



International Journal for Innovative Engineering and Management Research

A Peer Reviewed Open Access International Journal

www.ijiemr.org

COPY RIGHT



ELSEVIER
SSRN

2021 IJIEMR. Personal use of this material is permitted. Permission from IJIEMR must be obtained for all other uses, in any current or future media, including reprinting/republishing this material for advertising or promotional purposes, creating new collective works, for resale or redistribution to servers or lists, or reuse of any copyrighted component of this work in other works. No Reprint should be done to this paper, all copy right is authenticated to Paper Authors

IJIEMR Transactions, online available on 25th Feb 2021. Link :

<https://ijiemr.org/downloads/Volume-10/Special>

DOI: 10.48047/IJIEMR/V10/I03/50

Title: **ADVANTAGES OF COMPUTER TECHNOLOGY IN MATHEMATICAL RESEARCH**

Volume 10, Issue 03, Pages: 216-218.

Paper Authors

Djurayev Iqboljon Ilyosovich, Mo'ydinjonov Ziyodjon Rafiqjon o'g'li



USE THIS BARCODE TO ACCESS YOUR ONLINE PAPER

To Secure Your Paper As Per **UGC Guidelines** We Are Providing A Electronic Bar Code

ADVANTAGES OF COMPUTER TECHNOLOGY IN MATHEMATICAL RESEARCH

Djurayev Iqboljon Ilyosovich

Mo'ydinjonov Ziyodjon Rafiqjon o'g'li

Lecturer's Kokand State Pedagogical Institute

Abstract. The article describes the advantages of computer technology in mathematical research, computer technology and its importance in the study of mathematics, the integral relationship between computer technology and mathematics.

Keywords. computer technology, interactive visualizations and research, STEM software

I. Introduction.

There are three broad categories of the applications of computers in the field of mathematics education: computer assisted instruction (CAI), student (educational) programming and general purpose educational tools such as spreadsheets, databases and computer algebra systems (CAS).

There is a fundamental significance to the mathematical way of thinking. Briefly, mathematics provides methods for organizing and structuring knowledge so that, when applied to technology, it allows scientists and engineers to produce systematic, reproducible, and transmittable knowledge.

The mathematical foundation of computers is logic. Other fields like calculus, probability theory, and set theory are mathematical fields that are applied in computers programs but are not very important. But as Russell and Whitehead demonstrated, logic can be a basis for all types of mathematics.

Technology provides dynamic opportunities for instruction in math and STEM classrooms. We can enhance the learning process and make concepts come alive through engaging and interactive media. We may also offer additional supports to address the needs of all learners and create customized learning experiences.

Computers can be powerful aids to mathematics teaching and learning. Changes brought about by the availability of these tools and the demands of an increasingly technological society impact curricular content

and pedagogy in mathematics education as well as the very nature of mathematical thinking and understanding.

Science is the study of the natural world by following a systematic process of observation, including experiments. Mathematics and technology are tools that scientists use to help them learn about the world. Technology refers to the devices and inventions that are created through our scientific knowledge.

Based on selected literature, it was found that the advantages of applying ICT in teaching mathematics are: It attracts students' interest in learning mathematics; it increases their motivation and performance; it encourages lifelong learning; and it facilitates positive interactions and relationships

Modern technology would be unthinkable without mathematics. The relationship is reciprocal, since mathematics also needs technology. Today, mathematicians use computers not only for calculations, but also for numerous other tasks, including the search for proofs, validations, and counter-examples Here are some advantages of technology in our lives:

Ease of Access to Information. The World Wide Web, abbreviated as www has made the world a social village. ...

Saves Time. ...

Ease of Mobility. ...

Better Communication Means. ...

Cost Efficiency. ...

Innovation In Many Fields. ...

Improved Banking. ...

Better Learning Techniques.

Today, technology is very important because it is used for almost everything and like everything, technology has advantages and disadvantages. The invention of the computer was a very important point. Communication is thus enhanced, and companies can communicate more easily with foreign countries

Technology provides dynamic opportunities for instruction in math and STEM classrooms. We can enhance the learning process and make concepts come alive through engaging and interactive media. We may also offer additional supports to address the needs of all learners and create customized learning experiences. Here are some important ways that students can benefit when we incorporate technology with our math and STEM lesson instruction.

Teaching math using technology - Use Multimedia

Multimedia brings learning to life! We can bring videos, animations, interesting movies and other media into the learning process to help our students develop skills and understandings. And it can help to motivate and excite our students about their learning!

Mr. DeMaio, a third grade teacher in Union Beach, New Jersey, creates customized movies to help his students understand class topics such as multiplication tables and borrowing in subtraction. He hosts a YouTube channel with “edu-taining” lessons and music videos that feature teachers in the school and recurring favorite characters such as puppets Steven and Andy.

