traditional methods of technology training for teachers mainly workshops and in-service courses may not produce the understanding that can assist teachers in becoming intelligent users of technology for pedagogy. Furthermore, formal stand–alone information Technology course work does not correlate well with technology skills and ability to integrate technology into teaching. Keating and Evans (2001) and Lunderberg et al, (2003) argued that good teaching requires an understanding of how technology relates to pedagogy and content of mathematics to be taught. Therefore although some teachers may believe computers are important components of students' education, their lack of knowledge and experience may lead to lack of confidence to attempt to introduce them into their instruction. So regardless of the amount of technology and its sophistication, technology will not be used unless faculty members have the skills and knowledge necessary to infuse it into the curriculum. That is, teachers should become effective agents in order to make use of technology in mathematics instruction. Ultimately, teachers are the most important agents of change within the classroom arena.

Kenya's initiative to adopt e-learning started many years ago. For instance, a report given by the then Minister for Education Prof. George Saitoti in a conference held in Nairobi to review progress in implementing e-learning programs in May 2007, stated that majority of Kenyan teachers are computer illiterate and cannot effectively implement digital learning (Daily nation 8th June 2007). He recommended that the teachers be trained in information Technology. Many research papers recommend training in order to increase use of technology by teachers. Training of technology increase use of computers in mathematics classes. Lack of pre-service and lack of in-service support (Hazzan, 2002) are the two reasons why teachers do not use technology in teaching. Systematic training therefore increases teachers' confidence and actual use of technology. Monouchehri (2000) says that teachers report their lack of knowledge about technology as to why they employ little use of technology in their classrooms. Basing on this literature reviewed, the researcher finds it worthwhile to find out if there is any significant relationship between the pre-service mathematics teachers' competencies in computer use and the use of computers in teaching of mathematics.

2.Methodology

A descriptive survey research design was adopted in this study with a target population of 610 (391 male and 219 female) teacher trainees of mathematics in twelve Kenyan universities. Accessible population was 299 (198 male and 102 female) teacher trainees from three public universities and one private university which offer Bachelor of Education degree courses in mathematics. This represented 33.3% of the total universities in Kenya that offer education courses. The participants were 200 (128 male and 72 female) teacher trainees representing 32.8% of the total pre-service teacher trainees completing their respective courses in the year 2012. Stratified sampling was used to select universities which offer Bachelor of Education degree courses in mathematics and with at least 50 pre-service mathematics teacher trainees. Stratified sampling was further used to get representative samples for female and male respondents from the selected universities. Simple random sampling was then used to select representative samples from each stratum. A total of 72 female and 128 male participants were selected. Furthermore, simple random sampling was used to pick 50% of the pre-service teachers in each stratum to be interviewed. The sample size for this study therefore was 200 pre-service teachers from three public universities and one private university. Fifty pre-service teacher trainees were selected from each university. The researcher used questionnaires and face to face interview schedules to collect data. The analysis of the piloted data yielded results which were reliably used to test content validity after the face validity and construct validity were established. Split–half method was used to obtain two sets of data before the scoring process was done. The two halves were marked separately then using Statistical Packages for Social Sciences (SPSS) 12 version, correlation of the scores was done to establish reliability of the instruments by use of Spearman Brown formula whose results gave r=0.915 (above 0.8) which confirmed that the instruments were reliable to be used as data collection tools.

It is also important to emphasize that the study focused on the dynamics of the variables under study to support the theoretical assertions of the concepts under study in line with recommendations by other researchers. The reliability of the constructs was assessed using r-squared coefficient. The regression model indicated an r-squared of 0.764 and explained that 76.4% of the change in one variable is explained by a change in the related variable. The reliabilities of the studied variables were therefore above the acceptable standard (at least 0.60 or 60%) as prescribed by Nunnally (1978).

