

Role of Technology in Indian Education

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Abstract

There is an emerging broad consensus around the world about the benefits that can be brought to education system through the appropriate use of evolving information and communication technologies. The range of possible benefits pervaded practically all areas of activity in which knowledge and communication play a vital role. It is involved from improved teaching and learning processes to better student outcome, increased student engagement and seamless communication with teachers and parents. Today there is a significant gap between knowledge and skills students learn in school and the knowledge and skills that workers need in workplaces and communities. Employers report that they need students who are professional, having good moral and work ethics, can collaboratively work in team, have critical thinking and problem solving ability, can lead a group of people and are skilled in verbal and written communication. This paper is to study role of Education Technology in India.

Keywords: Education Technology, e-Learning, Education Technology in India

Introduction

Education technology means the use of all kind of modern media and materials for maximising the learning experiences. Education technology is suggested by expert as one of the potential means of impairing education effectively and efficiently.

Previously, teachers used to teach in rigid, formal and stereo-typed ways. Education was then conceived as the process of transmitting knowledge and ideas. Student used to get by heart whatever was given by the teacher or textbook. They often could not understand what was taught and were expected to reproduce at the time of examination. Pupils were silent audience and could not make any logical queries or independent thinking of their own.

Today, the student is not considered as an empty vessel to be filled in by facts and figures. They are now expected to use so many media and materials and to get learning experience from all sides. Education is regarded as a process of interaction and interpersonal communication. The modern teacher has to help, to guide and facilitate the learner's development. The teacher has to inspire and motivate the young learners and assist the adult learners in their quest for knowledge and skills.

Don Knezek, the CEO of the International Society for Technology in Education, compares education without technology to the medical profession without tools. "If in 1970 you had knee surgery, you got a huge scar," he says. "Now, if you have knee surgery you have two little dots."

What is Education technology?

Technology in education is defined as an array of tools that helpful in advancing student learning and measured in how and why individuals behave.

Educational technology is the study and ethical practice of facilitating e-learning, which is the learning and improving performance by creating, using and managing appropriate technological processes and resources. [2] Educational Technology relies on a broad definition of the word "technology" which significant the tools and the sources to enhanced, to develop the skill of the Education.

History of Use of Technology in Education

Educational technology could be traced back to the emergence of very early tools, e.g., paintings on cave walls. But usually its history starts with the introduction of educational films (1900s) or Sidney Presser's mechanical teaching machines in the 1920s.

The first large scale usage of new technologies can be traced to US WWII training of soldiers through training films and other mediated materials. Today, presentation-based technology, based on the idea that people can learn through aural and visual reception, exists in many forms, e.g., streaming audio and video, or PowerPoint presentations

In the 1990s, there are a variety of schools that have Computer-based learning (CBL) system. They are frequently based on constructivist and cognitivist learning theories, these environments focused on teaching both abstract and domain-specific problem-solving learning.

The 2000s emergence of multiple media and ubiquitous technologies which gave a new impulse to situated learning theories favouring learning-in-context scenarios. Students are now growing up in a digital age where they have constant exposure to a variety of media.

Why technology is used in Education Industry?

Economists identify three factors that lead to growth which is based on increased human capacity.

- **Capital deepening** - the ability of the workforce to use equipment that is more productive than earlier versions
- **Higher quality labour** - a more knowledgeable work force that is able to add value to economic output
- **Technological innovation** - the ability of the workforce to create, distribute, share and use of the new knowledge.

These three productivity factors serve as the basis for three complementary, somewhat overlapping, approaches that connect education policy with economic development.

- **The Technology literacy approach** -Increasing the extent to which new technology is used by students, citizens and the work force by incorporating technology skills into the school curriculum.
- **The Knowledge deepening approach** -Increasing the ability of students, citizens, and the workforce to use knowledge to add value to society and the economy by applying it to solve complex, real-world problems.
- **The Knowledge Creation approach** -Increasing the ability of students, citizens, and the workforce to innovate, produce new knowledge, and benefit from this new knowledge.

"Our aim was to encourage far higher levels of active student engagement, where knowledge is obtained by sharing, problem-solving and creating, rather than by passive listening. This classroom enables both active engagement and equal access" by lead researcher, Liz Burdon Britain's Durham University (2012). [3]

Technology as tools of Teaching

There are various types of technologies currently used in classrooms. Among these are:

- **Computer in the classroom:** Having a computer in the classroom is an asset to any teacher. With a computer in the classroom, teachers are able to demonstrate a new lesson, present new material, illustrate how to use new programs, and show new information on websites.
- **Class blogs and Wikipedia:** There are a variety of Web 2.0 tools that are currently being implemented in the classroom. Blogs allow for students to maintain a running dialogue, such as a journal, thoughts, ideas, and assignments that also provide for student comment and reflection. Wikipedia, an online encyclopaedia, are more group focused to allow multiple members of the group to edit a single document and create a truly collaborative and carefully edited finished product.
- **Wireless classroom microphones:** Noisy classrooms are a daily occurrence, and with the help of microphones, students are able to hear their teachers more clearly. Students learn better when they hear the teacher clearly.
- **Mobile devices:** Mobile devices such as tablet or smart phone can be used to enhance the experience in the classroom by providing the possibility for professors to get feedback.
- **Interactive Whiteboards:** An interactive whiteboard that provides touch control of computer applications. These enhance the experience in the classroom by showing anything that can be on a computer screen.

