Research Paper

A Study on Role of Ict Tools in Mathematics Teaching And Learning

Upendra Kumar
Assistant Professor, Department of Mathematics Government Post Graduate College, Obra, Sonbhadra (U.P.)-231219

Abstract

The goal of this examine is to discover the position of the software of ICT equipment in Mathematics coaching. Learning and communication technologies (ICT) are an vital a part of day by day existence, inclusive of the coaching-getting to know system. Mathematics is taken into consideration the queen of all sciences. For a protracted time, the position of arithmetic become decreased to the in simple terms instructional domain. But at present, the position of arithmetic isn't confined to the in simple terms instructional domain. It has entered the sector of era and industry. This paper will spotlight the significance of the mixing of expertise and verbal exchange technologies (ICT) into the coaching and getting to know of arithmetic in Teacher Training College and School level. The method of the studies is a one of a kind related to an interpretative, communication, remark and examine secondary sources, like books, articles, journals, thesis, college news, professional opinion, and websites, etc. Finally, significant guidelines are given.

Keywords: ICT, mathematics, learning, technologies

Introduction

The examine is mainly vital in Teacher-Training Colleges as it gives a duration of guidance for the college students' destiny publications earlier than making choices approximately the scholar much less scientifically or scientifically that arithmetic is crucial or even crucial. Mathematics as a technological know-how-primarily based totally route or field is referred to as a queen of all subjects. Sometimes the instructor of arithmetic does now no longer have enough expertise, however it's far important to examine into ideas that contradict what the concept of arithmetic says or implies. However, arithmetic is a completely unique subject, which inspires the purchase of specialised technological know-how talents and expertise, and is the reason the herbal phenomena of existence in society. It is some thing that grows in civilization as the amount call for of humans increases. It originated from a sensible problem, and the guys had to clear up those problems. It has contributed to the improvement of civilization and different disciplines and the improvement of culture. Despite the summary nature of arithmetic, its coaching is the clinical questioning amongst college students; A intellectual set that calls for college students to take the examination via tests. Globalization and technological extrade have created a brand new worldwide economic system pushed with the aid of using era, data-pushed, and expertise-pushed (Tinio, 2009). It has been proposed that the improvement of ICT has emerge as a critical problem to fulfill the desires of the training system (Chao, 2015). ICT is a device that helps the getting to know system and holds the promise of recent answers to all of the demanding situations that training is facing (Oduma & Ile, 2014). Jef Peeraer (2005) highlighting the elements affecting the mixing of ICT into coaching exercise in Vietnam's better training teachers (Jef Peeraer, 2005).

Thus the interplay is a approach to have interaction instructors & college students thru a hierarchy of duties starting on the essential stage of navigation and finishing in greater dynamic interactions that create real-existence stimulations (Aldrich, 2005; Roy, 2006). Externally the lively participation of the scholar thru e-mastering is impossible, and it allows the e-learner to examine for a lifetime (Kumbhar, 2009). There is a wonderful dating inside college students' mastering and using ICT (Harrison et al., 2002) Both NCTM (The National Council of Teachers of Mathematics) and BECTA (British Educational Communications and Technology Agency) targeted at the era as enabling, in addition to encouraging the learner to consciousness on reflection, verification, selections making and problem-fixing (NCTM, 2000., BECTA, 2003). The prospect of ICT is a promising exercise withinside the arithmetic study room, however the fulfillment of this workout is specially depending on numerous issues, consisting of instructors' perceptions of ICT skills, instructors' attitudes in the direction of ICT contribution to arithmetic coaching, and instructors' attitudes in the direction of ICT contribution to college students' arithmetic mastering. Teacher Passion of ICT withinside the study room arithmetic, arithmetic trainer withinside the presence of ICT withinside the study room shallowness and feel of control, and instructors intention to mobilize ICT of their training (Baya'a, 2013). These opportunities of ICT combine a proposed exercise into the arithmetic study room. Although the above description of the elements affecting ICT convergence on the faculty is involved, this workout will end result best if positive situations exist met. ICT withinside the study room, particularly withinside the incorporation of a wonderful final results will rely upon the subsequent elements: instructors 'attitudes to the contribution of ICT for coaching arithmetic, arithmetic training of college students and instructors attitudes in the direction of the function of ICT, mathematics instructors to apply ICT withinside the study

