Managing the Implementation of Information Technology in Schools

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Abstract

Modern technology has had a transformative impact on educational systems, learning, and teaching practices. The advent of the internet and the development of various digital tools have opened up new opportunities for education. Unfortunately, teachers and scholars, who may have educated themselves or being educated in a whole different era and time of schooling, find it really difficult to teach in the new modern ways. Different sides often blame each other for not being ready to innovations: the public blames teachers and superintendents for not adopting new technology in school and in turn teachers blame the state itself for not providing enough money and time. The authors claim that steps must be taken to implement IT in schools, and list possible steps.

Keywords: information technology (IT), educational systems, implementation at school, obstacles, possible solutions.

1. Introduction

Modern technology has had a transformative impact on educational systems, learning, and teaching practices. The advent of the internet and the development of various digital tools have opened up new opportunities for education. Websites, online platforms, and educational apps have provided students with access to a vast amount of information and resources, allowing them to explore and expand their knowledge beyond traditional classroom boundaries. This access to information has not only facilitated academic learning but also encouraged self-directed learning and personal exploration.

In fact, students today have to search the whole country to try to find a single school that does not have technology usage in their educational systems. IT has been wildly spreading for its huge benefits of connecting the student and school even at home. The authors believe that information technology (IT) has many uses for teaching and learning and making a connection between the student and teacher. In fact, it can be a lifestyle and considered too valuable to not be used in our lives. But the essence of information technology in schools and colleges assumes that teachers should know how to use it as effectively as possible in favor of their students.

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2. IT role in our lives

The world around us is in a state of fast and rapid changes and discovering new technologies. The pressure on schools has never been greater, as they have to keep up with all the changes and developments to reach a state where schools will be using the latest updates and technologies of IT (Lloyd, 2020). American public schools face challenges in adapting to the constant changes in the modern world. While it would be unfair to generalize and say that all American public schools have not been creative or have failed to keep up with technology, there are certainly areas where improvements can be made (Salam et al., 2018). One of the main factors contributing to these challenges is the lack of adequate funding for many public schools. Insufficient resources can limit the ability of schools to invest in innovative teaching methods and up-to-date technology. Additionally, the focus on standardized testing in the American education system has sometimes resulted in a more rigid and standardized approach to instruction, which may hinder creativity and individualized learning (Culp, Honey & Mandinach, 2005).

Indeed, educational technology has the potential to have a significant impact on educational systems. Over the past two decades, advancements in technology have opened up new possibilities for teaching and learning. When properly integrated into the educational process, technology can enhance student engagement, facilitate personalized learning experiences, and provide access to resources and information that were previously inaccessible. By leveraging educational technology, schools can create more interactive and engaging learning environments that cater to diverse student needs (Culp, Honey & Mandinash, 2005).

3. Modern schools' challenges and opportunities

Teachers and scholars, who may have educated themselves or being educated in a whole different era and time of schooling, find it really difficult to teach in the new modern ways. Teachers play a crucial role in leveraging educational technology effectively and engaging students in new and meaningful ways. It is essential for teachers to continuously update their skills and knowledge to keep up with the changing landscape of education. By embracing professional development opportunities, educators can learn how to integrate technology tools into their teaching practice, adapt instructional methods to meet the needs of diverse learners, and foster student engagement. They can explore innovative teaching strategies, collaborate with colleagues, and stay informed about the latest advancements in educational technology (Halili, 2019).

The old educational systems structured of a teacher having and giving all the knowledge students need in life as a whole and skills and knowledge they needed to master for their benefits and that's what educational systems revolved around for many decades (Halverson & Shapiro, 2012).

Nowadays, there are plenty of students who have switched to technology learning, unlike students who have access to technology just to acquire just in-time learning, is increasing dramatically all over the world, in spite of the lack of technology access at schools. The numbers of students that study using information technology is still massive despite not allowing phones or computer usage in school. According to Pew Internet & American Life Project study (Madden, Lenhart, Duggan, Cortesi & Gasser, 2013):

- 78% of teens now have a cell phone, and almost half (47%) of them own smartphones.
- 23% of teens have a tablet computer, a level comparable to the general adult population.
- 95% of teens use the Internet.
- 93% of teens have a computer or have access to one at home.

- 71% of teens with home computer access say the laptop or desktop they use most often is one they share with other family members.

