FACTORS LIMITING THE USE OF ICT IN TEACHING MATHEMATICS AT SECONDARY LEVEL IN NAIROBI COUNTY, KENYA

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ABSTRACT

Mathematics is one of the compulsory subjects taught and Examine at form four levels in Kenya. Statistical data from the ministry of education indicate that over the years, the subject has been ranked the lowest in terms of the mean as compared to other subjects. The deteriorating performance was attributed to poor teaching strategies, lack of teaching resources, and negative attitude towards the subject by both teachers and learners. Educators argue that when appropriate ICT is used in Mathematics instruction, the technology simplifies abstract mathematical concepts for learners to understand and comprehend. This study aimed to find out the limiting factors among Mathematics teachers on the use of ICT for teaching at the secondary level in Nairobi County, Kenya. A sample population of fifty-two (52) participants comprising of forty-two (42) Mathematics teachers and ten (10) Heads of Mathematics Department in the ten schools within Nairobi County was involved in the study. The study adopted a descriptive cross-sectional survey design. The significance of the study is also to inform the policymakers on appropriate ways to use ICT in teaching mathematics. The primary data from the field was collected using mathematics teachers` questionnaires and structured interview schedule for the head of the mathematics department. The primary quantitative data was analyzed using SPSS program version 20 and presented informs of frequency tables, figures, and percentages. In contrast, qualitative data were transcribed, coded, and reported as emerging themes in the data analysis and discussion section. The findings of the study showed that Lack of ICT resources in schools was the major impediment at 42.86% on the use of ICT by mathematics teachers followed by lack of administrative support at 21.43%, lack of ICT training, and ICT policies at 14.29% and 7.14% respectively. It was evident that a lack of ICT skills is at 61.91% among mathematics teachers, indicating that most of them do not have the necessary computer literacy skills to prepare ICT integrated lesson plans for teaching. The study found out that the negative attitude towards the use of ICT among male teachers was 79.31% as compared to their female counterparts at 66.54% an indicator that more sensitization needs to be done on ICT integration in schools to positively change mathematics teachers' perception to embrace the use of ICT. From the study, it was observed that there is a need to equip schools with ICT infrastructure and train teachers on how to integrate ICT in the teaching and learning process of Mathematics.

Keywords: ***Information Communication Technology (ICT), Mathematics and Mathematics Teachers***.

INTRODUCTION

The terms ICT refers to the process by which people can store, manipulate, retrieve, and disseminate information electronically in a digital form through the use of the internet. ICT use in the teaching and learning process is slowly gaining momentum in Kenya as compared to its counterpart developed countries like Korea that has developed on ICT use of 10% as compared to Kenya that is below 2% where teachers prepare ICT integrated lessons (OECD, 2013). In Kenya, ICT was only used in business and governance industries before being introduced to the education sector.

The Government of Kenya realized that for the economy to grow effectively, learners must be computer literate by having 21st-century skills to later fit in the labor market. For learners to have 21st-century skills of critical

thinking and evaluation, the teachers were first trained on ICT integration in all their respective teaching subjects and how best they could customize technology to fit appropriately in their disciplines.

The Ministry of Education in Kenya emphasizes the use of Information Communication Technology (ICT) in teaching and learning of Mathematics to improve its performance among students in the country. Kinuthia (2009) mentioned that Information Communication Technology (ICT) is developing and changing at a spontaneous rate, especially in the education sector. Studies conducted by Agyei and Voogt (2012) indicate that the use of ICT in teaching Mathematics has more benefits of adding value to the learners, especially in enhancing of 21st Century skills of collaboration and critical thinking. Mathematics teachers have been encouraged to embrace the use of ICT during lesson delivery in Kenya (MOEST, 2011) to make the lesson stimulating and engaging. Mathematics is a science subject that involves arithmetic computations, graphing, drawing of objects, and statistical data analysis. These concepts of mathematics can be taught effectively if teachers are well-grounded with ICT skills such as mathematical software and presentation tools that allow students to manipulate and learn how to solve complex mathematical problems. To effectively improve on the performance of the subject among learners, immediate feedback after the evaluation is necessary; this can be done through the use of ICT. Studies show that if learners can interact with computers to solve problems in mathematics, then they will be able to understand and comprehend mathematical problems being taught easily (MOEST, 2011).

