

INFORMATION TECHNOLOGY IS AN INTEGRAL PART OF THE CONTEMPORARY TEACHING AND LEARNING PROCESS.

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Abstract – Information technology (IT) has brought about a great revolution in the overall system of education. It plays an indispensable role in teaching learning process. The pattern of teaching and learning has been radically changed by IT. It has also changed the roles played by both teachers and students. It greatly helps to enhance student's learning and teacher's instruction. It enhances the motivation of students, improves teaching and increases the outcome of learning. It can help to improve decisive thinking in students, develop problem solving capacity, increase educational quality and enhance access to education. Technology has played a vital role in improving teaching and learning in view of educational reforms around the globe (Kahveci et al., 2011) [9]. IT is not only an essential tool for teachers in daily work but it also provides them opportunities for their professional development. Therefore, in order to introduce and understand the need of IT in educational institutions, the teacher or students undergoing teacher education program must first understand and be at ease with IT. The use of IT in the classroom teaching-learning is very important for it provides opportunities for teachers and students to operate, store, manipulate, and retrieve information, encourage independent and active learning, and self-responsibility for learning such as distance learning, motivate teachers and students to continue using learning outside school hours, plan and prepare lessons and design materials such as course content delivery and facilitate sharing of resources, expertise and advice. This versatile instrument has the capability not only of engaging students in instructional activities to increase their learning, but also helping them to solve complex problems to enhance their cognitive skills. Thus, this study highlights the role of IT in the present education system.

Index terms: Information Technology, contemporary, teaching and learning, school education.

I. INTRODUCTION

From the Vedic era to the present, India's teaching and learning process has a rich history influenced by spiritual, cultural, and technical factors. From oral traditions and spiritual learning in the ancient era to the organized, institutionalized system of the medieval and colonial periods, and finally to the dynamic, technologically driven education of today, this trip illustrates how education changed to meet the demands of society. whereby the teaching and learning processes have been profoundly impacted by the transformation of education brought about by information technology (IT). New tools and approaches that improve

engagement, allow for individualized learning, and make a wider range of materials more accessible are brought about by the integration of IT in education. The IT supports teachers in creating charismatic, interactive, and effective learning environment. In turn which empowers students to take a place of their role in the teaching learning process.

In the 21st century, IT has revolutionized almost every aspects of human life, including the field of education. In the contemporary era, education is no longer confined to the traditional boundaries of classrooms, blackboard, chalk, and paper based materials. Instead it thrives in a digital ecosystem where technology plays a central role in enhancing both teaching and learning experiences. From virtual classrooms to AI-driven tutoring system, the role of IT in modern education is multifaceted and metamorphosis.

II. INFORMATION AND TECHNOLOGY (IT) ENABLED EDUCATION

Information and Technology is commonly referred by the acronym IT. It enabled education means teaching and learning with IT, it can be used in academics for delivery of education as well as to support and improve the learning. Educational contents can be accessed from anywhere at anytime by the most disruptive technology called Internet. IT enabled education is offered as e-learning, digital course ware, digital content library, digital repository, mobile learning, online communities, online certification and examination (Dogbey et al. 2017) [3]. It has also ensured a shift from textbook teaching to learning using multiple media and technology. Implementing IT tools in the education system brings in lot of flexibility in the teaching methodology (Gandhi 2014) [4]. IT offers numerous opportunities for flexible learning options catering to different learning styles. Technologies such as radio and television have been used extensively for over fifty years in open and distance learning. This has made the classroom sessions more interactive and innovative as compared to the old monotonous method of learning. Use of digital technologies in teaching-learning helps to get the students immersed in the process of learning with creativity. Students use information sources like internet as well as diverse applications and related tools to become well equipped versatile professionals (Rhode et al. 2017) [14]. Virtual classrooms are possible today because of interactive communication technologies. There is a change in the way individuals interact with knowledge. There is also a change in education and communication with focus on learner-centric education (Underwood & Banyard 2008) [18]. Emerging technologies have unlocked new possibilities and opportunities to enrich educational processes which were inconceivable a few years ago. With the rapid growth as well as development of technologies and application globally, the usage of IT in education is estimated to rise considerably.

IT is going far beyond what one had ever imagined and has brought about significant change in the way education is delivered and administered. The future looks quite promising with new technologies like the IoT devices entering the education sector and revolutionizing the student learning environment.

III. ROLE OF IT IN EDUCATION

With the growing acceptance of IT, many educational Institutes are adopting IT- based innovative ways of teaching and learning with traditional classroom-based learning to enliven and enhance quality of education. Technology in education can act as an enabler for a rich and engaging learning experience and can

be used to meet the growing demand for quality education. Technology can complement classroom teaching learning process and help amend the deficiencies in traditional education (Hambacher et al. 2018) [5]. Many developing countries have integrated technology in education which has resulted in development of education in these countries. Islam observed that technology facilitates meaningful learning in the classroom and engages the students in the process of thinking and problem-solving through quick and correct decision making, with reasoning skills being built simultaneously (Islam et al. 2014) [10]. Raboca & Carbunarean observed that introduction of technology in higher education will change the entire educational landscape forever and would improve the performance of students (Raboca & Carbunarean 2014) [12].

