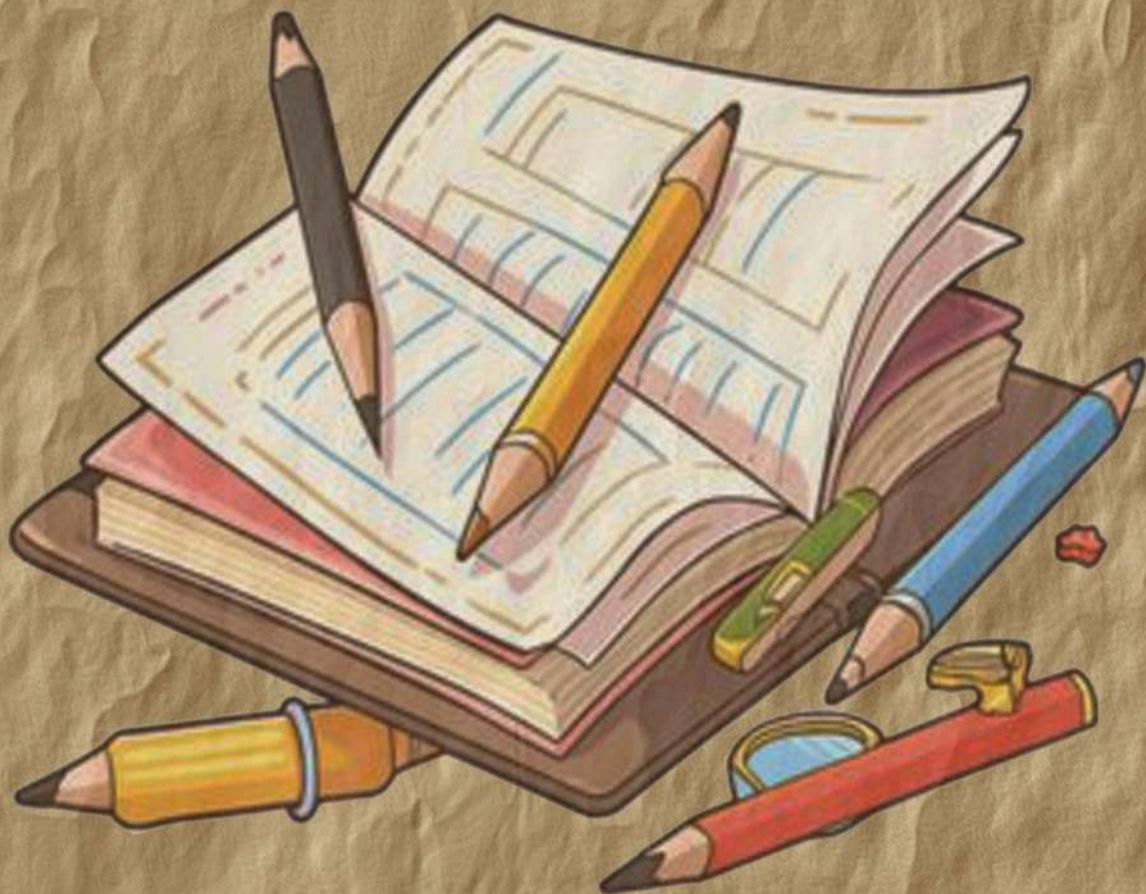


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PREFACE

Indian education system catering over 300 million students of various categories is expanding continuously to bring considerable transformation. It is expected to be more accessible, inclusive and aligned for catering needs of the fast changing global society. The emerging digital technology is immensely influencing school and higher education system leading to significant changes in coming days. Digital learning with interactive apps and online resources will be more used by students. The National Education Policy, 2020 will not only promote innovative teaching and learning processes but also emphasize inclusion of Indian Knowledge System (IKS) into curriculums at all levels of education, which purports to promote indigenous Indian systems of knowledge. Blended learning with integration of online learning and traditional class room teaching offering flexible and personalized experience will be in focus and used widely. There will be shift in curriculum directing towards environmental awareness, entrepreneurship, project based experiential learning etc. to prepare the students for upcoming job market. Schools and parents will more focus to promote creativity, critical thinking, empathy, physical, emotional and social skills.

The Higher Education will emphasize on multidisciplinary approach with multiple entry and exit points. It will be more flexible and accessible with promoting online and distance education programmes to cater needs of diverse group of students and working professionals. Industry- Academia collaborations between universities and industries will be encouraged to address needs of job market with emphasis on internship programs, hand on training/ workshops, guest lectures by industry professionals etc. Vocational education will emphasize on re-skilling, up-skilling & life long learning to meet needs of job markets.