It is important to note that the use of ICT in the teaching process enhances the development of cognitive and psychomotor skills among learners (Boaler, 2013). The modern Mathematics teacher should be able to develop an ICT integrated lesson using manipulative software like Geogebra, Mathematica, and Maple. The use of electronic content in lesson delivery stimulates learners' interest to concentrate on the material being taught because it involves audio-visual presentation (Kinuthia, 2009).

The use of ICT enhances attention and concentration among learners on the specific objective being taught by the teacher. By recognizing the importance of ICT in education, the Government of Kenya, through the Ministry of Education, introduced in some sampled secondary schools across the country the use of ICT facilities in the process of teaching and learning (MOEST, 2011). "It is expected that after piloting the project, it will be rolled out to other schools throughout the country " (MOEST, 2011. Pg.165). Teachers in the sampled schools went through ICT training, and their respective schools were equipped with ICT infrastructure to necessitate the implementation process at the school level spontaneously.

A survey done by the ministry of education (MOEST, 2017) indicates that only 9.8% of Mathematics teachers across the sampled schools use ICT in teaching mathematics, making it the not significant method of teaching. Teachers cited factors such as time constrain, syllabus coverage, and lack of technical know-how as the major obstacles to the use of ICT. The ministry of education further noted in Kenya that secondary schools had been equipped with the necessary ICT infrastructure. Still, teachers felt that it would not add value to their teaching methodologies, while some just feared the new technology.

The purpose of this study was to examine the limiting factors on the use of ICT by Mathematics teachers in Nairobi County, Kenya. They sought to answer research questions as to how Mathematics teachers' methodology limits the use of ICT and assess how their attitude limits the use of ICT in teaching mathematics. The study would explore the available ICT teaching methods that Mathematics teachers use in teaching and also assess mathematics teachers' attitude basing on personal characteristics like educational level, age, gender and educational experience that limits the use ICT in teaching mathematics.

The purpose of the study

The purpose of this study was to find out the limiting factors among mathematics teachers in using ICT when teaching at the secondary level in Nairobi County, Kenya.

Research Questions

1. How does teachers' methodology limit the use of ICT in teaching mathematics?

2. How does teachers' attitude restrict the use of ICT in teaching mathematics?

Significance of the Study

This study will be valuable to education stakeholders in policymaking on how best to eliminate obstacles that hinder the use of ICT in teaching and learning mathematics. The rationale of the study is to demonstrate the importance of using ICT by mathematics teachers in making their pedagogy effective by achieving their stated learning objectives.

LITERATURE REVIEW

Introduction

This chapter critically examined the available relevant information on the use of ICT in teaching and learning of mathematics. It evaluated the teaching methodology used by mathematics teachers as well as their perception towards the use of ICT during lesson presentation. This information helped to establish the foundation basis as to why mathematics teachers have not embraced the use of ICT in their pedagogy despite enormous support from the ministry of education.

Methodology of Teaching Mathematics

In Kenya, the conventional method of teaching Mathematics is the lecture method. Teaching mathematics involves the teacher as the primary source of information, while learners are passive during the lesson presentation. All Mathematics topics in the secondary curriculum are delivered through face to face mode of communication where the teacher stands in front of the students as the primary facilitator. Teaching mathematics can be very dull, exhaustive, and tiresome for both learners and teachers, especially if the lesson lucks motivation and stimulus variation. Scholars in education have done intensive research on how to use Information Communication Technology (ICT) to make the subject exciting and stimulating for both learners and teachers. They have concluded that the use of ICT in mathematics has more benefits to content comprehension for learners (Osodo, Indoshi, and Ongati, 2010).

