



# Impact of Technology on Education

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**Abstract:** In today's age, technology has incorporated itself into every aspect of our lives, including the education field. It is a tool that helps us to complete complex tasks quickly and efficiently. However, it is necessary to keep in mind that technology is a tool for education, but it can't solve the problems itself. The usefulness of educational technology lies in what educators do with it and how they use it to the best to meet the needs of their students. The impact of technology on education has been the most noticeable in recent years. Schools are incorporating more and more technology into the classroom to keep up with technological advances in hopes of preparing students for the rapidly changing world of technology. Virtual classrooms, augmented reality (AR), videos, different robots, and other technology tools can not only make the class more interesting, but they can also develop more inclusive practices that foster cooperation and intellectual curiosity while also allowing teachers to collect data on student performance.

The incorporation of technology into the classroom helps teachers to easily assign various tasks and assignments that allow students to put their knowledge and experience into action. Web-conferencing software, blogs, wikis, social networking sites, and digital games are specific examples of technology that have been shown to improve student engagement and communication. More specifically, technology engages students behaviorally, emotionally, and cognitively. Connecting with students across the globe promotes cultural learning and actually teaches how to collaborate with people who are different from them. Technology enables continuous access to information and knowledge. Students can learn at their own pace. With the advancement of technological platforms nowadays one can instantly interpret test answers on a large scale, and hence the grading system has become more accessible for teachers. However, the integration of technology into teaching means that some of these professors have to become tech-savvy, which takes time. Many sites are putting up misleading information online to earn more visits, even if the information is not accurate. As a student, one is likely to stumble upon some of these sites that provide false details or wrong information. Technology has led to the rise of a lot of devices that can access the internet. Students have to fight off some distractions to focus on their work.

There's no denying that we're becoming a more technologically oriented society. Understanding how to use technology, from digital menus to self-driving cars, helps prepare students for the future. Thanks to the use of technology tools, education is no longer restricted to the four walls of our classroom. Although it is distracting and expensive, it is very beneficial for students to be up-to-date with the latest educational methods

**Keywords:** Education technology, Augmented reality, Virtual classroom

## I. INTRODUCTION

The twenty-first century is frequently referred to as a technological period. The COVID-19 pandemic has increased the use of technology in schools and changed how students learn and instructors impart knowledge. Every sector, including education, is affected by technology to some extent. A result of this was the development of "educational technology," or "EdTech," which is the use of digital tools, technology, and teaching and learning materials to enhance educational results. It entails incorporating a variety of technological developments and solutions into educational processes, platforms, and environments.

## II. LITERATURE SURVEY

The field of education technology (EdTech) has witnessed significant advancements in recent years, with the integration of digital tools and resources revolutionizing teaching and learning practices. In[1] R. Raja et al. provides us with an overview of how ed-tech has made students more excited to learn but has also shown how its distracting for students. Sristhi Rajesh's[2] research shows that online degrees have proved to be a boon for students worldwide but has also led to increased incidents of cheating. Ram Gopal[3] has explored the positive effects of instantaneous feedback and has shown how prompt feedback enhances self-evaluation of students. Asst. Prof. Bharti Shah[4] has discussed how online classes have proved to be the only method of education during the pandemic but was also challenging because of unawareness of parents and poor financial condition of some families. Showkat Ahmad Dar's[5] research shows that education through the internet has been a new opportunity for collaborative teaching and learning for students and teachers across the world.

**III. MODERN TECHNOLOGY IN EDUCATION**

This section explores the integration of modern technology in education, including the use of mobile devices, interactive displays, educational apps, online platforms, virtual reality and augmented reality.

**Virtual Classrooms and Video Conferencing:** These technologies are helpful for running live online classes and giving lectures. Examples include Zoom, Microsoft Teams, and Google Meet. Geographical obstacles are no longer a problem since students can access education from anywhere.

**Adaptive Learning Styles:** There are pupils with variety of learning styles, including those who are

**Auditory Learners:** These students react best to speech. The best learning tools for them include audiobooks, podcasts and recorded classes.

**Visual learners:** Sight works best for these pupils. The best learning tools for them are e-books and PowerPoint presentations with graphical representation of concepts.

**Tactile Learners:** These pupils react best to touch. They find that holding objects, using a mouse and swiping screens to be the most efficient methods of learning. Drawing and sketching ideas also work in their favor.

**Gamification:** Gamification is the process of employing educational games, sometimes known as "edutainment", to include learning objectives through gaming. These games engage learners in the learning process and are accessible to learners of all ages. For instance,

**Duolingo:** It is a language-learning application that employs interactive lessons and tests to aid users to learn new languages.