During data analysis, the raw data was sorted, edited, classified and tabulated ready for analysis. Data analysis involved the use of descriptive and inferential statistics computed by use of SPSS 12 version. Descriptive statistics used involved computation of frequencies and percentages from which interpretations and recommendations were made. Inferential statistics used was Pearson correlation and regression analysis which was used to make a prediction about the computer use based on its covariance with the independent variable namely the pre-service teachers' attitudes towards the use of computers in teaching. The research questions used to collect data about pre-service teachers competencies in computer use took a Likert scale format. The data was then summarized in form of frequencies and percentages.Finally hypothesis' testing was done by use of Pearson correlation coefficients. The null hypothesis was tested at an alpha level determined by the computer. Furthermore, to make Prediction about Computer use based on its covariance with the independent variable, regression analysis was used to evaluate the relationship of the dependent variable (Computer use) and independent variable (computer competencies of pre-service teachers). The analysis revealed the influence the independent variable had on the dependent variable.

3.Results and Discussions

Results on gender, age, preferred teaching technique, and finally pre-service teachers' competencies in computer use are presented next.

Gender of Pre-service Mathematics Teacher Trainees

The researcher found it important to know the gender of the respondents so as to be in a clear picture of the pre-service teachers under study. Table1 gives a breakdown of the respondents by gender.

Table 1: Gender of Pre-service Mathematics Teacher Trainees

Gender	*Number of trainees*	*Percentage (%)*
Female	72	36
Male	128	64
Total	200	100

As shown in Table1, majority of the pre-service mathematics teachers in the Kenyan universities were males (64%) while females were slightly above a half of the males (36%). These percentages show that only about one third of the pre-service teachers of mathematics at Kenyan universities are females. Therefore there were more male respondents in this study as compared to females.

Age of Pre-service Mathematics Teacher Trainees

Ages of the pre-service mathematics teacher trainees studied presented by use of a bar graph in Figure1 shows a clear picture of the age of the respondents under study.

Ages of pre-service teachers

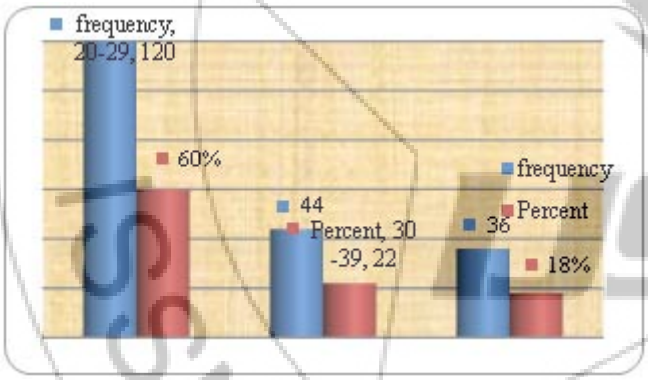

Figure1: Ages of Pre-service Mathematics Teacher Trainees

From the findings in Figure1, the participants ranged between 20 to 50 years of age. Those aged 30 to 40 were 44 participants who represented 22% of the respondents and only 36(18%) were in the range of 40 to 50 years. Majority (120) of the pre-service teachers studied were less than 30 years old. This represented 60% of the respondents. This shows that the study has findings from mainly the youth who have the potential to provide the teaching service for the next 30 years or more before retirement age catches up with them. These is consistent with findings of Smerdon et al, (2000) that overwhelmingly, high users of computers in mathematics were a group made up of teachers with fewer years of teaching experience.

Pre-service Teacher Trainees' Preferred Teaching Technique

There was need for the researcher to know the teaching techniques commonly used by the pre-service teachers of mathematics in the course of delivery of mathematics instruction. Their familiarity with use of computer technology in the classroom could be gauged from that. Information in Table 2 summarizes the pre-service teacher trainees' preferred classroom teaching techniques.

Table 2: Pre-service Teacher Trainees' Preferred Teaching Technique

Teaching technique	**Teacher trainees**	**Percentage (%)**
Computer assisted	12	6
Lecture	48	24
Hands-on learning	28	14
Demonstration	40	20
Discussion	72	36
Total	**200**	**100**

The findings in Table 2 reveal that among the five teaching techniques, discussion (36%) was most popularly used by 72 pre-service teacher trainees out of the 200 participants. The second most patronized was lecture (24%) which was used by 48 participants. Third position was taken by demonstration (20%) with 40 pre-service teacher trainees using it. The second last popular technique was hands-on learning (14%) which was used by 28 participants. The least used technique was computer-assisted instruction used by only 12 pre-service teachers out of the 200. This represented a paltry 6%. Figure 2 clearly represents the same information for easy comparison of the teaching techniques at a glance.

