, some teachers had a poor attitude towards incorporating learning activities during Mathematics lessons, while many students displayed a negative attitude towards Mathematics lessons, mainly as a result of influence from their peers and teacher related factors.

5.3 Recommendations

Based on the above findings and conclusions, the study posited the following recommendations;

- i) The government should reduce the maximum number of lessons per week for teachers. This would avail them with adequate time to prepare and deliver the content effectively and efficiently.
- ii) The government should encourage mounting of in-service training and education on pedagogy and attitude change in Mathematics at sub County levels for practicing teachers.
- iii) The school management should examine teacher-student relationship which is a key factor in influencing students' performance.
- iv) The Government and other educational stakeholders should provide secondary schools in the County with sufficient capital, learning materials and human resources which should be distributed to schools in good time, based on each school population of students to avoid learning and teaching disruptions.

5.4 Recommendations for further research

Owing to the findings and conclusions reached, the study suggests the following areas for further research:

- i) A research study to be conducted to establish why many teachers in secondary schools rarely incorporate, varied teaching and learning activities in their teaching methods, which is key in motivating learners interests.

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APPENDIX A: HEAD TEACHER'S QUESTIONNAIRE ON FACTORS THAT AFFECT MATHEMATICS PERFORMANCE IN SECONDARY SCHOOLS IN GOMBA COUNTY

This questionnaire is designed to seek information on factors affecting mathematics performance in Secondary Schools in Gomba County. You are kindly requested to answer all the questions honestly. The information you gave was treated with confidentiality and used only for compiling this study report.

Please put a tick (✓) to provide information as may be applicable.

1. Gender: Male Female
2. Highest academic qualification: UCE Diploma Bachelor's Degree
Master's Degree
3. a) Does your school have enough teachers based on curriculum establishment?

Yes ☐ No ☐

- b) If No does it affect UCE performance?

Yes No

4a) List the methods frequently used in asserting the student's performance in your school

CATs	Class Assignment	Terminal
------	------------------	----------

b) How often is this done?

Termly Monthly Fortnightly Weekly Daily

5a) what is the commitment level of your teachers?

High ☐ Moderate ☐ Low ☐

b) If low, what are the causes?

Low entry marks for the students

Too many lessons

Inadequate teaching and learning resources

6.a) Which school learning/teaching facilities do you have in your school?

b) Are there adequate textbooks and other Instructional materials in your school?

Adequate ☐ Inadequate ☐

c) If adequate does it affect Mathematics Performance?

Yes ☐ No ☐

7. In your view what strategies could be adopted to improve mathematics performance in your school?

Increase students in school for longer period time

☐

Retain students in school for longer period time

☐

Parents and guardians to allocate students time for study

☐

8. Increased enrolment has led to poor education quality in your school.

Yes ☐ No ☐

9. How many times do your teachers attend in-service courses a year?

Between 1 – 2 times ☐ Over 3 times ☐

Non

10. Indicate the type of your school?

Boys boarding ☐ Girls boarding ☐ Mixed Secondary school ☐

11. How often do your teachers prepare professional documents in your school?

Always ☐ Sometimes ☐ Rarely ☐

From your answer given in question (a) above, what effects does it have on their teaching?

12. How do your teachers interact with your students?

Excellent ☐ Good ☐ No interaction ☐ Fairly good ☐

If yes state their effects on students' performance:

13. List the effects of teacher preparedness in mathematics performance.

14. Does teachers' character and attitudes affect students' performance?

Yes ☐ No ☐

If yes, briefly explain the effects on students' performance.

15. What is the level of student's enrolment in school?

50 – 100 100 – 500 500 – 1000 Above 1000

16. What effects do school enrolments have on student's performance?

17. What is the ratio of student-teacher in your school?

15 – 1 20 – 1 26 – 1

18. Does this ratio affect students' performance?

Yes ☐ No ☐

If yes, state how it affects the performance of in your school.

19. Do you have teaching/learning strategies aimed at improving performance of mathematics in school?

Yes ☐

No ☐

If yes, what effects does it have on academic performance of mathematics on students?

APPENDIX B

TEACHER'S QUESTIONNAIRE ON FACTORS AFFECTING MATHEMATICS PERFORMANCE IN THE SECONDARY SCHOOLS IN GOMBA COUNTY.

This questionnaire is designed to seek information on factors affecting mathematics performance in Secondary Schools in Gomba County. You are kindly requested to answer all the questions honestly. The information you give will be treated with confidentiality and used only for compiling as may be applicable.

1. Gender: Male ☐ Female ☐

2. What is your highest academic qualification?

UCE ☐

Diploma ☐

Bachelor's Degree ☐

Master's Degree ☐

3. What is your professional qualification?

Teaching ☐

Other, specify

4. a) Are there any incentives given to teachers during tuition holiday to motivate them to work harder? Yes ☐ No ☐

b) If yes, list the type of incentives given if any.

Trips for teachers ☐

Given Tokens ☐

Promotions ☐

c) Does this assist in the improvement of UCE performance?

Yes

No

5. Do you have the following facilities in your school?

a) Laboratory and equipment? Yes

No

b) Library

Yes

No

6. Indicate the type of your school?

Boys boarding

Girls boarding

Mixed secondary school

7. How do your teachers interact with your students?

Excellent

Good

Fairly good

No interaction

If yes state their effects on students' performance.