Education is a dynamic process with the teacher being the central focus. It provides new shape to the individual and consequently the nation. It has potential to play a significant role to bring about social change, economic growth and political development in any society. Teacher and Teacher Education needs to be oriented to achieve sustainable development goals (SDG). Individual excellence and life long learning matter a lot for success in Teacher Education. The teachers have to be updated with disciplinary knowledge and emerging digital technology regularly as their students used to access it. So, the performance can very well surpass degrees. A teacher has to compete with global teaching community to remain relevant in the current technology dominated environment. There is need that students at all levels should be taught by well qualified, passionate, motivated, professionally trained and well equipped teachers to promote creativity. The present volume of the Journal *Educatum* tried to address various issues pertaining to Teacher Education to enhance the knowledge in the discipline of education.

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DIGITALIZATION IN TEACHER EDUCATION: E-LEARNING IN THE MODERN EDUCATION SYSTEM

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Abstract

In 1999, Elliott Masie used the terminology “E-Learning” for the first time in the field of education in his Tech Learn Conference at Disneyworld. Electronic Learning is basically the delivery of learning and training through digital resources such as computers, tablets or mobile phones provided they are well connected through internet. It may also be termed as virtual teaching-learning; a mode of distance tutoring that is chiefly characterized by classes taken by from a distance and students attending classes from their own residence. Technological devices help student-teacher or student-student communication to communicate each other. After post-covid period, the magnitude of the need of Online/E-Learning education system has gained a tremendous momentum.

But there are a few problems in implementing E-Learning in the country like India. They are as follows:

Poverty: Most of the people of our country live below poverty line in remote villages where it is neither easy to purchase electronic devices nor to get available internet connection to run E-Learning.

Attention Level of the Learners: To continue E-Learning classes for long and keep attention focused on topic is very difficult for the learners.

Control over Classroom: Teacher has no control over classroom as the learners may switch off video and engage themselves in sleeping or playing video games.

Lack of Human Touch: During an E-Learning class, there is no close interaction between teacher and student. Therefore, a student lacks human touch and human qualities of a teacher such as affection, love and correctional procedures for mistakes.

Inspire of all these obstacles, E-Learning has become popular in efficient teacher training. To equip the teachers with all modern teaching trends, regular teacher training programs are essential, and they are trained in their own institutes through E-Learning with the help of ICT.

Key Words: *E-Learning, Digital, Computer, Tablet, Mobile, Internet, Remote, Attention, Teacher, ICT.*

INTRODUCTION

Technological development has surrounded all the sectors of human life, educational sector being no exception. E-Learning is a popular term that had been evolved much earlier but gained its boost during Covid-19 pandemic in 2019-2020. From schools to colleges, from universities to

management institutions, all had no choice other than E-Learning. E-Learning and E-Book had been highlighted by the American author Issac Asimov's in his famous science fiction 'THE FUN THEY HAD' which was written almost 100 years before probably when Artificial Intelligence did not appear even in human imagination. The story is about schooling system of mid-twenty second century. Margie is a girl of 11 and Tommy is a boy of 13. Both of them studies in schools adjacent to their own bedroom. They studies E-Books and they learn under mechanical teacher. They have no idea about traditional school, human teachers and traditional books printed on papers. In the course of time Tommy found an antique paper book in the roof space in their residence, it was a matter of great surprise to both of them.

"Margie even wrote about it that night in her diary. On the page headed 17 May, 2157, she wrote, "Today Tommy found a real book!"

It was a very old book. Margie's grandfather once said that when he was a little boy his grandfather told him that there was a time when all stories were printed on paper.

.....
"What's it about?"

"School."

Margie was scornful. "School? What's there to write about school? I hate school."

Margie always hated school, but now she hated it more than ever. The Mechanical Teacher had been giving her test after test in Geography and she had been doing worse and worse until her mother had shaken her head sorrowfully and sent for the County Inspector.

The part Margie hated most was the slot where she had to put homework and test papers. She always had to write them out in a punch code they made her learn when she was six years old, and the mechanical teacher calculated the marks in no time.

So she said to Tommy, "Why would anyone write about school?"

Tommy replied, "Because it's not our kind of school, stupid. This is the old kind of school that they had hundreds and hundreds of years ago."

"Anyway they had a teacher?" asked Margie.

"Sure they had a teacher, but it wasn't a regular teacher. It was a man."

"A man? How could a man be a teacher?"

.....
"A man isn't smart enough."

It is debatable whether human teachers are as intelligent as mechanical or not. It is also equally debatable whether human teachers should be replaced by Robot Teachers with Artificial Intelligence in future or not? But we believe it or not, we accept it or not, it is unavoidable that it is our destiny and we must proceed towards a new world where machines will teach us or will help us in every sphere of life and Issac Asimov has foretold this almost 100 years before like the Oracle of Delphie.