This not only aids in visual learning, but it is interactive so the students can draw, write, or manipulate images on the interactive whiteboard.

- **Digital video-on-demand:** Digital video eliminates the need for in-classroom hardware and allows teachers and students to access video clips immediately by not utilizing the public Internet.
- **Online media:** Streamed video websites can be utilized to enhance a classroom lesson.

- **Online study tools:** Tools that motivate studying by making studying more fun or individualized for the student.
- **Digital Games:** The field of educational games and serious games has been growing significantly over the last few years. The digital games are being provided as tools for the classroom and have a lot of positive feedback including higher motivation for students.

There are many other tools being utilized depending on the local school board and funds available at their disposal.

Education Technology Project in India

The Government of India in the Ministry of Education and Social Welfare realized the importance of Education Technology for Qualitative improvement of education and included the Education Technology Project in its Fifth Five Year Plan in 1971. This project had four sub-schemes as follows:

- Setting up an Education Technology Unit in the Ministry of Education and Social Welfare.
- Establishing a Centre for Education Technology (CET) in the NCERT.
- Assisting States for setting up Education Technology Cells and their programmes on 100% basis.
- Strengthening a few education institutions for undertaking Education Technology Programmes.

Accordingly, unit was started in the Ministry since 1971 and a CET in the NCERT was set-up during 1973. Education Technology Cells come into being different states from 1972-73 onwards.

The Unit in the Ministry made all planning, policy-making and providing funds for implementation of the Educational project and the CET in the NCERT started functioning in the following areas:

- Systems designing and implementation.
- Prototype production of suitable hardware and software.
- Training in different areas of Education Technology.
- Research and Evaluation
- Collection and dissemination of information, data and consultancy services.

The Education Technology project was conceived as a broad-based and collaborative effort among the Ministry of Education and Social Welfare, the Ministry of Information and Broadcasting, the Indian Space Research Organisation and other concerned organisations. It is underlined the importance of inter-agency co-ordination, systematic planning, scientific evaluation and effective utilization. Operationally the scheme sought to extend, the benefits of technology to large groups, particularly those in rural areas. It aimed at improving the quality of education at all levels, to reduce wastage and stagnation and to introduce new methods of teaching and innovation.

Recently, Information and Communication Technology (ICT) for education, initiative by UNESCO, conducted an extensive consultation to identify the competencies that teachers should develop to use technology effectively in the classroom. It is basically an umbrella term that encompasses all communication technologies such as internet, wireless networks, cell-phones, satellite communications, digital television computer and network hardware and software; as well as the equipment and services associated with these technologies, such as videoconferencing, e-mail and blogs etc. that provide access to information.

Challenges of use of Education Technology in India

Despite early implementation of technologies in Education system, India still faces teething problem for the new technologies in education. Some of them are:

- Not enough or limited access to computer hardware & computer software in education institutes
- Lack of time in school schedule for projects involving use of technologies
- Lack of adequate technical support for education institutes
- Not enough teacher training opportunities are there
- Lack of knowledge about ways to integrate technologies to enhance curriculum
- Education technologies integration is not a priority
- Students and Teachers do not have access to the necessary technology at home

There is also a negative facets of new technologies used in education. Many ethical questions and issues arise with this use of the latest technologies in education.

- **The Copy and paste syndrome**– Schools and universities have more and more problems with students who prepare essays/ project/ presentation by using material from websites or blogs. Often, students just copy pieces of information that look relevant and paste them together, without sometimes even understanding them, let alone citing them.
- **Distortion of reality** – When students are looking for some information on the website, they usually employ a search engine. This will give them a ranked list of often incredibly many search results. There is the real danger that their view of reality is distorted by the website, by the fact that someone with enough money can influence what is written or ranked.
- **Too much trust in the information found** – When searching for some information on the website students tend to accept what they have found as true information, often without looking at other sources and hence having no justification to accept the information at face value.
- **Loss of privacy and profiling** – When students use services offered over the websites it is clear to us that they are making often information about us known to the service providers. The situation gets much more complicated if a company has a set of services so that combining all the information that potentially can be extracted gives a very detailed profile. There can be no doubt that some companies are collecting information or profiles on users, and on economic relevant developments. This may be done through

stealth as described or from open social networks where many persons give away information that may well be harmful to them at some later stage.

Conclusion

Technology can reduce the tremendous effort given by students to gather number of printed book and journals for acquiring knowledge and increase students' focus on more important knowledge gathering process. Equally important, technology can represent education in ways that help students understand latest concepts and ideas. The Education Technology also enables teachers to integrate project-based learning. With guidance from effective teachers, students at different levels can use these tools to construct knowledge and develop skills required in modern society such as presentation skills and analytical skills.

In the present time the teacher's role in teaching is facilitator. The teacher has to facilitate the learning by providing students with access to technology. The teachers can find the means to engage students more easily in learning and to cater to the various needs of different students.

Future of Education Technology

In India, while education technologies appear to have been taken quite seriously by many state governments and by certain private sector initiatives, most of these programmes are aimed at preparing students for the job market.

In addition, the programmes are software- acentric, i.e. they emphasise the learning of a specific set of software tools. There is an urgent need to demystify this technology and de-emphasise the learning of specific tools. A balanced generic curriculum, where computers are relegated to their due place as tools, and where they extend the horizons of other subjects is a must.

To enable technology in India, computer-based learning system must be introduced from the junior level so that the students become computer savvy from very young age and are not afraid of using Education Technology when actually needed.

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