room feel, that presence of ICT withinside the study room arithmetic instructors' shallowness and study room management cappotential to combine ICT in training for instructors and attractions. While pre-provider instructors remedy math problems, they consciousness at the social and sociomathematical norms which might be hooked up for the duration of the interactions of pre-provider instructors (Tatsis, 2008). It is the speech of the pre-provider instructors to pick out the regulated policies whilst fixing a mission associated with the definition of arithmetic (Sánchez, 2014). From time immemorial training has grow to be a image of civilization and development — Tripoli's idea of training as an entire factor to instructors, college students, and the environment. Not best arithmetic instructors however the exceptional of all instructors withinside the trainer training branch additionally have to be met (Das et al., 2019). In the modern-day era, training relies upon at the bodily and greater importantly, the technological know-how of technological know-how for technological improvement. Therefore, mental ideas deliver enormous significance withinside the mastering process. Thus, the coverage of studentcentered training has received momentum during the last few decades. As such, all of the achievements which might be agreed upon in specific topics or greater virtually marked via way of means of college students are synonymous with their cognitive development. Mathematics is taken into consideration a tough question. Mathematics theoretically presents a easy recovery of logical reasoning and knowledge. It makes it as a selected problem in comparison to others and suggests an smooth manner to examine different things. Development is a non-stop process, that's constantly underway. Providing and obtaining an training is one of the traits that set humans other than different residing things. For superior knowledge, human beings are always enhancing their coaching-mastering gear and strategies. Information Communication Technology (ICT) is an engine of innovation in training, and we will see withinside the twenty first century, the mental, socio-economic, and technological modifications it brings to faculty. It has modified the function of statistics specialists and is turning into famous withinside the library.

Objectives of the Study

The present studies is directed at reaching the subsequent purposes:
1. To discover the mindset of Mathematics instructors closer to the usage of ICT.
2. To discover the mindset of Mathematics history instructors closer to the usage of ICT.
3. To discover the lecturers of diverse degrees of revel in on their mindset closer to ICT.
4. To have a look at Mathematics coaching closer to the usage of ICT.
5. To have a look at lecture room coaching with a aggregate of Mathematics & ICT.
6. To discover the ICT equipment utilized in Mathematics coaching and gaining knowledge of at Teacher-Training Colleges.

The Methodology of the Study

This have a look at applies an interpretative technique in which qualitative facts have been accrued and analyzed through a report have a look at of the studies papers from journals, books, edited books, reviews, on line documents. The method of the proposed studies is primarily based totally at the report-primarily based totally analysis.

Methodology Employed

1. It is primarily based totally on qualitative studies.
2. It is likewise a report-primarily based totally analytical have a look at.
3. It has the leader traits of latest documentbased analytical studies.

Research Materials

1. Government documents,
2. Peer-reviewed Journals,
3. Books,
4. Magazines,
5. On-line reviews from a few applicable and dependable net sources

Data Collection Process

Multiple methods including analyzing worldwide and countrywide journals, library consultation, on line journals, periodical, newspapers, and monographs have remained employed.

Data Analysis

They have a look at employs modern report-primarily based totally analytical technique. To have a look at the received facts, the studies additionally adopts historic and sociological strategies.

Meaning of ICT

ICT stands for Information and Communication Technology. It is the aggregate of terms, i.e., Information Technology and Communication Technology. "Information Technology is a scientific, technological, and engineering field and control method utilized in handing the facts; it's utility and affiliation with social, economic, and cultural matters."- UNESCO (2002). According to Prytherch (2000), "ICTs are networks that offer new possibilities for coaching, gaining knowledge of, and schooling via the transport of virtual content." According to Blurton, C. (2002), ICTs stand for facts and conversation technology and are classified as a "numerous

Research Paper

set of technological equipment and gadgets used to communicate, and to create, distribute, store, and control facts."

ICT Tools

ICT is converting tactics of Mathematics coaching and gaining knowledge of through including factors of energy to lecture room training environments, together with digital environments for the purpose. The new virtual ICT isn't always a unmarried technology; it's miles a aggregate of hardware, software, multimedia, and transport systems. Today, ICT in training includes a large variety of unexpectedly evolving technology along with Desktop, NoteBook, and Handheld Computers, Digital Cameras, the Internet, Cloud Computing, the World Wide Web, Spread Sheets, Tutorials, Simulations, email, Local Area Networking, Bluetooth, Streaming, and DVDs; and programs along with phrase processors, Virtual Environment, Simulator, Digital libraries, Computer-Mediated Conferencing, videoconferencing, Emulator etc. ICT permits for the manufacturing of virtual assets along with virtual libraries, in which students, instructors, and specialists can get entry to have a look at cloth and route cloth from everywhere at any time.