Traditionally teaching Aids used by mathematics teachers to present a lesson included rulers, protractors, a pair of compasses, a string, and manila papers. The use of ICT in teaching mathematics brings in a new dimension of learning that involves the use of internet and PowerPoint presentation.

John (2004) notes that when teachers use ICT, it breaks the monotony of one teacher presenting information; hence all the learners are brought on board to participate in the lesson presentation. The term ICT is closely related to the methodology used in teaching mathematics, and it refers to how best mathematics teachers can make use of ICT tools to enhance attention and retention among learners. In teaching Mathematics, ICT plays a significant role in linking the teacher and the students (Gilakjani, 2013).

Learners can manipulate mathematical software's on their own, hence do assignments given by the teacher in real-time. Mathematics topics like Geometry, Linear programming, scale drawing, and bearing can be structured by the mathematics teacher only if appropriate ICT is used during teaching. Some of these

mathematics topics are taught haphazardly by mathematics teachers either because they don't know how to present them to the learners or lack teaching aids hence minimal performance in the subject (MOEST, 2017).

The Attitude of Mathematics Teachers

Mathematics teachers have their own reserved perception about the subject and the nature of students being taught. Baubeng-Andoh (2012) affirms that if teachers have a positive attitude towards teaching mathematics, then integration of technology becomes easy for them to implement. Mathematics is closely related to computer knowledge, but most mathematics teachers in Kenya lack the technical manipulative skills of computers. The proper use of ICT in mathematics depends on the goodwill of mathematics teachers and their innovativeness. Boaler (2013) notes that teachers' attitude is affected by personal characteristics like educational level, age, gender, and experience in teaching mathematics.

According to Jones (2001), teachers' preparedness in integrating ICT in teaching mathematics is vital to have an ICT integrated lesson. Teo (2008) conducted a survey on 139 pre-service primary teachers of which it was observed that teachers were positive on the use of ICT in teaching Mathematics but cited other factors like lack of time, technical know-how, and inadequate ICT facilities as the limiting factors. Knights (2009) affirms that the teaching experience of Mathematics teachers is a vital factor affecting their attitude on ICT use in the classroom; hence teachers need to embrace change in their teaching methodology.

According to a study done by the ministry of education (MOEST, 2011), the pilot program of ICT integration kicked off well. Still, along the way, teachers retreated to their usual way of teaching. Mathematics teachers in Kenya have not embraced the use of ICT because they consider it time-wasting and believe that it does not significantly contribute much to students' understanding of mathematical concepts. Studies done by Galanouli, Murphy, and Gardner (2004) indicate that young fresh graduates from universities embrace the use of ICT in teaching mathematics as compared to their counterparts who argue that experience is the best teacher than using technology.

RESEARCH METHODOLOGY

Introduction

The chapter outlined a systematic structure of how the study was conducted. The section included research design, Variables, Study Area, sampling techniques and sample size, Method of data collection, Validity and reliability, research instruments, and methods of data analysis.

Research Design

Research design is "an inquiry that provides a specific direction for the procedures to be followed in scientific research" (Creswell, 2009. pg. 12). It is a systematic and structured way in which inquiry components are logically interrelated to effectively address the research problem through collecting, measuring, and analyzing data. This study used a descriptive cross-sectional survey design to examine factors limiting the use of ICT in teaching mathematics critically. The rationale behind the descriptive survey is that; it analyses each entity separately to establish its effect and cause. Survey design permits the researcher to summarize characteristics of objects within the data collected from the study with the view of getting opinions of the participant on a measurable scale (Creswell, 2009). Survey research provides a quantitative description of trends on attitude or views of the sample under investigation.