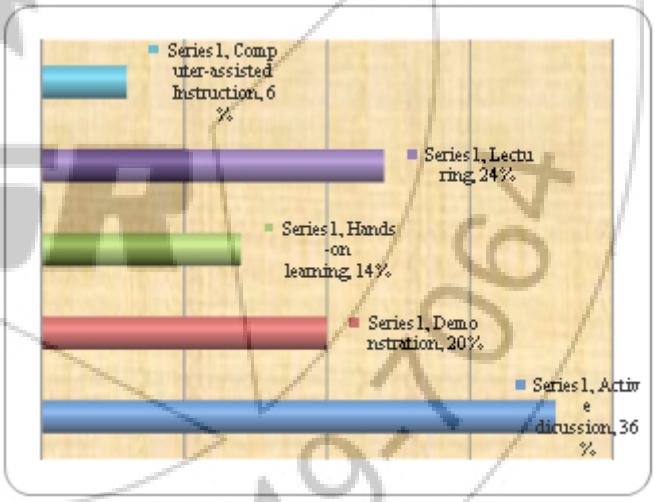

Figure 2: Pre-service Teacher trainees' Preferred Teaching technique

Information on Figure 2 shows that the common teaching technique is active discussion (36%), followed by lecturing (24%), demonstration (20%), hands-on learning (14%) and lastly computer assisted instruction (6%). The findings revealed that computer-assisted technique of teaching was least preferred by the pre-service teacher trainees who participated in this study.

Pre-service Mathematics Teacher trainees' Competencies in Computer Use and Use of Computer in Mathematics Instruction

To determine the pre-service teacher trainees' competencies in computer use and the use of computers in the teaching of mathematics, the researcher investigated the pre-service teacher trainees' competencies in computer use.

Figure 3 shows at a glance the comparison of the average percentage scores between the four levels of competencies

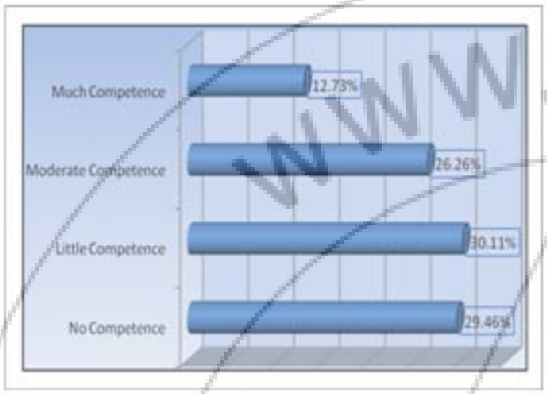

Figure 3: Pre-service Mathematics Teacher Trainees' Competencies in Computer Use and Use of Computer in Mathematics Instruction.

Results in Figure 3 comparatively show that the highest numbers of pre-service mathematics teachers (30.11%) have inadequate knowledge and skills required to successfully use computers in teaching mathematics. The second highest pre-service mathematics teachers (29.46%) have completely no knowledge and skills required in a computer-assisted instruction. The pre-service teachers of mathematics therefore need to be equipped with knowledge and skills that will enable them use computers in mathematics instruction in secondary schools in Kenya.

4.Hypotheses Testing

This study's hypothesis was tested using Pearson correlation coefficient tests and regression analysis.

Pearson correlation

Pearson correlation coefficient tests were run at significance levels given by the computer for the pair of variables. The results were as summarized in Table 4.

