Role and Challenges of ICT in Teaching and Learning Process

Dr. Deepa Choudhari
Assistant Professor
Govindrao Wanjari College of Engineering & Technology, Salai Godhni, Nagpur, Maharashtra, India
deepachoudhari31@gmail.com

Abstract: *As we all know that Indian education is one of the world's largest and oldest educational systems. With unparalleled changes revolving around the educational sector, the use of ICT has created a massive impact on the teaching and learning process. ICT transforms the teaching –learning process. Besides, an increase in the students' learning gains, the ICT also provides opportunities to develop creativity, communication skills along with the other thinking skills. The need of the hour is to develop a learning environment in which the students, teachers, administrators and parents can communicate, collaborate easily with each other and share secure information around the clock and ultimately, access a world of knowledge beyond the classroom walls and all these needs can be fulfilled only through technology. The present study is focused on the narrative of the literature review on the role and challenges of ICT in teaching and learning.*

Keywords: Technology, ICT, Learning, Teaching, Education

I. INTRODUCTION

The education sector has confronted drastic radical transformation with the help of technological advancements like e-books, e- learning, multi-sensory classrooms, remote learning, virtual and augmented reality, and artificial intelligence across the globe. ICT is considered an important tool for building knowledge societies (UNESCO, 2003) and especially, as a tool in school education that could help in reconstructing the educational processes and system leading to effective education for all people. The Indian education sector has also witnessed an extensive push by the policymakers, educators, and learners in integrating technology with improving the learning process. It has also led to a considerable shift in the teacher's beliefs in using ICT as a pedagogical tool. Indian teachers have been optimizing various EdTech initiatives launched by both national and state governments potentially solving systemic issues such as access, equity, and quality. The efforts of teachers integrating ICT in the classroom have helped in improving the quality, accessibility, and cost-efficiency of delivery of instruction to students, and the teacher student relationship as well. Thus, playing a significant role in contributing to achieving the targets of the Sustainable Development Goals, by providing platforms for increasing access to high-quality educational resources and reaching larger numbers of learners. Learning is just like sailing against the current; if you don't advance, you will be driven back. These words clearly indicate the need of advancement and regular changes in learning. We are living in an era where everything is changing very fast, including the way we live and learn. To cope up with these relevant changes is one of the challenges of the age. Education is expected to play an important role in equipping the human being with changed beings coping competencies. To play this role education must be innovative and the institutions have to find new ways and means to reach people with new and updated knowledge. The growing density and heterogeneity of the learner profile demands greater variety of courses and a high degree of interaction. The revolution in the form of information technology enables everyone with more independent, interactive and collaborative learning and provides an opportunity for intellectual and social interaction. In other words, it can be said that Information and communication technologies are helping in changing the educational environment. These technologies, in the form of electronic and computerized devices like computers, video, television, sensors, interface boxes, the internet, telecommunication, satellite connections and all the software's, are associated with the human interactive materials that enable the user to employ them for a wide range of teaching and learning processes. School Education, being a grass root level for any country, has a great role in the development of the country. Any type of failure at this stage may prove an obstacle in the

development of the country, that's why, to fulfill the changing needs of the education system in modern society, the adoption of ICT plays a remarkable role.

What is ICT?

Generally, ICT is assumed, particularly with reference to education, as a system to empower both of the living pillars of education system i.e. the teacher and the student. Undoubtedly, the assumption is quite true and relevant. In the form of familiarizing the students and teachers with the functioning of computers, ICT transforms the teaching – learning process. ICT is an acronym that stands for

- Information,
- Communication,
- Technology.

Information- It covers topics such as the meaning, value of information and how information is controlled. Management of information covers how data is captured, verified and stored for effective use; the manipulation processing and distribution of information; keeping information secure; designing networks to share information.

Communication- It refers to the communication of data by electronic meanswhich is achieved via networks of sending and receiving equipment, wires and satellite software applications and data. The network is helpful in the office environment where colleagues need to have access to common data or program. The external networks are needed to communicate with someone outside your internal network which is done through WAN. Internal Networks- Usually referred to as a Local Area Network (LAN), this involves linking a number of hardware items together within an office or building.

Technology-Technology is the use of tools, machines, systems in order to solve a problem according to organization. Technology has the ability to control and adapt to their natural environments and beneficial to the human kind if used in corrective ways. Educational organizations such as schools, universities, training centersdo use ICT in the following ways:

- e-learning services;
- To communicate with students and parents
- Open educational resources,
- massive open online courses
- International collaborations in a distance-learning environment
- Overcoming barriers of geography and formal classroom hours.
- Besides, they also provide students insight into other cultures and experience multicultural communication, and closely emulate the collaborative nature of today's professional environments.
- Technology supported assessment of students through google forms, moodles etc.
- Assist students in accessing digital information efficiently and effectively
- Support student-centered and self-directed learning
- Produce a creative learning environment
- to develop critical (higher-order) thinking skills
- to supplement class curriculum.

There are programs which provide study questions, activities and even test and quizzes outside the classroom. Technology has also become part of many curriculums; students use computers to create presentations and use internet to search topics for papers and essays.They learn to use the technology available to them in classrooms or at home. This ensures that after studies they will be able to use the technology in a work setting, which may put them ahead of others who did not have access to particular technology or software in their own school setting.Not only teaching learning system but also administrative system can be improved by the use of ICT.

1.1 Objectives
- To understand the role of ICT
- To know about the various challenges faced during implementation of ICT

II. METHODOLOGY

The data used for this study is secondary data an it is collected from various journals, articles, magazine and different website.

