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Research Article

The Robust Impact Of Technology In Shaping The Higher Education Setting In India

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ABSTRACT

The Indian higher education sector is shifting by utilizing technological advancements to address the issues facing education in the twenty-first century. One of the most important factors to strengthen educational procedures and results is the increasing use of computers, smart boards, educational mobile applications, projectors and open educational resources (OER), etc. Stimulating a more effective, inclusive, and pertinent educational experience, technology in the classroom equips students to fit in the contemporary workforce. Technology will probably play a bigger part in education as it develops further, influencing how we teach and learn in the future. Many institutions engaged in imparting higher education are utilizing information technology services as an effective tool for monitoring and improving organization's academic and administrative performance (OECD, 2004). Moreover, use of technology within and across higher education sector boundaries is increasing due to the introduction of New Education Policy 2020. A period of significant change has begun in higher education because of the rapid and ongoing transformations.

Keywords: Information Technology, Digital Initiatives, Smart Classroom, Growth in Higher Education, Technological Evolution.

Introduction:

In Indian higher education, technology improves accessibility, facilitates hybrid and mixed learning, and increases student participation. E-learning resources and online platforms widen the scope of education and provide very effective instruments for learning from a variety of fields, improving assimilation of the relevant information. While virtual collaboration and interactive tools boost student involvement, learning management systems simplify the execution of courses. These developments benefit rural areas in India, where students can connect and participate in the revolution of educational improvement. They also make learning more effective, adaptable, and accessible for a wide range of learners nationwide. Technology has greatly improved the teaching and learning process in higher education. Degrees, hybrid models, and online courses give students the freedom to learn from any location. This has increased access to education, particularly for working professionals and non-traditional students. Technology in education will change education by providing educators and learners with a wide range of new resources. Knowledge, competitive skills, attitudes, beliefs, and habits can be gained or developed through conversation, instruction, training, and innovation.

Relevance of Technology: The value of technology is mostly determined by the degree of economic development that a country has previously attained. Although basic infrastructure is required for this, Information Technology has the ability to increase the effectiveness and efficiency of current procedures. The ideal way to comprehend the impact of Information Technology is to acknowledge the basic distinctions between the inventions and endeavours of the knowledge-based and industrial economies. Each element of our society, including the educational sector, has seen rapid transformation due to technology. The use of internet-connected devices in the classroom and at home has changed how pupils learn today.
Platforms that are data-driven enable teachers to track student development and identify trends in performance. In order to improve student results, this can aid in academic support and early intervention. It allows group

projects, virtual conversations, and global connections, all of which boost students' creativity. Tools like coding platforms, data analysis software, and project management systems are being integrated into higher education to assist students develop entrepreneurship and relevant, real-world skills in order to prepare them for tech-driven employment. The government is working to advance technological development, which has led to the discovery of numerous new technologies.

During the COVID-19 pandemic, ICT, which facilitates online learning, has maintained the educational process. Teachers, students, researchers, and corporate executives have 24/7 access to a variety of digital platforms and ICT activities. These technologies have a number of advantages, including comfort, flexibility, and an interactive user interface, and they facilitate continuous learning. With the aid of numerous online and digital initiatives and tools, ICT has decreased the social distancing and lockdown barriers that students and faculty face in this digital age. This has an impact on a number of industries, including the education sector. Online classes using Google-Meet, Zoom, and Skype allow students to stay in close communication with their instructors.

Information and Communication Technology in Teaching -Learning:-

With online education, ICT can increase equity and accessibility, access to expert lectures, virtual labs, database construction, networking institutions, technological advancements in businesses and research organizations, etc., all can help to achieve the goal of digital education initiatives. Replacing traditional teaching methods with innovative ones like PowerPoint presentations and animations, modeling and simulations, video clips, and the use of LCD projectors, audio-visual aids, etc., can further enhance teaching and learning.

ICT in Research Analysis: Speedy data collecting from remote or sizable populations is made easier by online surveys, sensors, and mobile data collection apps. ICT makes it possible to access large databases for previous research and literature reviews, as well as data archives for primary research data. Additionally, cloud storage and data management technologies enable researchers to safely store and handle big datasets while guaranteeing their remote accessibility.