CONCEPT OF E-LEARNING

This is a common belief today that E-Learning is the outcome of Covid-19 Pandemic. But this is not true. Trend of E-Learning has been set long before when IGNOU or other educational institutes have taken initiatives to introduce teaching-learning through video conference mode for their Open and Distance Education system. Although ‘Scholars are of the opinion that although crises can be very distressing it also generates creative actions and innovative thinking. New ways of thought emerges out of doubts from the situations that one experiences.’[2]E-Learning or Electronic learning broadly refers to Information and Communication Technology that comprises tools and services for handling communication of information. Necessity of E-Learning is ever-widening in our daily life. After the Covid-19 pandemic, almost all the countries in the world have adopted E-Learning as a part and parcel of education where application of E-Learning or ICT has transformed into a significant component of the teaching-learning exercise in every field of studies from school education to higher education including teacher education. E-Learning is provided in three ways----

- i) **LMS:** LMS or Learning Management System is a software application which is used in online training programmes. All the teaching-learning courses and related data are transferred onto it. The teachers and learners are permitted access to the LMS together with its all resources and the unique virtual teaching-learning devices. There are several types of LMS, such as Cloud Dependent, Open Source, Instant Dependent etc. An advanced LMS has important role in adaptive strategies of E-Learning.
- ii) **SCORM:** SCORM or Shareable Content Object Reference Model improves content of E-Learning and ensures how to use it. It is basically a technical tool for E-Education system. It provides a standardized method in which the E-Learning materials are created. Although it is flexible in nature, it gives a solid framework that allows for a number of formats for successfully operating across different LMS platforms. It provides training using tools and the point should be remembered that it may increase the cost of E-Learning.
- iii) **xAPI:** It is mainly used for providing online training. It is basically an updated version of SCORM. It is chiefly used in collecting and analyzing data from different sources. It is a protocol in tracking educational activities in various fields. It is an open source specification and is totally free of cost.

METHODS OF E-LEARNING

There are several methods of E-Learning----

- i) **Web E-Learning:** Web E-Learning is provided through website content. Learners can use their own device for this purpose. It is a self-directed and personalized learning which helps students acquire knowledge themselves.
- ii) **Virtual Classroom:** Virtual classroom is a video software in which the teacher and the student can enter the class physically through video. Example of such video classroom is Zoom cloud meeting App. An internet connection is required to be

- active in virtual classroom and teacher and students can communicate each other as long as they are connected through internet. One benefit of this type of classroom is that immediate feedback is available here.
- iii) **Video Module:** In this method a recorded video is shared so that everyone can learn from it. Example of Video Module is YouTube. Shorter video modules are generally preferred by learners but it should be kept in mind that one video module should complete one single topic for learning.
 - iv) **Specialized E-Learning:** Through this method employees of an organization in trained. Example of such method is Documentary or Company elevator Speech. Risk management e-learning one such specialized E-Learning system.
 - v) **Social Media Training:** Now a days social media plays an important role in E-Learning. Facebook, Twitter, Instagram and even WhatsApp provide knowledge of all types to a vast number of users. Social media training is the most popular today because it can be used in any place and any situation. Employers use the social media training programmes to up skill their employees and to boost their morale. The motto of social media training is to empower every employee to level up with current trends that help them to work better.

IMPORTANT ASPECTS OF E-LEARNING

Some important aspects of E-Learning are as follows:

- i) **Cost Friendly:** In comparison to Offline mode of studies, E-Learning is cost friendly. There is less paper work in E-Learning and so it is hassle free. It does not require lots of books and notebooks or learners do not require to go to any institutional premises and thus cost of travel is saved. More than that they can take their examination online and teachers can assess those papers online and hence labour and money both are saved.
- ii) **Time Saving:** In offline mode, there are a number of things to be arranged for teaching-learning procedure but in case of E-Learning there is no such burden. Just take your device, open the learning platform and you can begin your learning. As a result of this it is becoming more popular day by day and all prefer E-Learning to offline mode of learning in traditional educational institutions.
- iii) **Learning from Home:** E-Learning has given this opportunity to learn from home. It does not require physical appearance in the classroom and so it is very popular now. After the worldwide pandemic situation, this concept of E-Learning has gained a boost in almost every sector from business management to educational institutions, from political campaign to small Entrepreneurs. It is the safest platform to propagate knowledge and training programmes through E-Learning as it is available sitting from one's home with just a handy android set.
- iv) **Eco-Friendly:** E-Learning does not require papers and so it saves trees and it has become environmental friendly and eco-friendly. This is probably the most important

point that E-Learning caters in modern society that we should and must save environment as much as possible to save ourselves. Therefore, E-Learning is being promoted fast and it is undoubtedly our future of educational system.

