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FACILITATING THE TRAINING OF TEACHERS ON THE USE OF COMPUTERS IN TEACHING MATHEMATICS

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Abstract

The study was designed to examine the readiness of institutions that prepare teachers to facilitate the training of mathematics teachers on the use of computers in teaching mathematics. The findings revealed that only five out of 20 Federal Universities that offer education courses have relevant computer courses in place for mathematics education students. Besides, the facilities and manpower to carry out the teaching of relevant computer courses are lacking in Nigerian Universities. Therefore, recommendations are made to facilitate the training of mathematics teachers on the use of computers in teaching mathematics.

Introduction

In Nigerian system of education, mathematics occupies a central place among other school core subjects. Apart from the fact that mathematics is a subject par excellence, in which reasoning power can be trained, the trend has also shown that in order to secure admission to higher level of education, a credit pass in mathematics is an advantage. Hence the teaching of mathematics in schools represents a basic preparation for adult life and a gateway into vast array of career choice. However, the poor state of the teaching and learning of mathematics at secondary school level has been a great concern to various segment of the society. The causes of the poor performance and under-achievement in mathematics in schools have been a subject of thorough and intensive investigation over the years by Nigerian mathematicians and mathematics educators. Most of their findings revolve round the wrong methods of the teaching and inadequate instructional materials.

In the recent years, the instructional materials for teaching mathematics have rapidly multiplied. The latest among them are calculators and computers. Computer technology in particular is beginning to have a significant impact on almost every aspect of our lives, especially the educational sector. The challenges posed by computer technology is increasing daily and the computer has been described as the most recent cognitive technology that create new opportunities for mathematics educators (Harbor-Peters, 2001). Handler (1993) noted that computers in the mathematics classroom could have a positive impact on students' learning of mathematics. According to Bennett in Usman (2002), the problem-solving capacity of computers enables students to work more interesting and complicated problems. Therefore, for the students to become comfortable and effective users of computers, their teachers should be confident in using computers when and where appropriate.

The availability of computers in Nigerian secondary schools was mainly for the teaching and learning of computer literacy in schools (Fafunwa, 1991). Besides, science and mathematics teachers do the teaching of computer literacy in many schools. Many researchers in mathematics education have emphasized the efficacy of computer as a teaching and learning material in a subject like mathematics. It may, therefore, be necessary to prepare the mathematics teachers in Nigeria to be able to use computers in the teaching of mathematics. However, the available literature indicated that the current mathematics education programme in most of the institutions responsible for the training of mathematics teachers may not be sufficient for the mathematics

teachers to use computers in the teaching of mathematics. For instance, in a recent study carried out by Okwo (2000), it was reported that current education programmes in Nigerian Universities do not provide enough computer training for the teachers to be able to use computers confidently in their teaching subjects. Hence, this study is designed to examine the readiness, of institutions that prepare teachers, to facilitate the training of mathematics teachers on the use of computers in teaching mathematics.

Purpose of the study

The purpose of this study is to examine the readiness of institutions responsible for training teachers to facilitate the training of mathematics teachers on the use of computers in teaching mathematics.

Research Questions

1. What proportion of Nigerian Universities has incorporated relevant computer courses into the mathematics education programme?
2. What proportion of Nigerian Universities has facilities for the training of mathematics teachers for the use of computers in teaching mathematics?
3. What proportion of mathematics educators in Nigerian Universities is capable of using computers in teaching mathematics?

Methods

The researcher adopted the survey research method for the conduct of the study. The population of the study is mathematics educators in all Federal Universities. Only 20 of the Federal Universities offer mathematics education programme. The sample was made of 20 mathematics educators randomly selected from each of these 20 Universities. The instrument used for data collection was a questionnaire. The data collected were analyzed using frequency, sample proportion and estimate of population proportion.

Results

Table 1: Response of mathematics educators on the relevant courses, facilities, and ability to use computers in teaching mathematics

Items	Frequency	Sample Proportion	Estimate of Pop. Prop	Confidence Interval
Universities that have incorporated relevant computer courses into mathematics education programme	5	0.25	==	==
Universities that have facilities for the training of mathematics teachers on the use of computers in teaching mathematics	4	0.20	==	==
Mathematics educators who are capable of using computers to teach mathematics	2	0.10	0.09	$0.07 \leq P \leq 0.13$

The results in table 1 indicated the proportion of Nigerian Universities that have incorporated relevant computer courses into the mathematics education programme, as well as the proportion of the Universities that have facilities for the training of teachers for the use of computers in teaching mathematics. Table 1 also shows that the proportion of mathematics educator that are capable of using computers to teach mathematics is 0.09 at confidence interval of $0.07 \leq P \leq 0.13$.

Discussion

In most of Nigerian Universities, at least two computer courses are made compulsory for all undergraduate students. In addition to this, mathematics education students offer extra courses

in computer. All these computer courses are based in computer science department and they are taught without any direct connection with education or teaching curriculum. However, only 0.25 of the Universities mapped out some computer educational related courses, based in education department, and designed to assist education students use computers in their teaching subjects. This finding is similar to earlier report by Okwo (2000). The results also shown that only 0.20 of the Universities have facilities for the implementation of the training of mathematics education students in the use of computers in teaching mathematics. This implied that not all Universities that have incorporated relevant computer courses have facilities to back it up. According to Usman (2002), the effective implementation of any computer related course for education students should go with necessary facilities for practical purposes.

Besides, the incorporation of computer related courses into mathematics education programme could easily be achieved if many mathematics educators are capable of using computer in teaching mathematics. The results revealed that only 0.09 of mathematics educators could use computers in teaching mathematics. Therefore, if there are relevant courses in place and facilities to execute them, without knowledgeable lecturers to facilitate the learning, nothing could be achieved. This may account for the reasons why many Universities are yet to incorporate the relevant computer courses into mathematics education programme.

Recommendations

To facilitate the incorporation of the use of computers into the training of mathematics teachers, the following recommendations may be of help.

- a. Mathematics educators should be properly trained on the use of computers to teach mathematics. If necessary, arrangement should be made to send these mathematics educators to any University abroad, where the knowledge could be acquired.
- b. As a matter of urgency, a well-furnished computer laboratory should be established for mathematics education programme.
- c. Mathematics educators should identify relevant and necessary computer courses that may be required for effective incorporation of computers into the teaching of mathematics.

Conclusion

The results of this study implied that there is an urgent-need to review the mathematics education programme for the incorporation of relevant computer courses to enable mathematics teachers use computers in the classroom. The facilities required for the incorporation of relevant courses into mathematics education must also be put in place. Above all, the training of mathematics educators should precede any arraignment. Finally, mathematics teachers in Nigeria must be helped to seize the opportunity of the availability of computers in schools to better their mode of teaching. This can only be achieved by given them all the necessary training.

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