Table 4: Pearson Correlation Analysis

Correlations			
X_1	Pearson correlation Sig.(2-tailed)	1 .	
X_2	Pearson correlation Sig.(2-tailed)	0.4416 0.0084204	1 .
KEY:			
X_1	Computer use		
X_2	Pre-service Teacher Competencies in computer use		

The information in Table 4 show results of Pearson correlation of the independent and dependent variables under study. The results show Pearson correlation coefficients at respective significance levels given by the computer. These coefficients were used to test the hypothesis in this study discussed as follows;

The hypothesis ``There is no statistically significant relationship between the pre-service mathematics teachers' competencies in computer use and the use of computers in teaching mathematics.'' The variables (teacher competencies and computer use) exhibited a correlation of 0.4416significant at 0.0084204. This implied that there was statistically significant relationship between pre-service teachers' competencies in computer use and the use of computers in mathematics instruction. The hypothesis was therefore rejected and should adopt the form.``There is statistically significant relationship between the pre-service mathematics teachers' competencies in computer use and the use of computers in teaching mathematics.'' This indicates that the computer competencies of pre-service mathematics teachers influence computer use.

5.Regression Analysis

To confirm results of Pearson correlation coefficient test already discussed, simple regression analysis was also used to test the hypothesis to evaluate the relationship of the dependent variable (Computer use) and independent variable (teachers' competencies in computer use).

The researcher adopted the following regression model;

$\mathbf{Y=B_0 + B_1X_1 + E}$ where **Y** is the dependent variable (computer use)

$\mathbf{X_1}$ is the independent variable (competency)

$\mathbf{B_0}$is the constant

$\mathbf{B_1}$is the regression coefficient or slope or change induced in Y by one unit change in X_1.

E is the error term.

The regression analysis done yielded a coefficient of determination (R-squared) as shown in Table 5.

Table 5: Regression Model Summary

R	R Square	Adjusted R Square	Std. Error of the estimate
.804(a)	0.788	0.764	0.57403

Predictors: (Constant); Pre-service teachers' competencies in computer use.

According to the results in Table 5, an R squared of 0.788 is an indicator of a strong correlation between the variables signifying the factor studied explains 78.8% of the factors that influence the use of computers in mathematics instruction. The hypothesis in the study was: ``There is no statistically significant relationship between the pre-service mathematics teachers' competencies in computer use and the use of computers in teaching mathematics.'' Information on Table 6 shows regression results revealing the relationship between pre-service mathematics teachers' competencies in computer use and computer use in teaching of mathematics.

Table 6: Regression Analysis Results relating Pre-Service Teachers' Competencies in Computer Use and the use of Computer

Variables	Unstandardized Coefficient		Std Coefficients	T
Computer use (Y)	B	Std. Error	Beta	

Constant	32.564	.756		6.032
Teachers' competencies(X_2)	2.658	.123	.314	-3.890

A Dependent Variable: Use of computers

Regression results in the Table 6 show that pre-service teachers' competencies in computer use had a regression coefficient of 2.658. This shows a strong relationship between computer competencies of pre-service teachers and computer use. This implies that a change in computer competencies of pre-service mathematics teachers' significantly impact on Computer use. The null hypothesisstated above was rejected and so should read, "There is statistically significant relationship between pre-service teachers' competencies in computer use and computer use in mathematics instruction''. This indicates that pre-service mathematics teacher competencies in computer use influence computer use in mathematics instruction.

6.Conclusions

These results established that majority of the pre-service teachers of mathematics in the Kenyan universities have no or little competencies in computer use in mathematics instruction. Both correlation and regression results indicated strong relationship between computer use and the independent variable namely pre-service teachers' competencies in computer use. Therefore, a change in independent factor under study would significantly impact on Computer use.

7.Recommendations

From the findings outlined, the following recommendations are made; specialized software and applications like UNESCO modules on ICT pedagogy integration could be adapted in teaching high school mathematics, and in pre-service and in-service courses to equip the students and teachers with the desired competencies in computer use to enhance teaching and learning using computers. The researcher recommends that the pre-service teachers take the initiative of learning the necessary skills for use in computer-assisted instruction. Those already with the professional skills on how to use computers in mathematics instruction should help the rest to develop the skills.Teacher training institutions to offer professional training required for application by pre-service teachers in mathematics instruction.

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