Variables

Creswell (2008) described variables as quantities or qualities that change depending on the cause and effect. For the study, the dependent variable was the use of ICT in teaching mathematics, and independent variables are the

limiting factors on the use of ICT by Mathematics teachers while teaching. The intervening variables were class size, administration support, and time allocation that were controlled during the study not to interfere with the final findings.

The Area of study

The study was conducted in Nairobi County, Kenya. The target area was an urban setting with most secondary schools equipped with ICT learning materials and infrastructure. Public secondary schools in the county benefited from the Economic Stimulus Program (ESP) of the provision of ICT related resources. Due to urbanization and the availability of ICT resources in schools, it is assumed that most Mathematics teachers are computer literate.

The Sampling Technique and Sample size

The researcher used a multi-stage sampling technique in which simple random sampling was used to select Forty-two (42) Mathematics teachers. Purposive sampling would be used to select ten (10) Heads of the Mathematics department by their chosen schools. Simple random sampling will ensure that each entity has an equal chance of being selected to participate in the study hence limiting researchers' bias selection that might compromise the validity of the results (Creswell, 2008).

Purposive sampling is useful in getting the attitude and opinions of the participants; for instance, in this study on factors limiting the use of ICT in teaching mathematics, it will be useful to establish pertinent issues among mathematics teachers.

Research Instruments

The study collected data using questionnaires and a structured interview schedule. Questionnaires are a set of well-defined tests that are used to examine the teaching methodology and attitude of Mathematics teachers on the use of ICT in the classroom. Structured Questionnaires were measured on the ratio scale to elude the truth of the study. Structured questionnaires are often used in surveys because they prompt a high response rate from participants with low cost on the site of the researcher (Creswell, 2008). Interview schedules are designed for Mathematics head of department to investigate for more information in the natural setting on the use of ICT in teaching mathematics.

Reliability and Validity of Research Instruments

The reliability of research instruments refers to internal consistency in which a particular test measures what it supposed to measure between indexes of zero to one (Creswell, 2009). The research instruments for the study were piloted to check their reliability. The reliability of the structured questionnaire was found to be 0.87 by the use of Cronbach alpha. Creswell (2009) states that "validity refers to the extent to which scores from a given measure represent the variables they intended to measure" (Pg.182). The degree of validity was ascertained by making sure that the constructs in research instruments have satisfactory reliability.

Procedures of Data collection

The primary data from the field was measured on a Likert scale for analysis. A multimode approach was used by the researcher to collect all the necessary pieces of information related to the topic of study. For minimizing non-responses in the survey multimode, it was significant to reach all participants who could not respond to one research instrument only hence improve internal validity (Fowler, 2013).

Methods of Data Analysis and Presentation.

Data analysis involved the transformation of the primary data to secondary data that has numeric or statistical interpretation to elude the significance of the study. The data cleaning and editing were done through inspection

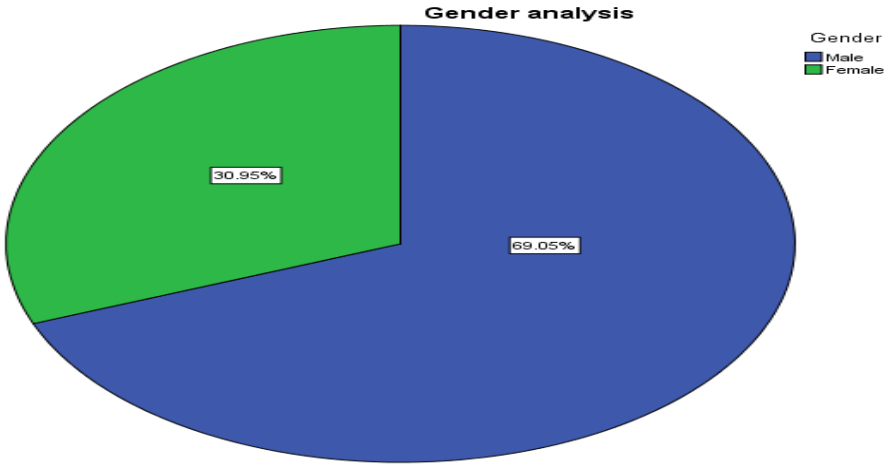
of the accuracy and consistency of the recorded information (Creswell, 2009). The cleaned data were analyzed by measures of central tendency using Statistical package for social sciences (SPSS) software. The analyzed data was presented in the form of frequency tables, means, and percentages. The narrative structure of representation of data in which information is constructed from the variables under investigation (Simpson, 2015) such that for this study, it involved examining factors limiting the use of ICT in teaching mathematics.

