

The Role of Cutting-Edge Technology in India's Educational System

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Abstract

There is a growing consensus across the globe that it would be desirable to implement cutting-edge information and communication technology in the classroom. It is necessary to have the knowledge and the capacity to communicate with others in practically every aspect of modern life. It has been demonstrated that improvements in teaching and learning can boost student achievement, student involvement, and communication between teachers and parents. There is a significant gap between what is taught in schools and what is required of professionals working in the real world to develop their careers and improve their communities. Candidates that exhibit accountability and professionalism, the ability to work well in a team and solve problems, good oral and written communication, and strong problem-solving skills are highly valued by employers. The purpose of cutting-edge technology in India's educational system is the primary topic of this particular piece of writing.

Introduction

Technology in education refers to using all current digital materials to enhance the learning experience. Experts think that education technology could be a way to harm education in a significant way. Teachers used to follow a set of rigid, formal, and stereotypical teaching methods. Back then, education was seen as a means of disseminating facts and concepts to future generations. The student used to memorise all the teacher or textbook gave them. As a result, they frequently could not comprehend what they were being taught and were expected to duplicate it at exam time. There was no opportunity for students to ask questions or ponder independently.

Students are no longer seen as blank slates waiting to be filled with knowledge. They are now expected to use various media and resources to gain a well-rounded education. Interaction and communication are seen as crucial components of education. Today's teachers must aid, advise, and promote the development of their students. When teaching adults and children alike, the

teacher must be a source of inspiration and encouragement. ISTE CEO Don Knezek likens education without technology to a medical profession that does not have instruments. "You got a massive scar if you had knee surgery in 1970," he explains. There are now two dots on your thigh and knee if you had knee surgery [1].

Innovative Education Technology

The term "Innovative technology in education" refers to a collection of Innovative technologies that can be utilised to facilitate the acceleration of student learning and are evaluated based on "how and why individuals behave. The study and ethical practice of facilitating e-learning is known as Innovative educational technology. E-learning is defined as the process of acquiring knowledge and enhancing performance by designing, implementing, and managing the relevant technology procedures and resources[2]. The concept of educational technology is based on a broad interpretation of the word "technology," which refers to the instruments and resources that can be used to improve educational abilities and build new ones [7].

A Brief Overview of the Development of Educational Technology

Looking at the earliest instructional technologies, such as cave paintings, you can see how they have evolved. However, most accounts of its "history begin with the production of instructional films in the 1900s or with the development of Sidney Presser's mechanical teaching machines in the 1920s". Training soldiers in the United States during World War II using training films and other mediated materials was the first time new technologies were used on a big scale. Streaming audio, video, and PowerPoint presentations are examples of the numerous forms that presentation-based technology can take in the modern world. This technology was developed on the premise that individuals can acquire knowledge through the combination of auditory and visual input [4].

In the 1990s, several educational institutions adopted a "computer-based learning (CBL) system. These learning environments are usually based on constructivist and cognitivist learning theories". The primary focus of these settings is on teaching students how to solve abstract and domain-specific problems. The growth of various media and omnipresent technology in the 2000s boosted contextual learning theories to favour learning-in-context scenarios. There is no doubt that today's students are growing up in a digital world, which means they are continuously exposed to various forms of communication.

Why is innovative technology integrated into the education sector?

Educationist has pinpointed three variables that contribute to growth, driven by rising levels of human capability. Capital deepening occurs when workers can use more productive machinery than before. A more competent workforce can contribute value to economic activity thanks to the higher quality of the workforce. Technology innovation can be defined as the capacity of a labour force to generate, disseminate, share, and apply newly acquired information. These three productivity indicators serve as the basis for three ways that integrate education policy with economic development. These three approaches are complementary to one another and somewhat overlap [20].

The technology literacy strategy improves new technology usage by incorporating technological skills into the school curriculum. The knowledge-deepening strategy aims to strengthen

students', citizens', and workers' capacity to use the information to benefit society and the economy [21]. The Knowledge Creation method boosts students', residents', and working adults' ability to develop, generate, and profit from new knowledge [16].

