ABSTRACT

INTRODUCTION

In the present scientific and technological age, since the conventional teaching methods are not sufficient to arouse interest among the students and do not meet up to the intellectual, psychological and emotional needs of the students in the new millennium, the methods of teaching mathematics need to be changed. The integration of technology into teaching and learning of mathematics has also not escaped the attention of educators. As a discipline, mathematics too is very much influenced by the rapid development of Information and Communication Technology (ICT) and mathematics educators have been looking at ways to integrate ICT into the curriculum over the last decade. The key benefits promotes greater collaboration among students and encourages communication and sharing of knowledge. ICT gives rapid and accurate feedback to students and this contributes towards positive motivation. It also allows them to focus on strategies and interpretations, answers rather than spend time on tedious computational calculations.

Recent developments in technology have changed the world outside as well as inside the classroom; making it quite eye-catching and interesting for the students to know and to learn. Developments in the application and dissemination of knowledge and information technology have had changing demands on education. The infusion of information and communication technology (ICT) into teaching and learning and for that matter into actual and virtual classroom has generated much interest in educational research in recent years. ICT have the potential of proving an alternative and more effective teaching and learning tool in education. Evidence emanating from research literature suggests that ICT has a powerful and significant impact on education both in terms of students’ affective and cognitive outcomes in learning any subject of their choice. It has tended to make learning joyful and lasting in very many ways. So the investigator decided to develop syllabus based Power Point Programme to teach Mathematics to the students of IX class and study its effect on them. An attempt has been made by the investigator to review the related research literature to broaden the understanding and to gain and insight into the selected problem under study; journals related research studies and articles were browsed in the established libraries.
The present thesis attempts to demonstrate the effectiveness of ICT for teaching of Mathematics. The study establishes the effectiveness of ICT by comparing the achievement scores of IX class of two groups (Experimental and Control group) by teaching the topic ‘Surface Area and Volume’ in Mathematics from their prescribed syllabus. The PPP was developed by the investigator includes text, pictures, graphics, animation, audio, video clips. This thesis develops an approach to understand the making of PPP and study its effectiveness. The findings of the present study are exerted to benefit the students, teachers, and teacher educators. Pre-test, Post-test, control-quasi – experimental group design was employed with purposive sample in the form of intact sections of class IX of the same school. It involved two groups of students, experimental group and control group. The experimental group was taught using ICT and control group was taught the same content through traditional method. The design comprised of three stages. The first stage of the study involved testing of students’ achievement adjusted on their intelligence and socio-economic status in both the groups. Cattell’s Culture Fair Intelligence Test and Socio Economic Status Scale by N. Kumar et al. were the standardized test used at this stage. The second stage involved experimental treatment. The experimental treatment consisted of teaching the topic ‘Surface Area and Volume’ to IX class students using ICT to experimental group and through traditional to control group. In the third stage the students of both the groups were posttested on the achievement in Mathematics and confidence level in answering the questions. Achievement test, Opinionnaire for teachers, development of PPP for instructional treatment were the self-developed tools used for the present investigation. Descriptive statistics such as means, S.Ds and ‘t’ value were worked out on the score of Achievement and TCLAQ. At the end of experimental treatment the group of students taught Mathematics using ICT method showed a significantly higher gain score on the Achievement test and TCLAQ than the group of students taught through traditional method. The results of this analysis are statistically significant and have important practical applications for the field of education. ICT has the unique strength of communicating the difficult concept in simpler ways and, thus offers several advantages to the field of education.
The findings suggest that ICT can play a vital role in the field of education; so educationists need to develop more sophisticated understanding of the conditions, circumstances, means and mechanisms through ICT can be closely connected to education. It will hopefully need to a new learning method that is more comprehensible, useful and engaging than the traditional ‘Chalk and Talk’ method. Ultimately the tools, techniques and methods evaluated in this work may help to create a new vision of what educators can accomplish with ICT in a variety of learning environments. It may lead to development of ICT based teaching pedagogies and curriculum that are better able to meet the needs, interests and ambitions of a new generation of learners.