

The Impact of Digital Technology on Teacher Education

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Abstract

The development of society has been significantly impacted by the introduction of digital technology. Teachers in the modern day must become digital networkers as they guide their pupils to become agents of change via the use of intelligent technology, a position that is increasingly important in the educational landscape. A smart classroom, equipped with magnetic induction-enabled boards, might improve teaching and learning methods via real-time technology-driven information interchange, which could have a long-lasting effect on students' cognitive development. Computers and teaching software have become commonplace in classrooms across many grade levels. In today's world, schools equipped with state-of-the-art technology are supposed to make us happy. In order to achieve their goals, educators must recognize the limitations of traditional teaching methods, as emphasized in this article. Educators have faced several challenges in recent decades while trying to adapt to different educational paradigms. Among these include handling large-scale educational institutions, using collaborative teaching methods, utilizing technology in the classroom, adapting to comprehensive school frameworks, and embracing novel mathematical and scientific procedures like Nuffield science. The mastery and competence of these technologies by the instructor determines the extent to which technology may enhance students' academic achievement in the classroom. The significance of teacher education in using technology to raise students' academic achievement is investigated in this research study.

Keyword: Teacher Educator, Achievement, Comprehensive and Digital Technology

Introduction

People are dependent on digital devices in a wide variety of settings and for an infinite number of reasons. The extensive use of computers and instructional software in today's classrooms has a significant influence on the learning processes of students. These processes include where, what, why, and from whom they learn. It is only natural for contemporary enterprises to be excited about having access to cutting-edge technology. As a result of the widespread availability of computers, software, and the internet in schools located in industrialized nations, educators in these countries have more options than ever before to further their careers via the implementation of professional development programs that are centered on technology. Alterations in the expectations that are put on educational institutions have been brought about as a result of developments in the dissemination and use of information and technology.

The process of Teaching and Learning

In education, the two main activities that are required to reach a desired objective are teaching and learning. The act of teaching itself is a means via which new information may be imparted. In order to address the requirements of both people and society as a whole, teaching is an intentional process that draws on one's own knowledge, skills, and character traits to provide a one-of-a-kind educational opportunity. In order to ensure that a school's educational goals are met, it is the duty of the teaching profession to identify appropriate learning activities. When it comes to teaching, having a solid grasp of the behavioral, practical, and applied sciences is essential. A typical understanding of teaching is that it comprises not just imparting knowledge but also motivating, directing, and assessing the progress of the student. Careful planning and the smooth integration of related activities are essential for effective teaching.

Based on theories of learning, it offers instructional chances or situations that guarantee comprehension, application, and critical thinking. The ability to achieve the desired learning outcomes is a hallmark of effective teaching. It comprises selecting realistic scenarios or creating an ideal learning environment to facilitate the acquisition of skills and information. To really excel as a teacher, one must possess an in-depth knowledge of the subject topic one is teaching. Learning entails not just gaining new information but also improving and enhancing one's current set of skills, attitudes, beliefs, and preferences. It may also need combining different kinds of data.

Objectives

- To explore the necessity of digital technologies in education
- To provide an overview of the significance of digital classrooms in education
- Determine the function of digital technology in education

Teacher Education for Future Educators

Early childhood preservice teachers are in favor of using technology into the classroom because, according to Alelaimat et al. (2020), it enhances instruction and student engagement. Technology integration is expected in the classroom, but new instructors often find it difficult to implement. In order to encourage teachers to use technology, it is crucial to enable preservice teachers understand how to support it (Ebersole, 2019). Educators of teachers should include technology into their lessons, as studies have shown that the more experience one has with it, the more likely they are to utilize it. It is possible that preservice teachers are not getting enough hands-on experience with technology in their teacher preparation programs. It is difficult to ensure that future educators get comprehensive technological training throughout their teacher preparation programs (Yazar & Karabekir, 2019). The rate at which technology develops and becomes obsolete makes this point even more salient. Consequently, it is crucial to include technology into teacher preparation programs so that future educators may be prepared to use it effectively in the classroom. Given the abundance of applications available and the constant development of new ones, it is essential that preservice teachers have experience selecting appropriate ones.

Also, future educators may use some guidance in figuring out how to locate and choose appropriate technological resources for their classrooms. In their classes, future educators do not believe that they learn enough about how to use technology in the classroom. According to Alanazy and Alrusaiyes (2021), however, there is still a lack of expertise among preservice teachers when it comes to integrating technology into their lessons. The university can influence how and what students learn about technology in the classroom, but they have little say over what they do once they graduate. Teachers-to-be are more inclined to use technology into their own lessons if they are often required to do so in their own professional development. In order for preservice teachers to grasp the value of technology in the classroom, authentic learning promotes active participation with it. Teachers gained confidence in utilizing ICT via genuine experiences. Having hands-on experience with technology is crucial for preservice teachers to grasp its pedagogical potential in the classroom. Hence, it is essential to offer preservice teachers real-world learning opportunities so they may gain expertise in both subject matter and pedagogy.

