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ROLE OF INFORMATION TECHNOLOGY IN INDIAN EDUCATION SYSTEM

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Abstract

The integration of information technology (IT) in the Indian education system has transformed the traditional learning landscape, ushering a new era of digital education. Since the Indian education system travels back to the gurukuls where knowledge was passed through oral chanting of Vedas and Upanishads, a new force has emerged, silently weaving itself in the fabric of modern learning: information technology. This paper examines the multifaceted role of IT in redefining the educational evolution in India, highlighting its impact on teaching methodologies, student's active participation in teaching -learning process and administrative efficiency. The study also delves deep how digital tools and platforms have democratized education by enhancing access, equality and equity in India. Furthermore, this study examines the challenges and opportunities posed by the digital divide, infrastructure limitations and policy making to fully realize the potential of IT in education. The government initiatives like digital India and e-learning platforms are bridging the gaps, particularly in rural, remote and underserved areas. This paper highlights the need for holistic approach that combines innovative technologies with efficient policy making and implementation to ensure the education system which cultivates not just academically successful individuals, but also socially responsible, emotionally intelligent and ethically grounded citizens. Thus, it concludes that the role of information technology is catalyzing a significant transformation and reshaping the Indian education system.

Key words: *Information Technology, Indian education system, digital learning, educational transformation, innovative technology, holistic education*.

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Introduction

The Indian education system has a rich and complex history, shaped by various cultural, political, and economic influences over centuries. From the ancient Gurukul system to the modern, technology-driven educational institutions, India's approach to education has continuously evolved. In a country as vast and diverse as India, where educational access and quality have historically been marred by geographical economic and social disparities, IT offers a bridge that connects millions of learners to opportunities once beyond their reach. As classroom's transition from chalkboards to digital screens, and textbooks to e-learning platforms, the role of IT becomes increasingly pivotal in shaping the future of education. As the world is moving towards a digitally-driven global economy, the access, efficiency and effectiveness in the delivery of education is the need of the hour. There is no doubt that with the introduction of ICT in education, it has paved a wave of technology rich learning environment. ICT helps in providing a clear and concrete concept of the content to the learners and make it easy and understandable in less effort end time. [1] As India strides forward to reclaim its identity of the global hub of knowledge, the role of information technology in education sector is both critical and catalyst for change. However, the journey is full of challenges, India being an over populated country the issues such as infrastructure limitations, lack of proper teacher training and disparity in available resources need immediate attention. This paper explores the historical context, current challenges, and the role of information technology in shaping the future of the Indian education system.

Indian Education System: A Historical Exploration

The roots of the Indian education system can be traced back to the Vedic period, where education was imparted in Gurukuls, residential schools led by gurus (teachers). The focus was on holistic development, including physical, mental, and spiritual growth. Subjects like mathematics, astronomy, philosophy, and languages were taught alongside religious texts. Value based education was imparted to enrich the cultural roots. During the medieval period, the influence of Islamic education introduced new subjects such as architecture, and literature. The establishment of madrasas and the spread of knowledge through manuscripts marked a significant shift in the educational landscape. The British colonial era brought significant changes to the Indian education system. The introduction of English as the medium of instruction and the establishment of Western-style schools and universities were aimed at creating a class of educated Indians who could assist in administrative tasks. However, this also led to the neglect of indigenous knowledge systems and a focus on rote learning, which has had a lasting impact. After gaining independence in 1947, India sought to reform its education system to meet the needs of a modern nation. The Kothari Commission (1964-66) played a crucial role in shaping educational policies, advocating for a uniform system and emphasizing science and technology. The Right

to Education (RTE) Act, 2009, marked a significant milestone, ensuring free and compulsory education for children aged 6 to 14 years.

Current Challenges in the Indian Education System

Despite the progress made since independence, the Indian education system faces several challenges. While access to education has improved, the quality of education remains a concern. Many schools, especially in rural areas, lack basic infrastructure, trained teachers, and teaching aids. This has resulted in poor learning outcomes, as reflected in various national and international assessments. The education system in India is marked by significant socio-economic disparities. Children from marginalized communities often face barriers to accessing quality education, leading to a cycle of poverty and limited opportunities.

The emphasis on rote learning, particularly in exam-oriented education, has stifled creativity and critical thinking among students. The curriculum often focuses on memorization rather than understanding, which hampers the development of problem-solving skills. There is a significant shortage of qualified teachers in India, particularly in rural areas. Additionally, many teachers lack adequate training, which affects the quality of education. Continuous professional development is often neglected, leading to outdated teaching methods. While technology has the potential to revolutionize education, the digital divide poses a challenge. Students in rural and remote areas often lack access to digital devices and the internet, limiting their ability to benefit from online education. Considering all these factors, the role of information technology in Indian education system becomes even more significant. We need to increase access and bring down the cost of education to meet the challenges if illiteracy and poverty- ICT is the answer. [2]