Use of ICTs in Mathematics Teaching and Learning in School

The teachers of the school are urgently guided. In this case, it is important that trained teachers can apply them in future school courses as they learn the connection to ICT in mathematics. As shown, various mathematical images of geometry can be presented to students using a projector. The use of ICT in 2D and 3D images gives students a clear idea. With the help of the internet, students are always free to access new information and data. Various theories of trigonometry allow ICT to depend on real-world applications. Self-regulatory students are aware of the strengths and weaknesses of their studies and the strategies they use to address their daily challenges (Dweck & Leggett, 1988).

Challenges in Learning both Mathematics Content and Computer Technology

Difficulty in using ICT and math software is related to the lack of knowledge of the techniques available to math teachers and how to use them when learning math. doing. Math teachers face significant challenges in both math content and computer technology.
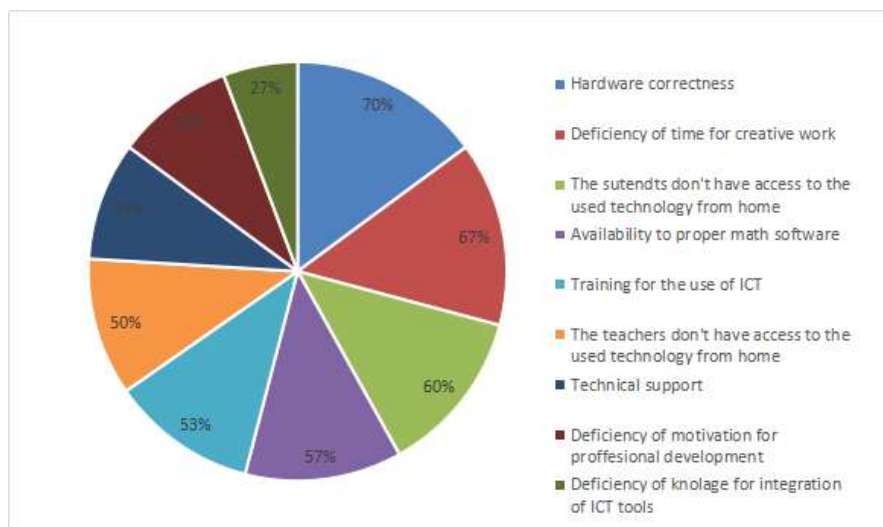
Fig1. Challenges in ICT education

Environment Factors Affecting Students' Learning towards Mathematics

Several studies have attempted to explain the impact of teaching mathematics on a variety of factors. Recently, many researchers have shown that student learning is influenced by factors in the learning environment, such as: B. Curriculum, teacher support, assessment methods, parental influence, educational institutions, etc. The concept of function in mathematics plays an important role in student learning and influences the entire mathematics curriculum. Students of all grades learned the concept of function, which is characterized by a formal perspective, standards of relevance, and understanding of teaching materials / learning standards. , Etc. (Yüksel Dede, 2006).
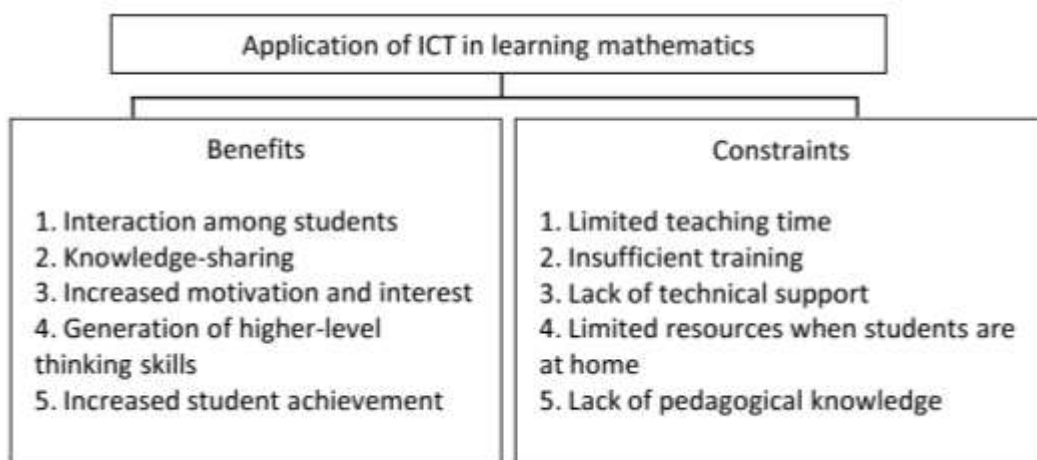
Student Factors in Mathematics Learning

Many believe that student factors related to environmental factors can affect their effectiveness in learning mathematics. Studies have shown that teaching methods in mathematics should be designed with student reasons in mind. Student attitudes towards mathematics are a major factor influencing math learning outcomes.