DATA ANALYSIS AND DISCUSSION

Bio-Data of the participants.

For the study, 69.05% and 30.95% of the participants were male and female, respectively. From the sampling frame for each school, more male students participated in the study as compared to their Female counterparts. Since ten schools were purposively involved in the sampling, ten Heads of mathematics department also participated in the study by responding to the structured interview schedule.

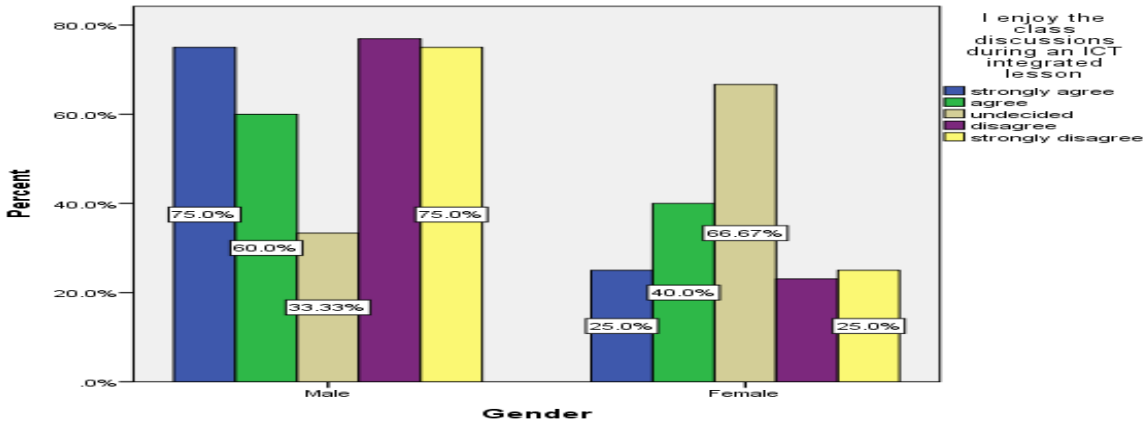
Figure 1.1: *Gender Analysis of Mathematics Teachers*



Attitude on the use of ICT in Teaching Mathematics

On the question as to whether mathematics teachers enjoy class discussion using ICT in their classes, it was found out that the percentage of those that strongly agree and strongly disagree is the same at 75% among the male participants. Among the female participants, 66.67% are undecided as to whether they enjoy teaching using ICT in their lessons, while 25.0% of them strongly disagree.

Figure 1.2: *Gender Analysis on Perception of ICT integrated mathematics lesson in percentage*



Achievement of mathematics lesson objectives using ICT resources.

Table 1.1 shows how mathematics teachers feel when using ICT in achieving mathematics lesson objectives. It is only 2 out of 29 teachers among the male participants that feel capable of attaining lesson objectives when they use ICT as compared to 4 out of 13 female participants with the same opinion. It was observed that 26 participants of the entire sample disagree and strongly disagree with being capable of using ICT to achieve lesson objectives. The results show that most mathematics teachers are skeptical about using ICT resources in their lessons since they are not sure if they would meet their lesson objectives. Many mathematics teachers within Nairobi county prefer to use the traditional face to face method of instruction for them to be sure that they have achieved the intended lesson objectives due to fear of unknown. It is only 6 out of 42 mathematics teachers who feel capable of attaining lesson objectives when they use ICT resources in their classes. The failure to achieve lesson objectives is an indicator that most teachers are not confident enough to use ICT resources because they don't know the outcome of the lesson objectives.

