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Role of Information And Communication Technology (ICT) in Learning Mathematics

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Abstract

The present study is conducted to examine "Role of information and communication Technology (ICT) in Learning Mathematics". Mathematics is a very Important subject in our school curriculum. In 21st Century our society moving into a technological era where more memorization of mathematical facts and principles is not sufficient. Use of ICT is learning mathematics change the nature of teaching and learning. The main objective of this study to help mathematics teachers in the integration of ICT into their teaching. The present study aimed at identifying the most common ICT application used by these teachers and how ICT can use in the class. Use of ICT in mathematics changes, the nature of teaching and learning.

Keywords: Information and Communication Technology, learning mathematics.

Introduction:

Every system in the society whether it is mechanical or social, runs on information. Information is the most important ingredient in the society. It is vital input in the management of any organization be if government, commercial or defense.Purpose of the use of Information lies in the manpower of any "organization". Information and technology can do wonder in the field of education and the integration of technology in which teacher's effectiveness can be enhanced to a greater extent and learning becomes easier and a pleasant experience whatever it is done with interest and pleasure, faster and retained longer. The advent of ICT has supplemented and enriched the educational methods of teaching and learning. It has a tremendous potential to contribute to the learning and teaching at all levels in the educational system. In respect of technology mediated education one mark a shift from Computer Based Instruction (CBI), Computer Aided Instruction (CAI), Internet Based Instruction (IBL), to information and Communication Technology. ICT is supposed to be used as tool where and when considered useful. The role of ICT becomes more and more dominant in mathematics education, ICT can be of great help to transform education teacher to student oriented, to become more constructive and goal oriented and prepare student and teacher for the information age, break down barriers in school, college and enhance real qualities in learning. In recent years several studies and reports have highlighted the opportunities and the potential benefits of ICT for improving quality of Education. ICT is viewed as a "Major tool for building knowledge societies". **UNESCO (2003), WRIGHT (1983)** conducted a study on CAI for remedial in mathematics at secondary school level and found that CAI produced significantly higher achievement as compared to conventional class room instruction. **SINGARAVEHU, G, ET. AL (2007),** conducted a study in the field of ICT: A Boom for higher education, and concluded that ICT helps the professional development of teaching and learning and individuals involved in the programs of the teacher education.

Meaning of term ICT:

ICT refers to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audio-visual processing and transmission systems, and network-based control and monitoring functions. **according to ifueko omoigui okauru**, "ICT is the digital processing and utilization of information by the use of electronic computers. It comprises the storage, retrieval, conversion and transmission of information".

Need and significance of the study:

Mathematics is a compulsory subject at Primary and Secondary stage, access to quality mathematics education is the right of every child. And a majority of children have a sense of fear and failure regarding mathematics. Hence they give up early on, and drop out of serious mathematical learning. But use of ICT in school mathematics can a significant role in developing useful skill. Therefor, this study provided an ample opportunity to search for use of ICT in teaching of mathematics in India.

Mathematics and ICT:

Development in almost all areas of life is based on effective knowledge of mathematics. There cannot be any meaningful development in virtually any area of life without knowledge of mathematics. To make learning mathematics easier, teaching of mathematics should be effective. The teacher factor is considered one of the prominent reasons for students poor achievement in mathematics. The approach of teaching mathematics is mainly teacher centered which is characterized by transmittal techniques (Chalk and talk dominated by teacher talk) making students to completely dependent on teachers, with this teaching approach students can use formulatic algorithms, but are they really internalize and develop deeper insight into the mathematics? Are the learning? Should use be quick to blame these mathematics teachers? Obviously, the answer is no: these teachers also have been taught in the same manner and for most of them adopting new method for instruction to enhance mathematics learning is a complex innovation. Use of ICT in mathematics changes the nature of teaching and learning. ICT seems to provide a focal point which encourages interaction between learners and the technology itself. This implies that ICT used in instruction support constructivist pedagogy where learners use technology to explore reach on understanding of mathematical concepts. However, for ICT to be used effectively in every day teaching, radical changes are advocated in approaches to teaching. Teachers must adopt to new roles.

ICT changes to teaching approaches:

The National Council for Educational Technology (NCTE) have Identified six major ways in which ICT can provide opportunities for students learning mathematics.

1. **Learning form feedback-** The computer often provides fast and reliable feedback which is non-judgmental and impartial. This can encourage students to make their own conjectures and to test out and modify their ideas.
2. **Observing patterns-** Based on a Computer's ability to produce many examples in a short time.
3. **Seeing Connections-** The computer enables formulate, tables numbers and graphs to be linked readily. Changing one representation and seeing changes in the others helps students to understand connections between them.
4. **Working with dynamic images-** Students can use computers to manipulate diagrams dynamically.
5. **Exploring data-** Students can interpret and analyse real data in a variety of representations.
6. **Teaching the Computer-** The computer by means of an algorithm (a set of instructions) encourages the students to express their commands unambiguously and in the correct order. In general, there are several types of ICT used in mathematics learning and teaching. The use of ICT in teaching mathematics can make the teaching process more effective as well as enhance the students capabilities in understanding basic concepts.

Different types ICT used in mathematics

In general, there are several types of ICT used in mathematics teaching: 1. Graphing 2. Calculators 3. Java apples 4.Spread sheets 5.Computer Algebra system (CAS) 6. Dynamic Geometry software (DGS) 7. Logo 8. Symbol manipulation 9. Web-sites 10. White boards, and other relevant ICT skills.

Evaluating a lesson using ICT

(A) first level evaluation might just be an Identification of.

- What are you trying to do?
- How are you trying to do it?
- Who are you going to work with?

(B) Second level might extend the questions to:

- Did you meet the learning objective?
- Where the students actively engaged and were all abilities catered for?
- Are the students confident?
- Did the plenary work could they transfer knowledge to other scenarios?
- What mathematics did they use?
- What progress did they make?
- Can it be extended further?

Conclusion:

The use of ICT in teaching mathematics can make the teaching process more effective as well as enhance. The students capabilities in Understanding basic concepts. Teaching and learning can be integrated as on activity where students and teacher interact and participate together to construct under standing and bring out the learning outcome effectively.

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