"Our objective was to stimulate much higher levels of active student involvement, in which students acquire knowledge more through collaborative problem-solving and creative endeavours than through receptive listening. Both active participation and equal access are made possible in this classroom "by Liz Burdon, the primary researcher from the United Kingdom's Durham University 2012 [3].

The Role of Innovative Technology in the Classroom

Currently, various technological tools are being implemented in educational settings. The following are some examples of these: There is a positive correlation between the presence of a computer in the classroom and the teaching abilities of the instructor. When teachers use a computer in the classroom, they can explain a new lesson, offer new content, demonstrate new programmes, and show pupils new online information [14].

Class blogs and Wikipedia are only two examples of the many Web 2.0 applications currently used in today's educational institutions. There are many others. Blogs allow students to keep an ongoing conversation, which might take the form of a journal, thoughts, ideas, and tasks that provide student feedback and reflection opportunities. Wikipedia is an online encyclopaedia that emphasises group collaboration by enabling numerous users to edit a single document simultaneously. This results in a finished product that has been created via genuine teamwork and is meticulously updated. Microphones that are wireless for use in the classroom: Although raucous classrooms are every day, pupils can hear their teachers more clearly thanks to the use of microphones in the classroom. Their learning is enhanced when students can hear the teacher clearly [2].

Mobile Devices using mobile devices in the classroom, such as tablets and smartphones, can help improve the overall experience for students and instructors alike by allowing for the collection of feedback in real time. Interactive Whiteboards are a type that enables users to operate computer applications by touching the board. Displaying anything that could be displayed on a computer screen increases the learning experience in the classroom.

Students can use the interactive whiteboard to draw, write, or edit graphics, which aids visual learning and makes the experience more engaging. Video-on-demand digital video lessens the requirement for in-classroom equipment and enables instructors and students to watch short video clips without accessing the public internet. This prevents students and teachers from being distracted by distracting advertisements. Websites that stream video can be employed to improve the quality of a lesson taught in a classroom [7].

The term "online study tools" refers to software applications that enhance students' learning experience by, for example, adding a layer of interactivity or making the material more relevant to the individual student's interests. Video Games The educational and other "serious games" industry has significantly increased in size over the past few years [20]. The use of digital games in the classroom has been met with a great lot of positive feedback, one of which is improved motivation on the part of the students. These games are currently being offered as

tools for use in the classroom. There is a multitude of other tactics that may be deployed depending on the local school board as well as the monies that are available to them [11].

Initiative for Educational Technology in India

The Indian Ministry of Education and Social Welfare included an educational technology initiative in its Fifth Five-Year Plan in 1971. India's government recognised the need for educational technology to boost quality. This project had four sub-schemes that created an Education Technology Unit in the Ministry of Education and Social Welfare and a Centre for Education Technology at the National Council for Educational Research and Training. It assisted states in establishing Education Technology Cells and the programming associated with them on a one hundred per cent basis [20].

They were increasing the capacity of a select number of educational institutions to participate in Education Technology Programs. In response, a unit has been operating inside the Ministry since 1971, while a CET has been operational within the NCERT since 1973. Beginning in 1972–1973 and continuing onward, various states began establishing education technology cells. [4] The CET at the NCERT began its operations in the following domains after the Unit in the Ministry was responsible for all aspects of the project's planning and implementation, including the formulation of relevant policies and the provision of necessary financial resources. The planning and execution of system modifications and the production of prototypes using the appropriate hardware and software. Instruction in a variety of subfields within Educational Technology[17]

Methods of Research and Analysis are the gathering and distribution of information and data, as well as the provision of consulting services. The Indian Space Research Organization, the "Ministry of Education and Social Welfare", the "Ministry of Information and Broadcasting", and several other organisations were all involved in the planning stages of the Education Technology project when it was first developed. Successful usage, inter-agency coordination, systematic planning, and scientific evaluation are emphasised here. In its day-to-day operations, the plan aimed to broaden access to the benefits of technology for vast groups of people, particularly those living in rural areas. Its goals included enhancing the standard of education across the board, lowering levels of inefficiency and complacency, and fostering new forms of instructional practice and creative thought. [5]