Table 1.1: *The Gender analysis of the perception of achieving lesson objectives using ICT resources.*

I feel capable of achieving lesson objectives when I use ICT resources.							**Total**
		strongly agree	agree	undecided	disagree	strongly disagree	
Gender	Male	2	6	1	14	6	29
	Female	4	1	2	4	2	13
Total		6	7	3	18	8	42

Arrangement of ICT tools for mathematics lesson presentation.

Table 1.2 shows to what extend can mathematics teachers are in a position to arrange ICT tools for a lesson presentation. For an effective and efficient lesson presentation, the mathematics teacher should be in a place to correctly assemble all the required ICT tools like computers, projectors, connecting cables, and internet access. According to table 24, out of 42 participants agree that they can correctly assemble ICT tools for the presentation of a mathematics lesson indicating that most of them have been exposed to ICT tools of the 21st century.

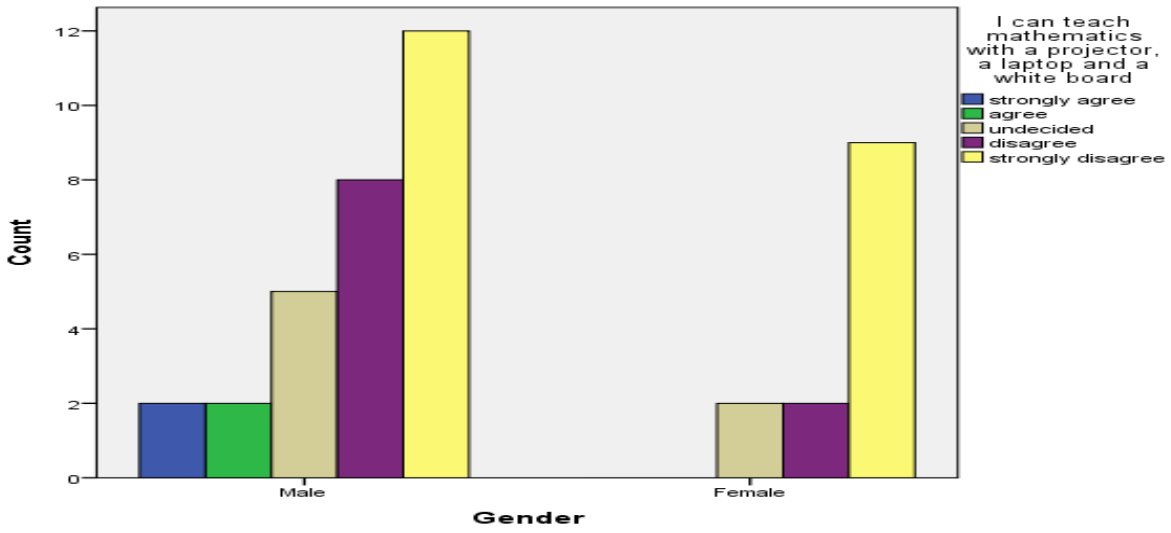
Table 1.2: *Gender analysis on the perception of arranging ICT tools for a lesson presentation*

I can arrange ICT tools correctly for mathematics lesson presentation.							**Total**
		strongly agree	agree	undecided	disagree	strongly disagree	
Gender	Male	7	8	6	5	3	29
	Female	5	4	0	4	0	13
Total		12	12	6	9	3	42

.I can teach mathematics using a projector, a laptop, and a whiteboard.

On the concept as to whether mathematics teachers can teach using ICT devices, it was found out that only four out the Male participants can comfortably teach using a laptop, a projector, and a whiteboard as compared to their female counterparts.