SIGNIFICANCE OF ICT IN E-LEARNING

Now a day's electronic devices have become a way of life specially for the young minds. And the classrooms are full of young learners who are technologically very conscious. Instead of traditional classroom system of chalk and talk, they are more attracted to audio-visual classrooms and hence, ICT plays an important role in development of today's classrooms. "The advancement of technology and science in the West over the last several centuries is solely responsible for the region's current level of prosperity. One of the telltale indications of technological advancement is the proliferation of information and communication technology, or ICT. Today, information and communication technology is one of the primary indicators of technical and economic growth and advancement. Because it presents more chances for a society as a whole as well as more obstacles for businesses individually. The effect of information technology is very deserving of academic investigation. Schools and universities spend a lot of money on technology like computers, internet and LCD projectors, and they send their instructors to short, intensive courses to educate them how to utilize the equipment. The introduction of information and communication technology into higher education has significant implications for the entirety of the educational process, ranging from the initial stage of venture creation to the application of technology in the management of essential corners such as access, equity, administration, effectiveness, teaching method, quality, and research development. Applications based on information and communication technology provide organizations a competitive advantage by enabling them to provide expanded services to students and employees, to drive more noticeable efficiency, and to make enhanced learning interactions and experiences."

E-LEARNING AND TEACHER EDUCATION

Education is an endeavour on the part of the adult members of the human society to frame the progress of the future generation conforming to its own ideals of life. Teacher education may be defined as every formal and informal projects including all experiences that help to qualify an individual to take up commitments to discharge the duty of catering of knowledge to young individuals. Today's teachers must be well equipped with E-Learning system because today's students consult website more rather than books. They are always looking for internet materials for any topics or subjects. Teachers should apply latest technology for their students to teach and teacher education plays a vital role to instill such knowledge among teachers. Psychologists also opine that audio-visual teaching-learning system attract the students more easily and teaching-learning become easier in that manner.

LITERATURE REVIEW

Various kinds of academic activities have been performed to scrutinize the link between E-Learning and traditional education system. These academic works have concentrated on several points that have been affected by E-Learning. ‘As a result, all relevant stakeholders involved in higher education have made tremendous efforts to ensure adoption of ICT in their university education system. According to a report published by the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute of Statistics (2013), Government of University managements globally have heavily invested in adopting of information technology in their education systems. Overall, numerous attempts, both theoretical and empirical, have been made in a bid to evaluate the impact of ICT adoption in the education system.’ ‘Conventional strategies for instructing were common before twentieth century, however, fast advancement occurred from the mid of twentieth century in the field of software engineering, media communications and data innovation that are changing the customary arrangement of training into digitized framework in making the coveted results increasingly powerful and effective.’ ‘Though American educational research has always been in the forefront, its educational system has been heavily criticized by the American public over the past several decades (Christmann, 2003), contributing significantly to the criticism of the public schools is the dismal placement of the nation’s Mathematical and Science students within the global hierarchy, for example The Third International Mathematics and Science Study (TIMSS). In response to the public outcry and criticism, the schools are incorporating CAI (Computer Aided Learning) into their curricula in efforts to enhance student achievement.’ So it is obvious that public demand can enhance the introduction of ICT or E-Learning in schools or higher education. ‘The application of ICT is creating significant changes in the teaching and learning process. Technology provides a remarkable role in making education inclusive since it has the potential to improve educational performance for their students.’

CONCLUSION

E-Learning is a terminology that has gained boost remarkably worldwide. ‘It is particularly in the field of education since it has recently created such platforms and opportunity that have facilitated to some extent the acquisition of knowledge. This phenomenon has been highlighted in this paper that indicates how students view ICT as a component of their study programme. In order to appreciate the role of E-Learning in the field of modern education, it is necessary to involve all its functionaries in ICT. The very first stage of ICT implementation must be effective to make sure that, teachers and students are able to make the best use of it. So, preparation of a technology-based teaching-learning should begin in the proper way. ICT integration in schools will result in a huge success and benefits for both teachers and students. The use of ICT especially in teaching and learning is more about practicality as compared to theories and that is why teachers must be given time to learn and explore it, face the ‘trial and error’ method before they are completely comfortable with its usage and able to make of it for teaching and learning.

It might be too common for issues and challenges of ICT integration to be discussed but in-depth study of ICT integration in core subjects in schools is least discussed. It can be recommended that ICT integration in teaching and learning to be done between public and private schools. Then this can be applied in higher education properly. There is no other way to make ICT the part and parcel of modern education.

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