A recent comprehensive consultation was held as part of UNESCO's "Information and Communication Technology (ICT) education programme. The purpose of the consultation was to determine the skills that educators ought to cultivate to use technology successfully in the classroom. The word serves as a catch-all for all information-accessing communication technologies, including videoconferencing, email, blogs, wireless networks, cell phones, satellite communications, and digital television computers and network hardware and software. The initials "ICT" are often used as an abbreviation for the phrase "information and communication technology." [6]

The Barriers Associated with The Implementation of Education Technology in India

Although technologies were introduced into the education system in India at an early stage, the country is currently dealing with growing pains associated with adopting new technology. Listed below are some of them: Access to computer hardware and software at educational

institutions that are either insufficient or severely restricted. Due to time constraints in the school calendar, initiatives that need technology cannot be completed. Insufficient availability of technical help for educational establishments [3]

There are insufficient opportunities for teachers to get trained. A lack of information regarding the various ways technology might be integrated to improve educational content. The integration of educational technologies is not a top priority. Students and instructors don't have the right equipment at home to adopt the latest educational advances in schools. [7] One of the most unfavourable aspects of adopting modern technologies in educational settings. There are a lot of moral concerns and considerations raised when the problem of copying and pasting students who prepare essays, projects, or presentations by accessing content from websites or blogs is becoming an increasing concern for educational institutions, including schools and colleges. Students frequently copy bits of information that appear to be pertinent and then paste them together without fully comprehending the content, let alone correctly citing it in their work [16]. A perception of the world is skewed; when students look for information on a website, they will use a search engine most of the time. This will give them a list of often a considerable number of search results. Because anyone with sufficient funds can influence what is written or scored, there is a real possibility that their perception of reality will be skewed due to using the website [9].

The students have a tendency, "when searching for some information on the website, to accept what they have found as valid information. Often, they do not look at other sources, and as a result, they have no justification for accepting the information at face value". This can lead to excessive trust in the information that was found. Loss of privacy and the creation of profiles is abundantly evident to us that when students utilise the services provided over the websites, They make information about us and our habits regularly available to the service providers. [23]. When a company offers a range of services, the problem becomes far more complicated because all of the information that may be gathered from them might be used to produce a comprehensive profile of the customer [17]. There is little room for the question regarding the fact that certain businesses are compiling information and profiles on their customers and economically significant developments. This can be accomplished by covert means, such as those discussed, or through open social networks, in which many people reveal information that can end up being detrimental to them at some point in the future [11].

Conclusion and Future prospective of Education Technology

Technology can potentially lessen the enormous amount of work students put into amassing many printed books and periodicals to learn knowledge, allowing students to direct their attention to other significant aspects of the knowledge acquisition process. Technology may play an essential role in education by facilitating students' comprehension of contemporary ideas and concepts, which is equally vital. The integration of project-based learning is also made possible thanks to advances in educational technology. Students of all various "levels can utilise these tools to construct their knowledge and develop skills necessary in today's society, such" as giving presentations and analysing data, with the assistance of knowledgeable professors.

At this point, the position of the teacher in the classroom is that of a facilitator. The educator's responsibility is to ensure students access technological resources to support learning. Teachers can devise strategies that make it simpler for students to participate in educational activities tailored to the specific requirements of individual pupils. Most educational technology programmes in India are geared toward preparing students for the workforce. This is even though "education technologies appear to have been taken pretty seriously by several state governments in India and by various private sector" ventures.

In the education system, Cutting-Edge technology emphasises the importance of learning a specific software toolkit. Cutting-Edge technology is of the utmost importance to create a comprehensive generic curriculum in which the use of computers is limited to the part suitable for them as tools. The utilisation of them broadens one's understanding of other subjects. "A learning system based on computers needs to be implemented as early as the primary level to higher level in India to make technology more accessible there. This will prevent pupils from falling behind in the digital age and ensure they are computer literate at a young age, "uncomfortable with the idea of having to use Education Technology when necessary. This paper also discusses the opportunities afforded by the integration of cutting-edge technology in various parts of the education system in the contemporary context and the obstacles that this integration poses. These topics are covered in this paper's discussion of the role of cutting-edge technology. In addition, this article critically examines some of the challenges involved with implementing information and communication technology inside the Indian educational system. This article has also covered the government's efforts to implement cutting-edge technology in higher-level educational institutions.

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