IV. ACCESSIBILITY AND INCLUSIVITY

The significant contributions of IT in education are the enhancement of accessibility. In the past, geographical location often limited access to quality education. However, with the advent of IT, boundaries have dissolved. Educational resources are available to everyone, anywhere, at any time. Without physical present, students can access lectures, courses, and academic materials from various prestigious institutions across the world. E-Learning platforms, Massive Open Online Courses, and digital libraries have made education more accessible to individuals in remote areas.

IT supports inclusive education by catering to the needs of diverse learners. For instance, students with physically challenged, can participate online courses from the comfort of their homes, while various adaptive technologies, such as screen readers, voice recognition software, help those with learning disabilities engage with content more effectively.

V. INTERACTIVE AND PERSONALISED LEARNING

Learning has changed from passively absorbing information to actively participating as a result of the integration of technology into the classroom. Through game-based learning, virtual laboratories, simulations, and multimedia presentations, IT creates dynamic learning environments that enhance the significance of courses and learning. These technologies provide students the ability to visualize difficult concepts, engage with the material in real time, and practice problem-solving in ways that traditional methods frequently fall short of. This represents a substantial change from the old educational approach to the technology one (Richards*, C. (2004)) [15].

IT enables personalized learning, where educational content is tailored to the specific needs, pace, and learning style of individual students. It helps to do data analysis through which the teachers can track students' progress, identify area where they are struggling, and provide targeted interventions. Students receive support what they want for the learning from learning management system and intelligent tutoring system which empower educators to obtain customized lessons.

VI. EXPANDING ACCESS TO EDUCATIONAL RESOURCES

The days are gone when textbooks were the primary source of learning. The internet has opened up a vast repository of knowledge in the form of e-books, research papers, academic journals, educational videos.

The avenues are opened the students to access the wealth of information at their fingertips which broadening their subject knowledge and understanding beyond the classroom.

Instructors also benefit from this educational resource and easily access it whenever requires. IT enables teachers to incorporate a variety of resources and teaching materials into their curriculum, keeping lessons fresh, up-to-date, and aligned with current developments in their respective fields. Platforms such as YouTube, Khan Academy, and Coursera have democratized learning, allowing both teachers and learners to supplement traditional education with rich, multimedia content (SWARGIARY, K. (2024)) [17].

VII. EFFICIENT AND EFFECTIVE TEACHING PRACTICES

IT has streamlined teaching practices, making them more efficient and effective. Teachers can use digital tools to create dynamic lesson plan, track student progress, and assess learning outcomes in real-time. Learning Management System (LMS) like Moodle, Blackboard allow teachers to organize course content, automate grading, and provide immediate feedback to students. In addition to this, IT equips teachers to stay updated with the latest educational trends and resources through online professional development programs and global educator community. LMS can act as a digital learning platform for students, while for faculty it could be an administrative system, which can manage the courses and can acts as an interdepartmental system that collects the information within the Institute. It can also integrate that into the administrative IT data bank to help in pulling out the data when required (Dahlstrom et al. 2014) [2].

VIII. CONCLUSION

The role of IT in contemporary teaching and learning process is undeniable positive, it also presents challenges that need to be mentioned. One significant issue is the digital divide, where students from underprivileged or rural areas may lack access to necessary devices and reliable internet connection. This disparity can hinder the effectiveness of technology in education and exacerbate existing inequalities. Schools and government must prioritize addressing this gap by providing infrastructure and affordable technology to ensure equitable access for all learners. Additionally, educator must be adequately trained to use IT effectively in their teaching. The success of technology - enhanced learning depends not just on the availability of tools, but also on the ability of teachers to integrate them into their pedagogy in meaningful ways. Professional development and continuous support for the teachers are essential in maximizing the potential of IT in education. More over, high reliance on technology may reduce personality impression and interactions, which are essential for developing social and emotional skills. So the educators must balance the use of technology with traditional teaching methods to create a holistic learning environment and strengthen the relationship between teachers and learners.

Information technology is undoubtedly an integral part of the contemporary teaching learning process. Its ability to enhance accessibility, foster interactive and personalized learning, facilitate collaboration, and provide vast array of resources has transformed the educational landscape. While challenges remain, particularly in terms of equity and teacher training, the benefits of IT in education is undeniable. As the world

continues to embrace digital solutions, it is clear that technology will remain a cornerstone in shaping the future of education, equipping learners with the tools they need to succeed in a rapidly evolving world.

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