**Words with Friends:** A word-building game in which participants construct new words using letter tiles.

**Money Metropolis:** A game that requires players to make financial decisions while exploring a virtual metropolis in order to develop their financial literacy and money management abilities.

**The Use Of Artificial Intelligence (AI) In Education:** Here are some major applications of AI in edtech:

**Adaptive tests:** AI makes it possible for assessments to change their level of difficulty and create their question material in accordance to a student's performance. By customizing questions to each student's ability, these evaluations give a more exact measure of their knowledge and abilities, enabling a more accurate evaluation and feedback. Adaptive tests also provide prompt feedback which is the self-evaluation tool for the students by which they can improve their performance and enhances their learning experience.[3][4]

**Classroom Management:** Using AI technologies to check attendance, monitor behavior and assess student participation and engagement, instructors may enhance management of classroom activities.

**Content Creation:** AI algorithms are able to analyze enormous volumes of data, produce educational materials like quizzes, exercises and study guides and suggest resources to students based on their preferences, performance, and learning goals.

**IV. VIRTUAL AND AUGMENTED REALITY**

In Virtual Reality (VR), people can interact with simulations using headsets or other devices in a fully realistic, computer-generated environment. By fusing virtual and real aspects, augmented reality (AR) improves the user's sense of reality by superimposing digital content onto the physical surroundings. Users are completely engaged in the virtual environment, cut off from the outside physical world. Immersive learning is made possible by VR and AR, which also allows users to explore virtual worlds and take part in situations that are as close to reality as possible.

**Use of VR and AR in Medical field:** VR and AR software can be used by medical students and surgeons to learn and practice surgery on virtual bodies. This proves to be very beneficial since they can practice using technology which is more readily available and cheaper than the other resources used. These technologies can simulate surgical procedures allowing surgeons to perform virtual surgeries and visualize complex anatomical structures.

**V. POSITIVE IMPACT OF TECHNOLOGY ON EDUCATION**

**Online degrees:** Through these programs, students are able to obtain a degree or certificate without actually being on a conventional campus. Top institutions employ the internet and a variety of tools to provide fantastic online programs. Because of their flexibility and accessibility, online degrees are growing in popularity [2].

**Provides Unlimited Access to Resources:** Technology enables continuous access to information. Students can learn at their own pace. Education is no longer restricted to the four walls of the classroom.

**Enhance Creativity & Visualization:** When taught via images, movies and animations, theoretical subjects like music, science and arithmetic are easier for students to understand. With the use of Edtech technologies, students may create presentations, take exams, learn using a learning management system (LMS) and engage in more creative activities.

**Enhanced Collaboration:** Through online platforms, collaborations can also happen among students across the world. Students can engage in cross-cultural activities/projects, exchange perspectives/ideas hence expanding their understanding of global issues and promote cultural exchange [5].

**VI. NEGATIVE IMPACT OF TECHNOLOGY ON EDUCATION**

**Distractions:** Social Media and gaming can be of significant distraction to students since they are using digital devices for learning purposes. This leads to a lack of engagement and participation during class time [1].

**Over-reliance On Technology:** Students may become too reliant on technology to solve problems leading to a lack of critical thinking and creativity. The writing skills of students have also significantly declined with the excessive usage of online texting and shortcuts [1].

**Limited Interpersonal Skills:** It limits learners' face to face interaction with peers and educators hence limiting their ability to collaborate.

**Digital Divide:** Some households cannot afford to purchase computers and other educational devices.[1] This creates digital divide, as not all students have access to the same technology and resources[5]. This lack of access can lead to further disparities in academic achievement and career opportunities and they might end up being less prepared for the digital demands of higher education and the workforce.

**VII. COMPARISON BETWEEN TRADITIONAL EDUCATION AND MODERN TECHNOLOGY**

ASPECT	TRADITIONAL EDUCATION	MODERN EDUCATION
Access to learning materials	Limited access to physical textbooks	Wide range of digital resources, including e-books and educational videos
Assessment	Traditional forms of assessment, such as written exams which are checked manually by teachers and are therefore time-consuming and also error prone	Innovative forms of assessment, such as online exams which provide instant feedback with no error
Flexibility	Limited flexibility in terms of when and where coursework is completed	More flexibility to complete coursework from anywhere with an internet connection[2]



## VII. CONCLUSION

Technology allows greater communication and resource sharing. However, it has the potential to replace conventional/traditional teaching strategies. EdTech offers virtual and augmented reality experiences and global connectivity. Some of the issues that need to be addressed include the digital divide and finding a balance between the demands of technology and interpersonal engagement. However, ed-tech has a promising future and has the ability to revolutionize the educational industry and increase its accessibility.

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