Significance of the Study

Even before the turn of the century, the digital world had already shown its durability and continued dominance. We were just now beginning to see and understand the far-reaching consequences of new technologies. A paradigm shift is occurring in the traditional educational setting. There is a huge chasm between the technological duties of educators and the advancement of society. Several parts of our life have been greatly altered by technology in recent times. Nonetheless, there is a clear disconnect between this technology development and teacher-led learning activities. Teacher educators do thorough study by checking several sources since digital technology is significant in educational settings. The current research highlights the functions and capacities of digital technology within the sphere of teacher education, making it very relevant and important. The findings of this study will shed light on the impact of digital technology on educators and will be useful for policymakers, college administrators, and teacher educators. According to the study's findings, teachers faced challenges related to limited access to the internet, lack of qualified technical support, inadequate training, lack of time, and inexperience with digital tools. In addition, future researchers in this area will find the study's results to be an invaluable resource.

The Role of Technology in Teacher Education

Over the course of the last several years, there has been a proliferation of application software for educational technology. However, a limited number of these applications continue to promote the conventional teacher-centered approach, despite the fact that the majority of them concentrate on creating innovative teaching approaches. There is a possibility that the incorporation of technology instruments into educational settings will result in an improvement of teacher training programs. Regarding programs that attempt to educate educators via the incorporation of technology, this is in reference to such projects. The tactics that were successful for them when they were students or children are still being used by a significant number of individuals who are now seeking professions in instructional teaching. In order to augment the classroom training that their pupils get, it is becoming more common for educators of prospective teachers to use computers and many other types of digital media.

- ♣ **E-Learning:-** Online learning harnesses a wide range of digital media to impart fresh knowledge and abilities. The concept of computer-assisted learning encompasses a broad range of practices that leverage computers to enrich education. These practices cover a broad spectrum of educational methods, including technology-enhanced learning,

multimedia learning, web-based training, online education, virtual learning environments, mobile learning, digital education, and flexible learning. Reviews and articles often delve into a wide range of topics, with the term "e-learning" being used in different ways and perspectives. All of these various terms for "educational technology" essentially refer to the application of modern tools like computers, digital media, electronic devices, and the corresponding software and courseware in the classroom.

- ♣ **Massive Open Online Courses (MOOCs):** Massive open online courses (MOOCs) provide students worldwide with the opportunity to enroll in an affordable and easily accessible course. Massive open online courses (MOOCs) provide students with the flexibility to learn at their own pace and at a minimal or no cost. Thanks to the availability of massive open online courses (MOOCs), students now have access to high-quality teaching materials created by renowned institutions and experts in their respective fields. In addition, they provide a flexible classroom environment that allows students to accommodate their studies alongside other obligations.
- ♣ **Information Communication and Technology :-** The major duty for the generation of knowledge is not with the instructor but rather with the student on their own. It would seem that there are inherent difficulties linked with the process of establishing a learning environment inside the more conventional framework. The use of contemporary information and communication technologies is what we depend on in order to establish such an atmosphere. Because of the seamless integration of information, communication, and technology in today's society, it is difficult to conceive of contemporary living without experiencing such integration. There is a significant degree of dependence on information, communication, and technology in our day-to-day activities. A tool that enables individuals to obtain information, interact efficiently, and make an influence on their surrounds via the use of electronic technologies is what we mean when we talk about digital technology. It is becoming more common for educational institutions to make use of information, communication, and technology in their operations. The use of information, communication, and technology has been enthusiastically embraced by a significant number of academics, researchers, and intellectuals. The term "information communication technology" refers to the technology that makes it easier for people to process and share information in order to make progress toward their objectives and fulfill their requirements.

All of the terms that were discussed before are included in it. Information technology, education technology, and communication technology are the three key subfields that fall

under the umbrella of information technology. The area of major concentration is computer technology. It contributes to the achievement of success and increases efficiency, regardless of whether the environment is official or informal. "Information and Communication Technologies typically encompass the technologies utilized for accessing, gathering, manipulating, and presenting or communicating information," says Toomey in his introduction. The use of information and communication technology allows for the generation, storage, selection, modification, processing, and sharing of a variety of information kinds. Information and communication technology encompasses a wide range of devices, including but not limited to computers, cameras, software, the internet, phones, programmable toys, control technologies, video conferencing, closed-circuit television (CCTV), data projectors, electronic white boards, and a great deal more.

