

ROLE OF TECHNOLOGY IN EDUCATIONAL PROGRESSION

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Accepted: 07.01.2023

Published: 01.02.2023

Keywords: Technology, Allied Tools, Scientific Knowledge, Communication Media.

Abstract

Technologies have reformed and continue to reforms the way we live, work, and play, relax and for that matter practically every aspect of our life. The system of education has also not stayed untouched by the impact of technology. The technology has impacted Education mainly two ways. First, it leads development of various studies about technological development and secondly the application and its allied tools activate functions of educational institutions/agencies at different levels. Technology in Education encompasses of two terms i.e. technology, which means the practical application of scientific knowledge to support and extend human aptitudes, senses, intelligence, efforts and efficiency. Second, term is education which means Process of attaining socially desirable knowledge, skills and values by learning and Instruction. Therefore, Technology in Education decisively refers to the use of variety of Technological tools (viz. audio-visual aids, communication media, computer, internet etc.) and applications for instruction and learning. The term 'Technology in Education' was coined much earlier in the process of evolution of the term "Educational Technology" or "Technology of Education" and the then educational writers closely viewed its meaning as aids (audio-visual) that can be primarily used as the source of lesson content (NCERT, 2006).

Paper Identification



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Introduction

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The term ‘Technology in Education’ was coined much earlier in the process of evolution of the term “Educational Technology” or “Technology of Education” and the then educational writers closely viewed its meaning as aids/tools (audio-visual) that can be primarily used as the source of lesson content (NCERT, 2006).

The ever-changing nature of technology also changes the formation, structure and application of technology in education along with the other aspects of human effort. It can conclude that “Technology in Education” as the use of every form of technology (namely software and hardware, including human speech, writing, printing, curricula, chalk and blackboards and in the recent past, photography, telephone, cinema, radio, television, video and more recently, computers, internet and other digital and communication media) relevant to education.

The use of technology has enriched the world in all walks of life including that of education. One can see and feel the change in air as classrooms are becoming modern and teachers and students are benefiting with gadgets such as computers, Smartphones, tablets, etc. The introduction of internet has made a sea of change in the way teachers can demonstrate concepts and ideas to children and make learning almost fun. Information today has been summarized in internet which can be beautifully used to allow learning be a fun rather than being a work. The application of technology in education invariably increases students’ learning, understanding, and achievement besides augmenting their motivation to learn.

Thus, the use of technology in education enhanced human capabilities in the dominion of teaching-learning.

Role and Application of Technology in Education Progression

Technology can improve education to a great extent and it has now become a need for transforming education for the better. Role of technology in education progression or teaching learning can be viewed in so many ways some of them are as under: -

To Improve Presentation

- By incorporating projective technology and specially designed software complete with animation, video and interactive components. For example, PowerPoint software can enhance lectures by emphasizing key points and incorporating photos, graphs, and maps, diagrams into presentations that would otherwise lack visual interest.
- Optimizing the pace of content delivery.
- More accurate representation of procedures, equipment or situations to students.
- To help students imagine the problems they will encounter in real life situations and at work.

To Encourage Learner Participation

- Catering to a variety of learning styles, including visual, auditory and experiential learners.
- Providing challenging and engaging learning experiences.
- Providing immediate feedback.
- Providing different preferences in teaching and learning.
- To give students an opportunity to develop their skills.
- Encouraging students to interact with teachers and students through email, WhatsApp, chat room mentor groups etc.
- Community building.
- Facilitating effective teamwork.

To Enable Self-Instruction

- To give students more control over their own learning in terms of their pace and preferences.

- Enable students to access study materials at home and engage with the many online resources available to them.
- Adding depth to points covered in a lecture or demonstration.
- To relieve students from tedious note taking.

To Extend Information Access

- Refinement of access to educational resources.
- Increasing communication between teachers and students.
- Highlighting key points in lab or lecture.
- Clarifying interpretation of a lecture, laboratory or textbook.

To Help in Administrative Tasks

- Management of learning and other system resources. Software such as a learning management system tracks attendance, assignments, time on task and student progress.
- Ensuring a comprehensive and objective assessment.
- Maintaining student development data.
- Enable teachers to effectively organize and present lessons.
- Reduction of time spent on routine tasks.
- Better access to students with special needs.

Merits and Limitations of Application of Technology in Education

Application of technology has great impact on the system of education today. Now there is a trend of increasing use of technology by both teachers and learners. The following benefits of technology in education are as under: -

- ❖ Using technology in the classroom allows teachers to effectively organize and present lessons. Multimedia presentations can make material more meaningful and engaging for students.
- ❖ The Internet alone has unlocked a world of opportunities for students. Information and ideas that were previously out of reach are available with a single click. Students of all ages can connect, share and learn on a global scale.
- ❖ Technology, especially computer and Internet technology, is quite effective in providing learning experiences in the form of exercises and drills; help diagnose and solve problems, access information and knowledge on various related topics.