Figure 1.2: *Gender Analysis of the use of ICT resources in teaching mathematics.*



Preparation of ICT integrated lesson plans

From table 1.3, it is evident that six out of nine mathematics teachers who are male strongly agree to be confident to prepare integrated ICT lessons comfortably as compared to their counterparts who are at three out of nine participants.

It was noted that a large number of 17 out 42 participants disagree that they can comfortably prepare ICT integrated lesson plans, which is an indicator to the ministry of Education in Kenya that most teachers don't have necessary computer literacy skills. More male participants than female are undecided as to whether they typically prepare ICT integrated lesson plans. It was also found out that 42% ofHeadd of mathematics department supported mathematics teachers make ICT integrated lesson plans comfortably.

Table 1.3: *Gender Analysis of the preparation of an ICT integrated lesson.*

I usually prepare ICT integrated lesson plans comfortably.							**Total**
		strongly agree	agree	undecided	disagree	strongly disagree	
Gender	Male	6	3	8	11	1	29
	Female	3	0	3	6	1	13
Total		9	3	11	17	2	42

Evaluation of students' performance in mathematics using ICT tools.

Classroom instruction involves evaluation as the last process to assess what the learners have comprehended during the learning process. From the table1.5, 24 out of 42 participants disagree with the view that they can evaluate student's performance comfortably using ICT tools like spreadsheets. 3 out of 42 participants strongly agree with the view on the use of ICT tools to assess students' performance in mathematics.

Table 1.4: *Gender analysis for the evaluation of students' performance in Mathematics*.

I can evaluate students' performance in mathematics comfortably using ICT tools.							**Total**
		strongly agree	agree	undecided	disagree	strongly disagree	
Gender	Male	1	6	2	18	2	29
	Female	2	1	2	6	2	13
Total		3	7	4	24	4	42

Professional Qualification for the use of computer in teaching mathematics

From table 1.5, it has been noted that the higher the academic qualification, the higher the chances of mathematics teachers using a computer to teach the subject. 4 out of 6 teachers who have Degree qualifications strongly support the idea of teaching mathematics using a computer. It was clear that 27 out of 42 mathematics teachers do not teach using a computer.

Table 1.5: *Teachers' qualifications for the use of the computer.*

I teach mathematics using a computer.							**Total**
		strongly agree	agree	undecided	disagree	strongly disagree	
Highest level of professional qualification	Certificate	0	0	0	3	0	3
	Diploma	1	2	2	5	2	12
	Degree	4	1	1	11	4	21
	Masters	1	1	2	0	2	6
Total		6	4	5	19	8	42

Challenges facing mathematics teachers when using ICT resources

From table 1.6, it is clear that the challenges facing mathematics teachers were lack of ICT resources search that out of 42 participants, 18 teachers supported the concept of lack of ICT resources as an impediment to the use of ICT in teaching mathematics. The other challenges facing mathematics teachers like lack of administrative support, Negative attitude on the use of ICT in teaching mathematics, lack of ICT training skills, and lack of ICT policies all limit the work of the teacher in ICT integration are as shown in the table below**.**

Table 1.6: *Challenges facing mathematics teachers in using ICT resources.*

		Challenges facing mathematics teachers in using ICT resources					**Total**
		lack of ICT resources	negative attitude	lack of administrative support	lack of ICT policies	lack of training	
Gender	Male	11	6	7	1	4	29
	Female	7	0	2	2	2	13
Total		18	6	9	3	6	42

Time allocation for Mathematics lesson

From table 1.7, 3 out of 42 mathematics teachers stated that the time allocated on the timetable is adequate for teaching and learning of an ICT integrated lesson. In comparison, 39 teachers do not support the view the time is sufficient for a lesson presentation using ICT resources. Mathematics lessons in secondary schools last for 40 minutes or one hour twenty minutes for double lessons; hence if well-utilized, teachers can have adequate time for classroom assignment and evaluation. More time could be spent on lesson preparation but not lesson presentation because ICT integrated lessons incorporate 21st-century skills making it easier for learners to comprehend and understand the information critically.