- ♣ **Mobile Education:-** Mobile learning, also known as M-learning, covers the acquisition of knowledge and skills in various situations, involving social and content exchanges, and facilitated by personal electronic devices. Mobile learning is a crucial aspect of online education that allows students to easily access course materials using any mobile device with internet connectivity, no matter where they are or what time it is. Mobile learning is the utilization of portable electronic devices, such as smart phones, tablets, MP3 players, laptops, and portable computers, to improve the educational and study experience. The core principles of mobile learning center on the mobile learner and their interaction with portable technology. Utilizing mobile technology for the creation of educational resources and materials is a crucial aspect of informal learning.
- ♣ **Online Meetings:-** The use of videoconferencing makes it possible for individuals who are located in different locations to simultaneously transmit both visual and aural material to one another. Also known as a video teleconference or a video conference, this kind of gathering is also known by other names. You may hear the term "visual collaboration" used rather often to refer to this kind of groupware. By using technology that allows for video conferencing, we have the ability to enhance the effectiveness of our programs that are designed to educate teachers. We are able to do this via the ties that we have formed with other respectable educational establishments. In this day and age, the phenomena that is often referred to as globalization is of the utmost importance. Our educational institutions have been able to implement a method of teaching instructors that is highly effective thanks to the use of video conferencing.

The Future of Educational technology

Companies that specialize in education technology, whether they are small, medium, or large, are all providing schools with cutting-edge digital solutions. A greater number of people will have access to recently developed educational resources as the quality of the internet infrastructure in the country continues to improve. It is possible that in the not too distant future, we will be able to anticipate the destruction of language barriers as well as the improvement of internet resources for studying regional languages. Through the implementation of e-learning and mobile learning initiatives, a vast amount of material has been made accessible to both students and teachers. In order to properly harness the revolutionary potential of emerging technologies in the classroom, a new generation of educators will be necessary. These educators will put a priority on close relationships between students and teachers. All of these characteristics might potentially lead to a successful career in the field of teaching. The purpose of this class is to teach students how to make the most of the short-term and long-term advantages that may be gained by using cutting-edge educational tools. As the capacity of networks and the internet continues to expand, it will become less difficult to integrate cutting-edge technology into instructional strategies in the years to come. Therefore, the next natural step following the introduction of education is the implementation of hybrid learning and teaching, which mixes online and offline methods in order to get better results.

Conclusion

The educational system from kindergarten through high school has to be fully and completely open to the possibility of technological advancement. As a result of the significant influence that technology has on the education of children, it is of the utmost importance that legislators, school administrators, and educators acknowledge the significance of incorporating technology into traditional classroom settings. The promotion of new pedagogical approaches, the cultivation of a feeling of global community, and the customization of education to meet the requirements of each individual student are all very important. It may be possible to better prepare the next generation for an inventive future by making investments in the education of teachers, ensuring that everyone has access to the internet, and encouraging ethics in the use of digital technology. Instructor educators have made significant contributions to the development and improvement of the existing technological infrastructure.

The purpose for this is to increase the likelihood that each and every student will have access to the many educational materials that are accessible via the Internet and other devices. Although they take into account both the good and negative elements of integrating technology into the classroom, preservice teachers often emphasize the positive benefits of this approach. Preservice teachers have a solid understanding of the significance of integrating technology into the classroom instruction they will be providing. One reason for this is because technological advancements leave behind significant advantages for next generations. It would be beneficial for teachers to use technology tools into their lesson plans in order to stimulate the students' natural interest and to make it easier for them to study alongside one another. It is very obvious that preservice teachers are committed to continue strengthening their technical abilities, despite the fact that they are concerned about distractions and challenges caused by technology. There has been a recent increase in the practice of bringing technology into classrooms, which is positive on account of the possibility that it may assist students in relaxing and concentrating more effectively.

Recommendation

It is of the utmost necessity to reevaluate the significance of life skills and include them into the educational system alongside digital technology, despite the fact that life skills have always been an important component of Indian culture. Countries are presented with a strategic opportunity to strengthen their skills in this area and to successfully react to the requirements of their local communities via the use of digital environments. The Framework for Action recommends that governments enact legislation and initiatives in order to improve the provision of postsecondary education that is of a high quality, powered by technology, and offered remotely. In the long term, if we want to enhance accessibility, we need to make sure that massive open online courses are up to the quality criteria that have been set.

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