- ❖ Technology makes the task easier for students when it comes to their access to various educational materials. Teachers can publish their study materials or important information on the course website, which means that students can study at the time and place they prefer and can get the study material very quickly.
- ❖ Students are more motivated to learn when they are interested in the subject matter, which can be improved by using technology in the classroom and focusing on the needs of screens and digital material that have stimulated them outside the classroom.
- ❖ Technology helps provide a truly personalized learning experience where students learn as individuals. A one-to-one learning experience can encourage students to familiarize themselves with the content, go forward and backward, start at any point depending on prior knowledge, rather than always in a predetermined fixed order or group instruction.
- ❖ Technology promotes higher order thinking which induces the following: -
 - Adaptability and management complexity
 - Curiosity, creativity and risk-taking
 - Innovative thinking and sound reasoning
 - Collaboration and interpersonal skills
- ❖ Technology creates more opportunities for extended learning. Today, a significant number of schools and households have access to computers and the Internet. This allows students to access the many online resources available to them without having to move from the comfort of home and school. Students can use their home computers and the Internet to conduct research, participate in social media, email and play educational games, and watch and learn from streaming videos.
 - ❖ Using computers or other forms of technology allows students to practice core content and skills while the teacher can work with others, conduct assessments, or perform other tasks.
 - ❖ Technology ensures high-speed content delivery with wide reach.
 - ❖ The technology ensures uniformity in the delivery of good quality content that is centrally produced by the best education experts without discriminating against students of different locations and socio-economic status.
 - ❖ Technology is democratizing education in the sense that education is no longer limited to a privileged few and even those who are downtrodden and poor can learn all the ideas and concepts that were a dream for them in earlier times. Today, the Internet has become

very widespread and has become a popular way of spreading knowledge without any discrimination.

- ❖ Technology provides alternative modes of education (e.g. distance education, online education, virtual education, etc.) by making education accessible beyond the traditional time and space paradigm.
- ❖ The use of technology reduces the unit costs of education in the long term.
- ❖ Extensive integration of technology in the form of e-content, e-textbook and other educational software reduces the use of paper and other related stationary devices in the education process, thereby promoting green education.

Limitations

Although technology in education has many advantages, there are also many limitations.

- ✓ **High infrastructure and set-up costs:** Requires high initial installation costs technological hardware and software (e.g., to install computers, video equipment, projectors, etc.) systems.
- ✓ **High maintenance costs:** High costs are also associated with maintenance and maintenance of equipment. Without proper maintenance and upgrades, expensive technology equipment loses its usefulness as technology is constantly in change.
- ✓ **Reach and access problems persist:** Economic situation and financial problems often ways of equal access to advanced technology in the classroom or access to educational technology tools such as computer, internet, ETV etc. at home are coming. Not everyone benefits equally from the use of technology in education. In a country like India, not only many students but also a large number of educational institutions are left without technology due to financial problems.
 - ✓ **Availability of appropriate multimedia:** Multimedia content that is suitable for locals students in terms of prescribed curriculum and preferred language, especially in the Indian context not yet sufficiently available. Language is an important issue in teaching-learning process in India. In many parts of the country, the medium of instruction is the local language. Therefore, multimedia packages are usually available in English or any language other than the means of teaching in the local context is useless.
- ✓ **The digital divide:** It is still a significant obstacle to the integration of technology in education because the socio-economic status of the school and its students will affect whether

they can resources be purchased and implemented in schools. Technology in education tends to create new one's classes of knowledge rich and knowledge poor.

The knowledge-rich are those with privileged access to integrated technology the education and knowledge poor are those who are needy by it. So, the divide unintentionally occurs among the digitally literate and non-digitally literate. The term digital divide is thus defined as the gap between those who have access to digital technologies and those who do not. This approach applies to the student's age, gender, education, income, ethnicity, and geography or location.

- ✓ **Standardization of Learning:** Technological application in the form of e-content development, online testing, educational software often leads to the standardization of learning experiences ignoring individual and social differences from a psychological, social and cultural point of view.
- ✓ **Ignoring of Affective Traits:** Technology is mostly used as a content delivery tool. Because we are often excited only about the effective delivery of content and the transfer of knowledge and information as the sole purpose of education, we forget the more social and humane aspect of education, which is supposed to bring about desirable changes in behavior and attitudes in students. Technologically mediated education lacking a humanistic touch can only result in the mechanical learning of a certain amount of information on the part of the student, not basic affective features.
- ✓ **Problem of Reorientation and Retraining of Teachers and Students:** For efficient use technology in the teaching-learning process requires teachers and students to reorient and retrain frequently. However, many educators present the idea of reorientation and training. Lack of proper knowledge of the purpose and use of learning software often results in underuse, misuse, or even misuse of technology.
 - ✓ **Misuse of Technology:** It has been observed that students tend to abuse technology like computer and internet to play games and browse unwanted content other than the proposed earning content.
 - ✓ **Technical Failure:** A technological malfunction or failure, whether due to poor hardware maintenance or software updates, usually disrupts the learning process. In India, lack of uninterrupted power supply in most part of the country is the main cause of such technological failures.
 - ✓ **Loss of Time:** Poor functioning of technological tools often in the form of shortages

internet connection, low download and upload speed accidental data loss due to sudden system failure etc. results in huge wastage of valuable time of students and others in teaching and learning process.