2.1 Role of ICT in a Positive Learning Environment

The appropriate use of ICT tools helps in catalyzing the paradigmatic shift in making the classroom a creative space for exploration and experiment for both the teachers and students. It promotes the acquisition of skills and knowledge for students to become lifelong learners. Thus making students autonomous learners and bringing the world into their classrooms. The new ways of teaching and learning create a shift from a teacher centered pedagogy to student centered pedagogy. Various innovative platforms provide an active learning classroom environment and opportunities to work on real-life problems in depth making it less abstract. By keeping the classroom environment engaging, technology enables students to become better focused on their learning. This also helps teachers to juggle various responsibilities like attendance maintenance, delivering academic content, monitoring student's progress, and much more.

2.2 Challenges of Using Technology in the Classroom

The process of using ICT in everyday education is very complicated. The opportunities provided by ICT to support teaching and learning are not totally problem-free, it comes with few challenges and few of the challenges are as follows:

- Talking about the hardware, the purchase of computers, tablet devices, electronic blackboards, etc. are needed. The ICT software must be prepared well in advance. As per the students ratio there would be requirement of computers so it becomes necessary to improve the Internet environment. In order to facilitate ICT, it is preordained that a certain amount of costs will be incurred during operation as well.
- ICT, by its very nature, is greatly enhanced in an online environment. One more thing to be kept in mind that operations based on an online environment are always with network issues which has to be reduced.
- ICT implementation varies greatly depending on the areas such as urban or rural area, the type of the institution i.e., private or public schools. In maximum cases, private institutions have sufficient budgets so they afford to purchase PCs and tablet devices. Public schools have limited budget and many not afford to purchase the PCs as per the student ratio.

To sum up, it can be said that, no doubt such barriers exist but the use of Technology in learning is the best complementary tool for teachers in the classroom, easy in managing and monitoring student progress. Motivating and stimulating for the students as it promotes interactivity and collaboration within learning. In fact, it creates a unique experience as much for the teacher as for the students. Using ICT tools, we can do work anywhere and anytime without being bothered about the physical conditions such as classroom, furniture etc. The importance and precious utility of technology is well proved during the latest pandemic period i.e. the world wide spread of COVID -19. During this worst period we all have witnessed the utility of ICT in every sphere of life- personal, professional, health, education etc. Only the technological gadgets like mobile, laptop, computer etc. enabled all of us to be in touch with the others either relatives, friends or family members even after being physically apart. The life all over the world was at a standstill but cordially thankful to the technology that helped us in being alive and close to each other.

III. CONCLUSION

The incorporation of ICT in teaching and learning is considered to be mediocre, with a variety of approaches and pedagogical viewpoints that can be implemented. However, ICT as a teaching tool is more complicated as it requires more specific skills from teachers. Therefore, institutions need to initiate appropriate training and development programs. In addition, the challenges teachers face prevent them from using ICT in the classroom or developing supporting materials through ICT. In addition, insufficient technical support in educational institutions and poor access to the internet and ICT discourage teachers from using ICT in the classroom. The lack of teaching time and the time needed to learn with ICT were identified as two other major obstacles for teachers to integrate ICT into the curriculum. On the one hand, in order to integrate ICT into the curriculum, teacher education institutions must adequately and adequately support teachers. On the other hand, teachers need to be aware of what is happening in the classroom and

what changes are taking place. Therefore, the possible effective applications of ICT can be applied in teaching and learning, which will eventually lead to the improvement of educational programs.

REFERENCES

[1]. Teaching with Technology: Early Adoption of EdTech by Indian School Teachers‖. Central Square Foundation; August 3, 2015, https://www.centralsquarefoundation.org/70-percent-tech-savvy-teachers-usemobile-phones-andinternet-in-their-profession/

[2]. Integrating technology into the classroom .Canadian International School: April 3, 2017. https://www.canadianinternationalschool.com/integrating-technology-intothe-classroom/

[3]. Bolitho, Rod & Padwad Amol. ―Continuing Professional Development Lessons from India‖. British Council: 2013https://issuu.com/britishcouncilindia/docs/cpd_lessons_book?e=1710046/79 42502

[4]. Teaching and Technology: Case Studies from India‖. British Council and Central Square Foundation; January

[5]. The Case of Mindspark in India. The World Bank; March 2017. https://www.worldbank.org/en/topic/edutech/brief/the-case-ofmindspark-in-india

[6]. Bodkurwar, Ashwini, Dr. Rajesh Kumar U. Sambhe. Information Technology implementation for educational development of rural India-A Review‖, IOSR Journal of Computer Engineering, ISSN : 2278-8727, Volume 17, Issue 2, Ver III (March –April 2015), Page 30-34www.iosrjournals.org

[7]. Chandra, S. and Patkar, V. (2007) 'ICTS: A catalyst for enriching the learning process and library services in India', TheInternational Information and Library Review, 39(1): 1-11.

[8]. Desai, B.Y, (2004) ―A Comparative Study of the Efficacy of Teaching Through the Traditional Method and the Multimedia Approach in the Subject of Home Science‖. South Gujarat University, Surat, India.

[9]. Dhaval B. Patel (2013) Construction and Effectiveness of Computer Aided Instruction (CAI) Programme for the Units of Science and Technology of Standard VIII (rrl-50).,International Journal for Research in Education Vol. 2, Issue:1, January2013 (IJRE) ISSN:2320-091X.