The Use of ICT in the Mathematics Classroom

Use of ICT in Math Classes is primarily of concern to math teachers. By using ICT as a learning tool, these teachers can maximize the impact of ICT on mathematics education (Becta, 2003). Students are taught to apply a problem-solving process when working in a collaborative group or using a computer to solve a problem, after which ICT is involved in the development.

Research Paper

Mathematics & ICT

Students can use ICT as a tool to make calculations, draw diagrams, and help solve problems. The most obvious example of ICT used in this way is when a student uses a calculator or the like to calculate more complex numbers. However, you can use a spreadsheet, computer algebra system, or graphing calculator to solve the problem through testing and improvement or search methods. Mathematics students can use graphing calculators and chart plotters instead of algebra to solve equations graphically. Students can easily perform statistical analysis of the collected data using the rich statistical features of graphing calculators. Creating images with dynamic geometry packages helps students understand, solve, and prove geometry problems. When students use ICT as a tool to find things, solve problems, and understand what's happening, it often helps them develop their skills in using and applying math. .. Although ICT is a powerful and powerful tool, students need to acquire the necessary technical skills to use the opportunities offered constructively and efficiently.

```
Application of ICT in learning mathematics

Benefits                              Constraints

1. Interaction among students         1. Limited teaching time
2. Knowledge-sharing                  2. Insufficient training
3. Increased motivation and interest  3. Lack of technical support
4. Generation of higher-level         4. Limited resources when students are
thinking skills                       at home
5. Increased student achievement      5. Lack of pedagogical knowledge
```

Example

1. Use a calculator or spreadsheet for a simple single calculation.
2. Graphing calculator will help you to draw a diagram when the sketch is more appropriate.
3. Use a spreadsheet or graphing calculator to solve quadratic equations such as $X^2 + X = 20$.
4. Common Geometry and Trigonometry Applications:
5. Draw triangles, cubes, etc.
6. Measure the actual distance.
7. I am using Excel tool

Use of ICT Tools in Mathematics

Maxima is an algebra solver software program. The software is primarily based totally on Computer Lisp and works with all POSIX concepts together with Linux, Unix, OS X, and BSD. For drawing it makes use of Gnuplot. Geogebra is a math software program this is beneficial for each instructors and college students alike. It is a sturdy platform that facilitates preschoolers analyze math successfully and remedy math issues on specific subjects that consist of vectors, calculus, linear programming, algebra, complicated numbers, statistics, and more. SymPy is a Python archive for symbolic arithmetic. It targets to end up a full-featured laptop algebra system (CAS) at the same time as retaining the code as easy as feasible to be understandable and without problems extensible.

Educational Implications

1. The use of ICT in training facilitates in growing essential and clinical wondering the various college students and the instructors. It motivates the learner to take part in studying sports at any time and from anywhere.
2. It facilitates in alternate and stocks thoughts amongst instructors for expert growth.
3. ICT has extensively utilized to enhance get admission to and the first-class of trainer training. ICT equipment decorate coaching, and facilitate studying the use of multimodal courseware, Integrate ICT the use of pedagogical improvements to expand better-order wondering competencies amongst learners.
4. ICT equipment together with radio, T.V., Internet, laptop, laptop, tablets, and plenty of different hardware and software program programs may be appropriated withinside the coaching-studying process. These equipment can deliver blessings withinside the regions of content, curriculum, instruction, and assessment.
5. In India, in particular training has 3 tiers which are number one or fundamental stage, secondary and senior secondary stage, and better stage. The first-class of a majority of these tiers may be adjusted with the aid of using using ICT equipment and techniques.

Conclusions

This examine indicates that ICT integration in Mathematics. From literature displayed numerous issues to software ICT in arithmetic. ICT integration in Mathematics-training has a superb effect on each the coaching and studying process. The examine become carried out out to

Research Paper

decide the impediments to integration of ICT in arithmetic coaching and studying in Teacher-Training colleges & secondary college tiers. There are a few obstacles to combine ICT in coaching and studying arithmetic in numerous branches of arithmetic. In the future, we will amplify my examine to the better training stage for expert development.

References

1. Tinio, V.L. ICT in Education, UNDP Bureau for Development Policy, New York, 2009.
2. Chao, GM. "Impact of Teacher Training on Information Communication Technology Integration in Public Secondary Schools in Mombasa County." Human Resource Management Research, vol. 5, no. 4, 2015, pp. 77-94.
3. Oduma, C.A and Ile, C.M. "ICT Education for Teachers and ICT Supported Instruction: Problems and Prospects withinside the Nigerian Education System." African Research Review. vol. 8, no. 2, 2014, pp. 199-216.
4. UNESCO. Information and Communication Technologies in Teacher Education: A Planning Guide, UNESCO Publication, 2002.