Academic platforms such as ResearchGate, Shodhganga, INFLIBNET,UGC recognized journals, Scopus, and many more allow scholars to publish articles, exchange discoveries, and collaborate with one another. Online journals, which are easier to publish and distribute research findings to a worldwide audience, have grown in popularity because of ICT. Research is accessible to a larger audience through open-access journals and platforms, which encourage knowledge exchange.

Researchers can better understand and illustrate the worth of their work by using ICT to track the impact of their work through citations, views, and social media mentions. It guarantees ethics and transparency. By offering digital consent forms and tools to anonymize data for privacy protection, ICT technologies assist in ensuring that research complies with ethical standards.

ICT and Teacher Competencies: As the teacher plays an important role in the management of learning, teachers should equip themselves with ICT competencies to design new learning environments using the most modern technologies in the field of education (Qasem & Viswanathappa, 2016). A key component of successfully incorporating technology in the classroom is competence of teachers with ICT. ICT-capable instructors possess a variety of abilities, know-how, and dispositions that allow them to use digital resources to improve instruction and learning.

Proficiency in digital devices, software, and online platforms is essential for educators. This includes being able to use computers, tablets, laptops, smartboards, projectors, smartphones, and being able to access digital materials and navigate the internet.

Teachers should know how to use certain educational resources, like online collaboration platforms, interactive whiteboards, learning management systems (LMS), and assessment tools. In addition to curating digital resources that are pertinent to their curriculum, proficient educators are able to produce digital content, including presentations, films, quizzes, and other interactive items. Teachers need to know how to use technology in addition to technical abilities in order to enhance critical thinking, collaboration, student involvement, and individualized learning. This frequently entails revamping classes to make them more engaging and focused on the needs of the students.

Administration and Assistance for Students: ICT is used by universities to improve the efficiency of admissions, course registration, and advising procedures. Digital Counseling and support services helps students to get information through online mode. Cut down on paperwork and switch to digital record-keeping instead of manual record-keeping, which makes it easier to access any information about students, employees, and the general public. ICT facilitates the completion of student monitoring and management tasks, such as enrollment, admission, fee payment, evaluation, and student performance and placement analysis.

New Education Policy 2020 towards digitization: The NEP 2020 emphasizes the complementary nature of the link between technology and education at all levels and suggests building a supportive digital environment for all parties involved in the education sector, including students, instructors, and assessors. As per the NEP 2020, a total of 3.5 crore additional seats must be added to higher education institutions in order to achieve 50% GER by 2035. India is planning to raise its education spending percentage from the current 3.5% to 6% in the near

future, but a significant portion of the country's GDP should go towards higher education in order to create 3.5 crore new seats. Foreign universities in India should be granted hassle-free clearance and the Public-Private Partnership (PPP) mode should be widely utilized in order to close this demand-supply mismatch. NEP 2020 recognizes the value of technology and establishes the National Educational Technology Forum (NETF) to produce regional language e-courses and associated virtual laboratories.

Digital Initiatives in Higher Education in India:-

A significant effort by the Ministry of Education to integrate digital education solutions to enhance learning outcomes and access to high-quality content reflects in the National Mission on Education via ICT (NMEICT). Because of its affordability, inclusivity, employability, and quality, academicians prefer to use digital tools. Along with improving the teaching-learning process, these digital initiatives have also helped students retain information better and comprehend concepts more readily. In 2009, the Government of India created the Ministry of Human Resource Development (MHRD) to harness the power of ICT in the teaching and learning process for the benefit of all students in higher education institutions at any time and from any location. The Mission is anticipated to be crucial in accomplishing the Government's objective of making India a global leader in education.

SWAYAM (The Study Webs of Active Learning for Young Aspiring Minds) is a comprehensive platform that provides affordable online courses to young learners. The All India Council for Technical Education (AICTE) created the SWAYAM MOOC Platform in house in 2016 to make it easier to conduct online courses. Anyone can access these courses at any time and from any location. Everyone can take the SWAYAM MOOC courses for free.

SWYAM Prabha: SWAYAM Prabha is a program that offers 32 top-notch educational channels nationwide via DTH (Direct to Home) around-the-clock. The course material is curriculum-based and covers a variety of subjects. The primary goal of this is to make high- quality educational materials available to remote locations where internet connectivity is a major obstacle. A GSAT-15 satellite provides the service.