The Role of Information Technology in Indian Education

Information technology (IT) has emerged as a transformative force in the Indian education system. With the rapid advancement of digital tools and platforms, education has become more accessible, interactive, and personalized. Government of India has introduced several policies to integrate Information and communication technology (ICT) in education system. The Indian policy makers have tried their best for developing ICTs as a vehicle for promoting education since the use of satellite in early 1970s and since then, India has seen plenty of efforts aimed at promoting ICT and its use in education, both in public and commercial sectors. Under the National Education Policy 2020, both school and higher education sectors are paving the path for large-scale and transformative reforms. The policy is based on the foundation of the five pillars such as Access, Equity, Quality, Affordability, and Accountability which is also aligned with the Agenda for Sustainable Development 2030. [3]

Here are some key policies:

National Education Policy (NEP) 2020: National Education policy replaces National Policy of Education 1986 to bring a massive transformation in education through “an

education system rooted in Indian ethos that contributes directly to transforming India that is Bharat, sustainably into an equitable and vibrant knowledge society, by providing high quality education to all, thereby making India a global knowledge superpower." [4]

Digital India Campaign (2015): On 1st July 2015, Mr. Narender Modi, the prime minister of India incorporated the Digital India campaign to empower the citizens digitally. The program focuses to provide universal access to mobile connectivity, public internet access. Broadband highways, e-governance, e-kranti, IT training for jobs and global information.

DIKSHA (Digital Infrastructure for Knowledge Sharing): DIKSHA (One Nation One Digital Platform) is "a national program for school education, an initiative of National Council for Educational Research and Training (NCERT), under the aegis of the Ministry of Education (MoE), GoI, Launched by Honorable Vice President Shri M. Venkaiah Naidu." the mission of this project is to revolutionize the learning ecosystem and to empower students to thrive in global platforms. [5]

SWAYAM (Study Webs of Active Learning for Young Aspiring Minds): SWAYAM is a free online education program initiated by Government of India. The project has streamlined the multiple online programs in various disciplines such as humanities, science, engineering and technology, law management etc.

E-Pathshala: E-Pathshala is an app launched by National Council of Educational Rsearch and Training and Ministry of Education to provide an easy access to learning material such as digital text books, videos, audio-books, grade learning materials and more for students, teachers and parents.

ICT in school Education Scheme: "The Information and Communication Technology (ICT) was launched by the Government of India in December 2004 to help students learn through computer aided learning and develop their ICT skills." The objective the scheme is to enable students from class IX-XII to be it efficient and use the basic application software in their everyday activities. [6]

Samagra Shiksha Abhiyan: "Samagra Shiksha is an overarching programme for the school education sector extending from pre-school to class 12. The scheme has been prepared with the broader goal of improving school effectiveness measured in terms of equal opportunities for schooling and equitable learning outcomes. It subsumes the three Schemes of Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and Teacher Education (TE) and was launched in 2018.The scheme covers 1.16 million schools, over 156 million students and 5.7 million Teachers of Govt. and Aided schools (from pre-primary to senior secondary level)." [7]

These policies have emerged as centrally sponsored schemes to leverage the potential of ICT and to enhance the teaching-learning process by making it accessible in anytime anywhere mode. This is also an effort to provide low cost and affordable education to the underserved and untouched by the digital revolution and promote them to join the mainstream of knowledge economy. "The aim must be for India to have an education system by 2040 that is second to none, with equitable access to the highest quality education for all learners regardless of social or economic background." [4]

To bring Government policies to the grassroot level and implement them effectively, the following methods have been adopted.

1. Digital Classrooms: The introduction of digital classrooms and smart boards has revolutionized traditional teaching methods. These technologies make learning more engaging and interactive, allowing students to visualize complex concepts.
2. Online Learning Platforms: The rise of online learning platforms, such as BYJU'S, Unacademy, and Khan Academy, has made quality education accessible to a broader audience. These platforms offer a wide range of courses, often at a fraction of the cost of traditional education.
3. E-Governance in Education: The Indian government has launched several initiatives to promote e-governance in education. The National Digital Education Architecture (NDEAR) and DIKSHA (Digital Infrastructure for Knowledge Sharing) are examples of efforts to create a unified digital platform for educators, students, and administrators.
4. Bridging the Digital Divide: To address the technological divide, initiatives like PM eVidya, SWAYAM, and the establishment of computer labs in rural schools aim to provide equal access to digital education resources. These efforts are crucial in ensuring that students from all backgrounds can benefit from IT-driven education.
5. Personalized Learning: IT enables personalized learning experiences, where students can learn at their own pace and according to their individual needs. Adaptive learning platforms use data analytics to tailor educational content, making it more effective and relevant.

Conclusion

The Indian education system has come a long way from its ancient roots, evolving through various phases of history. While significant progress has been made in terms of access to education, challenges related to quality, equity, and the digital divide persist. Information technology offers promising solutions to these challenges, potentially transforming the education system into a more inclusive, efficient, and future-ready entity. ICT has been acknowledged as a catalyst for change on a global scale, with the ability to affect every element of society. It influenced work environments, working conditions, business, entertainment, information handling, information exchange, education, teaching methods, learning approaches. Scientific research and information access. [8]

Today we are living in the era of globally interconnected ecosystem where boundaries are increasingly blurred; Information Technology enables and equips us to access the vast network of global knowledge, opportunities and collaborations. If we truly wish to realize the dream of global village, there is no greater power than information technology.

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