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Use of Technology in Mathematics Lessons

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Abstract

The influence of new technology is one of the most powerful forces driving today's development and evolution of mathematics and math education. The use of technology in the classroom is believed to enhance students' academic performance and attitudes toward learning in today's environment. Technology-integrated math lessons encourage student participation in the learning process, making learning more enjoyable and appealing for the students. As Smaldino et al. (2005) noted, the use of technology in instruction enhances not only the learning capabilities of students but also their motivation, thus, students are more engaged in the learning process. Furthermore, it is thought that when technology is employed effectively in classroom education, it can have significant beneficial effects on the performance or accomplishment of students.

Introduction

Technology provides dynamic opportunities for math instruction in classrooms. Through interesting and interactive media, the learning process can be improved by bringing concepts to life. Using technology excites children, so they become much more interested in the lessons being taught. Since technology permeates every aspect of our lives, adopting digital tools in the classroom can help teachers to grab their students' attention, customize instruction to meet their requirements, and thereby enabling them to understand the mathematical concepts they are learning. Technology has given us new methods to represent and manipulate mathematical data, giving us options for content and pedagogy that we have never had before.

When I first started teaching which was almost fifteen years ago, not much technological resources were able as today. I did not have access to much technology in my classroom. When

I was first hired and was assigned to teach a second grade class, my classroom was right next door to the computer lab. The computer lab was our only source of innovative technology. I remember asking the principal of my school if there were any computers available that can be placed in my classroom for my students to use. She reluctantly told me that she would try to get at least one for my classroom. She mentioned that the school was on a tight budget. She really wanted teachers and students to be able to have access to and utilize various technological tools in class, but there just was not even funds available to provide for all of the classes. It should be noted that this school was a small religious private school in South Florida. I had recently graduated with my bachelors in elementary education and had just completed my student teaching at a school that was really trying to incorporate technology into their lessons in an effort to make the lessons more fun and engaging for students. So at the time I was really eager to incorporate the use of technology in my lessons. I had thirty-four second graders in my class the very first year I began teaching, and I wanted incorporate a variety of strategies such as using technological tools to meet the needs of my students. Since I was fresh out of college, I wanted to utilize the strategies that I had learn in my classes at university and from the student teaching I had just completed so that I can actively engage my students. The principal was able to get me not one, but two desktop computers for my classroom a few weeks after school had started, and I was very thankful. At first, I used the computers for students to play math games on and for reading after they had completed their work, and they were always eager to finish their work to get on the computer. But then, not only did I get two computers, about a month later, I got a Smartboard in my classroom as well. I was ecstatic. This was opening up a whole new world in the classroom. My math lessons and activities had become lot more vibrant and engaging.

Smartboards

The interactivity of the Smartboard is of great benefit to students as it addresses a variety of learning styles. It meets the needs of children who are more tactile and kinesthetic by allowing them to interact with the board. For those who learn visually, presenting math problems in a colorful visual manner is very effective. Students and teachers can write directly on the screen using special pens. They can edit text and images, browse websites, copy and paste research data, watch videos, create graphs and charts, and create engaging presentations. Visually engaging graphics can be manipulated by students and help them better understand the lessons. This technology's foundation is based entirely on active interaction. I really enjoy the interactive features of the Smartboard.

Online Learning

As we know global school closures due to the COVID -19 pandemic forced a sudden switch to online learning. Teachers' competencies were challenged as they had to teach out of their comfort zone. Curriculum, pedagogy, and student results have been impacted across a range of disciplines as a result of teachers and students switching from face-to-face interaction to online settings. Technology was unquestionably an essential instrument for distance learning. As a teacher that taught during the pandemic, I understand how important it is to use the right technological tools to properly engage students and to ensure that learning is taking place. Remote learning really pushed me as an educator to explore math apps and other online resources that would help students visualize and practice what was being taught. I found it a little more challenging to engage students in the math lessons online, but one of the math teachers at my school introduced me to an app called Notability that he was using for his online class.

iPad/Notability

Once I started using the Notability app on the iPad, my students were a lot more engaged, and they were eager to participate in the math lessons because it was a lot more appealing, and it was easy for them to follow along with me while I was teaching them. It made teaching and projecting my lessons online much easier. I used Notability in conjunction with Google Meet to present my lessons synchronously for my students. I was able to share my screen with my students, and they were able to follow along with me, and better understand the concepts I was teaching. I was even able to create notes and audio of my lessons for students to refer to if they needed additional help. Notability definitely enhanced my math lessons and promote student understanding of the lessons.

Kahoot

Game-based learning is designed to balance theoretical content and learning through the use of games. It allows students to explore rigorous learning environments and concepts and targeted learning outcomes (Chen et al., 2018). Utilizing game-based learning is one technological advancement that helps students find learning more engaging. Morten Versvik, Jamie Brooker, and Johan Brand created the educational platform known as Kahoot. I used Kahoot in my online classroom and my students really enjoyed it, in fact, they wanted to play every day. I used Kahoot almost every day to review my math lessons and as a form of assessment for my students. My students were always excited to compete against each other. It definitely made learning math a lot more fun.

Geogebra

The Geogebra software is one example of a computer application used in classrooms as a tool for math instruction. It is designed to aid in the teaching and learning of mathematics,

particularly in the areas of geometry, algebra, and statistics. There are several advantages to using Geogebra software as a supplement to math instruction. For example: Instead of using a pencil, ruler, or compass, geometry drawings may be done quickly and precisely, by employing the animation capabilities and virtual displays in the Geogebra program, students can quickly grasp geometry and get real-world visual experience. The many features offered by Geogebra software helps students in rapidly, precisely, and effectively visualizing abstract geometric shapes. I really enjoy teaching using Geogebra and my students love it as well. It is fun and engaging.

Student Performance

The article, *Impact of Use of Technology in Mathematics Lessons on Student Achievement and Attitudes*, highlights the findings on a study where it was investigated whether or not the use of appropriate forms of educational technology had a positive effect on attitudes and enhanced the achievement of students in math. The study employed a quasiexperimental research design with three experimental groups. A pretest and a posttest were completed by all groups. Lessons for the control groups were taught using conventional teaching techniques, whereas lessons for the experimental groups were created utilizing a variety of technological tools.

At the conclusion of the study, the experimental groups filled out a scale to look at the preferences and attitudes of the students about technology-based instruction. The findings also indicated that students' attitudes on using technology were favorable. The results showed that many of the students preferred to be in a class where educational technology was used. Also, when the pretest and posttests results were compared at end of the study, the results showed that students who received technology-enhanced instruction in mathematics performed much better

on the posttests than students in groups who received traditional instruction. Bitter and Pierson (2005) stated: “A recent meta-analysis demonstrated that students using technology had positive gains in learning outcomes over those students who used no technology” (p. 107). This article emphasizes that scholars have opined that incorporating technology into the classroom improves learning by bringing the outside world into the classroom, enhancing instruction, and assisting students in developing a broader perspective.

Conclusion

In conclusion, technology use in the classroom is steadily growing and developing, and it is crucial to integrate it into the curriculum to better prepare students for the future.

Technology is widely employed in schools in the majority of industrialized nations. It helps students to create a positive mindset when it comes to learning mathematics. The use of technological tools can enhance student learning and result in greater math performance. It is evident that it aids students in their appreciation of mathematics and it enhances their mathematical thinking and understanding. In order to help students with problem solving, it is important to combine various digital tools and resources to build an integrated digital learning environment. When technology is used appropriately in classroom instruction, it has a very positive impact on student achievement, which will result in more learning for students, and that is our ultimate goal as educators.

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