In a study by the Pew Research Center (Purcell, Heaps, Buchanan & Friedrich, 2013) researchers found that:

- 56% of teachers of the lowest income students say that a lack of resources among students to access digital technologies is a "major challenge" to incorporating more digital tools into their teaching; only 21% of teachers of the highest income students report that problem.

- 49% of teachers of students living in low-income households say their school's use of internet filters has a major impact on their teaching, compared with 24% of those who teach better off students who say that.

The internet and platforms like YouTube and Google have significantly expanded access to information and learning resources. These platforms offer a wealth of educational content that can be beneficial for both students and teachers. Embracing information technology can indeed enhance the learning experience and provide opportunities for more practical and effective acquisition of knowledge and skills.

For students, the internet provides access to a wide range of educational materials, including video tutorials, online courses, interactive simulations, and research databases. They can leverage these resources to supplement their classroom learning, explore their interests, and engage in self-directed learning. Teachers can also use technology to curate and share relevant resources with their students, create engaging multimedia presentations, and facilitate online discussions and collaborative projects.

Additionally, technology can help bridge the gap between theoretical knowledge and practical application. For example, virtual reality (VR) and augmented reality (AR) technologies can provide immersive experiences that simulate real-world scenarios, allowing students to apply their knowledge in a practical context (Anthes et al., 2016). Online platforms can facilitate virtual labs and simulations, enabling students to conduct experiments and engage in hands-on learning even if physical resources are limited.

Furthermore, technology can support professional development for teachers. Online courses, webinars, and educational communities enable teachers to enhance their subject knowledge, learn new instructional strategies, and connect with educators from around the world. Teachers can also leverage technology to streamline administrative tasks, track student progress, and personalize instruction based on individual student needs.

4. Obstacles and possible solutions for successful IT implementation at school

Sometimes, from the public point of view, teachers and managers are seen as the holdback and reason for not adopting new technology in schools. It is a common challenge faced in many educational systems. In the authors' point of view, it is important to recognize that the adoption of new technology in schools involves multiple stakeholders, including teachers, managers, administrators, and policymakers. Blaming any single group for the lack of technology adoption oversimplifies the problem.

Different sides often blame each other for not being ready to innovations: the public blames teachers and superintendents for not adopting new technology in school and in turn teachers blame the state itself for not providing enough money and time. Sometimes they say the state is not even committed to apply modern technology in schools (Ware et al., 2016).

In addition, the lack of access to technology among low-income students can indeed hinder their ability to fully benefit from the advantages that modern technology offers in education. This can create disparities in learning outcomes and further perpetuate socioeconomic inequities (Prensky, 2010).

To address this issue, it is crucial for educational institutions and policymakers to prioritize bridging the digital divide. This can be done through various means, such as:

1. Increasing access to technology. Schools and districts can work towards providing devices, internet connectivity, and digital resources to students from economically disadvantaged backgrounds. Efforts can be made to secure funding or form partnerships to ensure that all students have equal access to technology.

2. Technology integration in schools. It is important for schools to incorporate technology into their instructional practices and curriculum. This can help students develop digital literacy skills and better prepare them for the demands of the modern world. Teachers can play a vital role in this process by receiving training and support to effectively use technology in their classrooms.

3. Collaboration and partnerships. Collaboration between schools, community organizations, and government agencies can help expand access to technology and bridge the digital divide. By working together, stakeholders can pool resources, share expertise, and develop initiatives that address the specific needs of low-income students.

4. Alternative educational models. It's worth exploring alternative educational models that leverage technology to provide quality education to students who may not have access to traditional schools. Online learning platforms, blended learning models, and virtual classrooms can help bridge the gap and provide flexible learning opportunities.

Efforts to address the digital gaps should be accompanied by a commitment to provide equal educational opportunities for all students, regardless of their socioeconomic backgrounds. By focusing on equity and access, we can strive to ensure that technology enhances education rather than exacerbates existing disparities.

5. Summary

The availability of information through the internet, search engines like Google, and platforms like YouTube has significantly expanded the possibilities for acquiring knowledge and skills. These resources offer a wealth of information, tutorials, and educational content that can benefit both students and teachers.

However, it's important to note that while information technology offers tremendous potential, it should be implemented thoughtfully and with a focus on digital literacy and critical thinking skills. Students and teachers need guidance in evaluating the quality and reliability of online information and understanding how to effectively use technology for learning purposes.

By embracing information technology and incorporating it into education, we can create a more dynamic and inclusive learning environment that prepares students for the challenges of the modern world.

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