8. List the effects of teachers' preparedness in mathematics performance.

9. Does teachers' character and attitudes affect students' performance in mathematics?

Yes

No

Yes No

If yes, briefly explain the effects on students' performance.

10. What is the level of student enrolment in your school?

50 – 100 100 – 500 500 – 1000 Above 1000

11. What effects do school enrolments have on student's performance?

12. What is the ratio of student-teacher in your school?

15 : 1 20 : 1 26 : 1

13. Does this ratio affect student's performance?

Yes No

If yes, state how it affects the performance of mathematics in your school.

14. Do you have teaching/learning strategies aimed at improving mathematics performance in school?

Yes No

If yes, what effects does it have on academic performance of students?

15. List strategies used improve the performance of mathematics in your school?

Thank you for your co-operation.

APPENDIX C

STUDENT'S QUESTIONNAIRE

This questionnaire is designed to seek information on factors affecting performance of mathematics in Secondary Schools in Gomba County. You are kindly requested to answer all the questions honestly. The information you give will be treated with confidentiality and used for only compiling this study report. This is not a test and hence there is no wrong or right answer. What is required is your honesty response(s).

1. Gender: Male Female

2. a) Are learning resources in your school adequate?

Yes

No

b) If no, does it affect your performance in mathematics?

Yes

☐

No

☐

3 What learning facilities are available at home that helps you to study?

Electricity

Table and chairs

Study room

3. Give reasons that make you absent from school

Sickness

Lack of school fees

To assist parents at home

4 In your view, what strategies could be adopted to improve mathematic performance in your schools?

Increase learning and teaching facilities

Retain students in school for longer period time

Parents and guardians to allocate students time for study

4. Indicate the type of your school?

Boys boarding

Girls boarding

Mixed secondary school

5. How would you rate your teachers' interactions with you in class?

Excellent

Good

Fairly good

No interaction

If good, state their effects on students' performance in mathematics.

.....

.....

6. List the effects of teacher's preparedness in mathematics performance.

.....

.....

7. What is the level of student enrolment in your school?

50 – 100

100 – 500

500 – 1000

Above 1000

8. What effects do school enrolments have on student's performance?

.....

.....

9. What is the ratio of student-teacher in your school?

15 - 1

20 - 1

26 - 1

10. Does this ratio affect student's performance?

Yes

No

If yes, state how it affects the performance of in your school.

.....
.....
11. Do you have teaching/learning strategies aimed at improving mathematics performance in your school?

Yes

No

List strategies used to improve the performance of mathematics in your school?

.....
.....

12. Do you learn in congested classrooms in your school?

Yes

No

If yes, what effects does it have on academic on your performance?

13. What are the effects of adequacy of teaching and learning resources in performance in mathematics in your school?

.....
.....

16. How does teacher's moral conduct affect your performance in mathematics?

.....
.....

Thank you for your co-operation.

APPENDIX D: QUESTIONNAIRE FOR DISTRICT EDUCATION OFFICER (DEO)

This questionnaire is designed to seek information on factors affecting performance of mathematics in Secondary Schools in Gomba County. You are kindly requested to answer all the questions honestly. The information you give will be treated with confidentiality and used for the purpose of compiling this report. This is not a test and hence there is no wrong or right answer. What is required is your honesty response(s).

1. Gender: Male Female

2. In your view what strategies could be adopted to improve UCE performance in public day school?

Increase learning and teaching facilities

Retain students in school for longer period time

Parents and guardians allocate students time for study

3. How many times do you inspect secondary school in Gomba County?

Once

Twice

☐

Thrice

4. Do all teachers prepare schemes of work and records of work in the schools you inspect?

Yes

No

5. What is your opinion on secondary teacher training in Uganda?

.....

.....

6. Curriculum based establishment has led to some teachers being overworked. What is your opinion?

.....

.....

7. Has increased enrolment in secondary schools affected quality of education? Give your opinion.

8. Do you have programmed in service programs in your County?

Yes No

9. What measures are being put in place to improve quality of mathematics teaching?

10. The Ministry introduced Internal Assessment at school level has this been implemented in your school? Are they aware?

Yes No

11. How often do you offer management courses for head teachers?

Once Twice Thrice Never

Thank you for your co-operation

APPENDIX E: OBSERVATION GUIDE

a) Adequacy of Key Teaching, Learning and Physical Resources for enhancement of mathematics

Performance in Schools

Resources	Availability	Adequate	Inadequate
Classrooms			
Desks			
Chalk Boards			
Exercise Books			
Teaching Aids			
Library			

b) Adequacy of Key Training, Learning and Physical Resources in Low Performance Schools

Resources	Availability	Adequate	Inadequate
Classrooms			
Desks			
Chalk Boards			
Exercise Books			
Teaching Aids			
Library			

APPENDIX F: ESTIMATED BUDGET

Activity	Cost/amount(UGX)
Stationary, typing and printing	150,000
Internet bundles and air time	50,000
Transport	70,000
Others	30,000
Total amount	300,000

APPENDIX G: WORK PLAN

Activity	May	June	July	August	September
Proposal development					
Doing library and internet research					
Analysis					
Compiling data					
Submission of the report					
Review and editing the report					
Submission of the final report.					