Table 1.7: *Time allocation versus the use of ICT resources*

ICT resources make learning more attractive to the learners					Total
		strongly agree	agree	undecided	
Is the time allocated on timetable adequate for teaching and learning an ICT integrated lesson?	No	18	15	6	39
	yes	0	3	0	3
Total		18	18	6	42

Computers for Teaching Mathematics

From the table1.8, it is clear 40.5% of mathematics teachers disagree with the concept that the computers found in their respective schools are readily available for them to use for instruction. Most schools in the County of Nairobi have computer laboratories meant to aid in teaching computer studies. The computer room is usually designated to the computer teacher and the laboratory technicians; hence other teachers are not allowed to use the computers to teach their lessons.

Table 1.8: *Availability of computers for teaching mathematics*

		Frequency	Percent	Valid Percent	Cumulative Percent
Accessible computers in our school	strongly agree	9	21.4	21.4	21.4
	agree	5	11.9	11.9	33.3
	undecided	6	14.3	14.3	47.6
	disagree	17	40.5	40.5	88.1
	strongly disagree	5	11.9	11.9	100.0
	Total	42	100.0	100.0	

Connection of computers to the internet

It was noted secondary schools that had computers were connected to the internet source. Some schools have free Wifi while others use internet hub to link all computers to access information online. From table 1.9, 42.9% of mathematics teachers agree with the statement that all computers in their respective schools are connected to the internet. Therefore teachers who have computer literacy skills can be able to upload and download content relevant to their teaching objectives.

Table 1.9: *Connection of computers to the internet*

		Frequency	Percent	Valid Percent	Cumulative Percent
our computers are connected to the internet	strongly agree	3	7.1	7.1	7.1
	agree	18	42.9	42.9	50.0
	undecided	5	11.9	11.9	61.9
	disagree	7	16.7	16.7	78.6
	strongly disagree	9	21.4	21.4	100.0
	Total	42	100.0	100.0	

Analysis of mathematics lessons per week and the number of students.

From the table1.10, the mean of mathematics lessons per week is 2.67, with a standard deviation of 1.004 indicating that most mathematics teachers have more than 20 lessons per week hence cannot adequately prepare for an ICT integrated experience. The mean population for form three students sampled was 42.43, with a standard deviation of 3.437, which indicates that most classes have more than 42 students. From the table, the lowest form of three levels is having 36 students, while the highest is 50. With this population, it is difficult for mathematics teachers to plan an ICT integrated lesson adequately; hence the mean of mathematics teachers teaching using ICT is 0.5 with a standard deviation of 0.506.

Table 1.10: *Descriptive analysis of mathematics lessons per week and student population*.

	N	Minimum	Maximum	Mean	Std. Deviation
Number of math's lessons per week	42	1	4	2.67	1.004
Number of students in form three	42	36	50	42.43	3.437
Number of mathematics teachers using ICT in teaching	42	0	1	.50	.506

Summary and Conclusion

The findings of the study showed that lack of ICT resources in schools was the major impediment at 42.86% on the use of ICT by mathematics teachers followed by lack of administrative support at 21.43%, lack of ICT training, and ICT policies at 14.29% and 7.14% respectively. 75% of male and 25% of female teachers strongly disagree that they enjoy teaching using ICT tools. It was evident that a lack of ICT skills is at 61.91% among mathematics teachers, indicating that most of them do not have the necessary computer literacy skills to prepare ICT integrated lesson plans for teaching. The study found out that the negative attitude towards the use of ICT among male teachers was 79.31% as compared to their female counterparts at 66.54% an indicator that more sensitization needs to be done on ICT integration in schools to positively change mathematics teachers' perception to embrace the use of ICT.

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