The movies are so enjoyable to watch that kids play them again and again and ask for more on different topics! Compared to prior school years, Mr. DeMaio has found that this multimedia approach to blended learning has led to better retention and increased student understanding of the concepts, even in math and STEM lessons.

We won’t all produce movies like Mr. DeMaio, but he is a good example of how we all have the ability to find and create great

content to share with our students through digital tools, platforms, and apps.

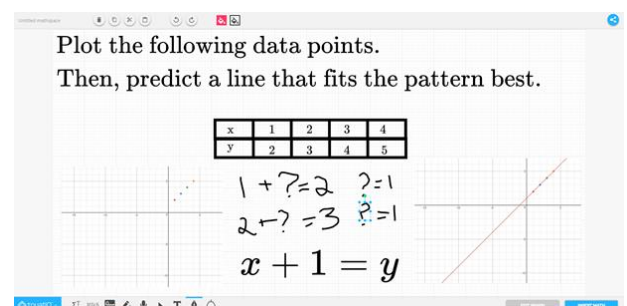
Interactive Visualizations and Explorations

Making math (or STEM subjects) visual goes beyond student engagement; brain research indicates it to be integral to learning maths. Neuroscientists at Stanford University are studying how the brain thinks mathematically and evidence shows that visual pathways are involved even when working on symbolic number calculations. According to Jo Boaler and the team at Stanford Graduate School of Education’s youcubed, representing all mathematical concepts visually, and including visual activities at all grade levels, can greatly help students.

Technology provides additional opportunities for learners to see and interact with mathematical concepts. Students can explore and make discoveries with games, simulations and digital tools.

One excellent platform for teachers and students is the web-based graphing calculator, Desmos. The Desmos classroom activities page is a great starting point to engage students in playing with and testing mathematical ideas and also sharing and collaborating.

And, the new addition to Texthelp’s STEM offering, EquatIO mathspace, creates a digital whiteboard where students and teachers can combine math equations and formulas with Desmos graphs, geometrics shapes, manipulatives, and freehand drawings to encourage visual problem solving.



Personalized math lessons using technology

Increased access to technology for math allows for a more customized learning experience. Because no two learners are exactly alike, technology can provide individual students with content and supports that are particularly helpful to their individual needs. Kids can view lessons, tutorials, screencasts, and other instructional media on their own device and at their own pace. So if one student is still confused on a topic, and another is ready for additional challenges, technology can enable each to take the appropriate next step.

A great example of how technology empowers learners is the phenomenon of Khan Academy. Sal Khan did not intend to build a non-profit educational organization when he started posting the recordings of his math lessons on YouTube (as he delightfully explains in his TED Talk). He was only trying to help tutor his cousins from afar and didn't see any reason to set the videos to Private mode. From the feedback from his cousins, and then from other people from all over the world who found his videos, he realized how valuable this medium was and the importance of being able to choose, rewind, and control the lessons.

The Khan Academy platform has emerged from his work, giving learners personalized learning experiences in a number of ways. For example, users can take quizzes to see what concepts they have mastered and what they need more practice with. Or students that learn better through written text can access transcripts that accompany the instructional videos. Providing the ability to direct and control learning pathways is a powerful reason to include technology in our own math instruction.

Teachers can use technology to help students see how concepts they are learning in the math or STEM classroom can be applied to everyday life. Instead of giving her students a problem-solving worksheet, educator Jennie Magiera recorded a short video in the dairy aisle of the supermarket, posing the real-world

problem of deciding what would be the best deal. She challenged her students to figure out what brand and size of cheese to buy based on the prices and promotions seen on the shelves. Recording videos of scenarios outside of the classroom such as this can be done easily with a smartphone and then shared on YouTube or the class website.

Integrating technology in the math classroom allows students to interact with people outside of the classroom to help broaden their understandings and perspectives about what they are studying. Teachers can set up live interactive video calls with experts on a wide variety of curricular topics using sites such as Skype in the Classroom and Nepris. One teacher on Nepris posted a request for industry experts to share ways they use math concepts in their daily work, and as a result students were able to virtually meet a playground designer who demonstrated how he uses measurement, multiplication, and more in his decision-making and planning

REFERENCES

1. Kristine Scharaldi, Education Consultant. What are the benefits of teaching math using technology? 2020
2. United States. Congress. Joint Committee on Atomic Energy · 1966
3. Gazette - Australian Mathematical Society. 1991
4. Thomas, Tyrrell, & Bullock, Using Computers in the Mathematics Classroom: The Role of the Teacher. 1996