- ✓ **Attention Deficit Disorder:** Electronic devices such as cell phones and computers facilitate rapid access to a constant stream of resources, each of which can receive cursory attention. According to Rich Brains, students of the digital generation are not rewarded for staying on task, but for jumping to the next thing. However, we fear that we are raising a generation of children whose brains will be wired differently in front of screens.
- ✓ **Threat to Ethics of Education:** It has been observed that the increasing use of technology in education, especially the use of computers and computer technology has led to widespread violation of intellectual property rights (IPR). It has now been found that students are indiscriminately involved in the unethical act of copying and pasting in the name of completing assignments and projects. This trend of over-reliance on the Internet and other digital resources deprives students of using their own innovative and creative abilities. Some educators also do not mind making compromises in the area of intellectual property rights when preparing teaching materials and other professional development work. Before we use technology in education, it is more important that we know its power and limitations. Otherwise, we can end up either misusing technology in education or misusing technology.

Caution in Applying Technology in Education

Technology can be used meaningfully for the benefit of students, teachers and others Education system. At the same time, technology can be misused and abused.

- **Establish Guidelines:** Students do better when they know what is expected of them. They know each technology works and the goals for using a particular educational technology must be explained in advance. If the purpose is to incorporate web discussions or online chats to the classroom, for example, it should be ensured that students know what expected responses from them and how non-responses will be evaluated.
- **Encourage Student Interaction:** Using technology can lead to passive learning, as ever students watch a video or read web content without further viewing. In order to ensure that students stay in touch with the material to engage in group discussions of video presentations or by searching and summarizing their own research on the web.

- **Vary Technology:** Students often get distracted from their learning task, so it is very important to keep them motivated to complete the learning task. Adopting different technologies can help students stay focused and active in their learning task without getting bored. Media presentations can also enhance lessons by capturing students' attention and providing visual or auditory examples of subjects covered in class. Make sure you review all the resources you plan to use in class and point them to the appropriate place before starting the course. Providing a visualization guide or asking students to pay attention to certain problems will help focus their experience and prevent them from modification. Stop the video lessons at regular intervals for discussion, questions and pro reinforce important points.
- **Facilitate Access:** Copies of video, audio, or other material used in class should be kept in the library for students who miss class or otherwise wish to review the materials. Students must be provided with a complete reference to find the core course materials and supplementary web resources so that they can easily access them without wasting time searching for the same.
- **Practice:** It can take time to master the technology. Time in the classroom is precious, so teachers should refrain from spending time in unproductive ways, such as trifling with internet connections or troubleshooting software, etc. Teachers should be familiar with technology outside of the classroom in terms of where to plug in devices, how to open the program, when to pause for discussion, when to ask questions, what to do in the event of an unforeseen technical failure, etc.
- **Backup Plan:** It's a good idea to always have a backup plan or material on hand. Carry a hard copy of lecture notes rather than relying on PowerPoint slides. Prepare a written summary of the video you planned to show, or bring students to the library instead of doing research online. In some cases, it may be required to have a completely different lesson plan on hand.
- **Ensure equal Opportunity for All:** Ensure that media-based experiences can be enjoyed by all students, including students with disabilities. All students must be given an equal chance to actively engage in technology or technology-mediated learning without any fear or favor for any reason.
- **Select Appropriate Technology:** Evidence suggests that educational technology can improve student achievement when these tools are thoughtfully integrated into teaching and learning. When digital capabilities, such as the online environment, are meaningfully

incorporated into instruction, students have new opportunities to learn and achieve. Aligning learning outcomes with appropriate technologies is an important step in effectively integrating technology into classroom teaching and learning. Technology benefits learning if it enhances the presentation of a concept, motivates the learner, and provides an authentic learning experience.

- **Avoid Overuse:** Technology is the tool through which course content is learned. Overuse of technology where it is not needed can unnecessarily distract students from the learning task and even obscure a point.
- **Set Ethical Principles:** For the meaningful and fair use of content that is available in the media or on the Internet, students should have clear guidelines based on the ethical use of other intellectual property, whether it is writings, photographs, video or audio clips, graphs, diagrams, presentations, books, articles, etc. students should follow them.

Conclusion: - Technology is changing the face of teaching-learning and education. Teachers have more resources available to present the content and learning experiences, and students have more opportunities to engage themselves in learning. The teaching and learning are increasingly becoming more and more effective with the intervention of technology. Technology in education like other similar and parallel terminologies viz. instructional technology, information and communication technology, communication technology and educational technology aims at augmenting the teaching learning process and the access of educational opportunities to all by systematic integration of the knowledge, skills and expertise advanced in the different branches of science and technology. With emerging technologies such as computers, tablets, netbooks, interactive whiteboards and wireless solutions gaining ground in the education system, the reliance on technology by the education is touching new heights.

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