National Digital Library (NDL): An effort and platform designed to create a virtual collection of learning resources with a single-window search function. This platform has around 50 lakh registered students. The NDL mobile app makes it easy for users to access the resources.

The National Academic Depository (NAD): The National Academic Depository (NAD) aims to offer an online repository for all academic honours. It is a 24/7 online repository for all academic awards, including degrees, certificates, diplomas, mark sheets, and more, that have been properly digitized and submitted by educational institutions, boards, and assessment agencies. NAD not only ensures that academic awards are easily accessible and retrievable, but it also verifies their legitimacy and efficient storage.

E-VIDWAN: It offers pertinent details regarding the expert's expertise, credentials, contact details, scholarly publications, accomplishments, abilities, researcher identity, etc. It gives prospective colleagues, research scholars, and collaborators nationwide access to information on subject specialists.

Free and Open Source Educational Software (FOSSEE) The FOSSEE encourages educational institutions to use open-source software. It was developed by IIT Bombay . It offers educational resources like lectures, handbooks, and training manuals, as well as awareness raising events like conferences, training sessions, and internships.

Approximately 2000 instructors and college students have participated in this activity, and nearly 1000 textbook companions (TBCs) have been created in Scilab and made available for free download as separate software.

ShodhGanga: Shodhganga, a repository of theses and dissertations submitted to Indian universities, is predicted to continue expanding to a formidable size as more and more Indian researchers contribute their work to this constantly expanding reservoir. Research scholars and their supervisors are asked to deposit an electronic copy of the approved summary that they submitted to the university in order to register for the Ph.D. program under the "ShodhGangotri" initiative. In order to achieve the goals regarding the submission and accessibility of Electronic Theses and Dissertations as envisioned by the UGC in its Notification (Minimum Standards & Procedure for Award of M.Phil/Ph.D Degree), Regulation, 2009, dated June 1st, 2009, this Memorandum of Understanding (MoU) outlines the obligations, liabilities, and guarantees of the participating institutions.

Shodh Gangotri: An initiative asks research scholars and their supervisors to deposit an electronic copy of the approved synopsis that the research scholars submitted to the universities in order to register for the Ph.D. program. While avoiding research duplication, the repository would also highlight the patterns and directions of research being done in Indian universities. Theses in "ShodhGanga" would eventually be mapped from the synopsis in "ShodhGangotri." The full-text theses will be linked from ShodhGangotri to "ShodhGanga" after the full-text thesis has been submitted for a summary.

E-Shodh sindhu: All higher education institutions have access to over 15,000 worldwide electronic journals and e-books under the e-ShodhSindhu program. This enables the user to access the world's top educational resources

in a digital format. INFLIBNET has been in charge of implementing this plan.

Virtual Laboratory: The goal of this project is to create completely interactive labs with simulated environments where students can conduct experiments, gather information, and respond to questions to assess their comprehension of the material learned in order to meet the goals of contemporary education. There are roughly 225 of these labs. Modern computer simulation technology must be used to build virtual labs that replicate real world settings and problem-solving skills.

Impact of Technology:

Researchers can handle enormous datasets and produce insights more quickly because of technology, which also encourages creativity. International co-operation enhances by enabling scholars to collaborate across borders and institutions, online platforms promote interdisciplinary and cross-cultural projects. Technological advancements promotes skill development for the digital era. It boosts digital literacy, exposure to technology rich environments helps students develop essential digital skills, preparing them for the modern workforce. Programs now include training in artificial intelligence, data science, cybersecurity, and other cutting edge fields which results in technology integration.

Digital initiatives can enable students who reside in remote areas or have other obstacles to attending traditional classes have easier access to higher education. Digital efforts have the potential to offer students a more affordable, engaging, and targeted educational experience. It lowers the price of textbooks when e-books are available, which helps to make higher education more affordable. Additionally, it greatly saves time and may be carried on without interfering with obligations during free time. Housewives and professionals alike have benefited greatly. Technology has had a significant impact on people's daily lives, education, and other facets of existence.

Way Forward: The development of ICT infrastructure should be the primary goal of policymakers in order to provide learners with services and information. Reforms in higher education should be implemented by the government to foster an atmosphere that encourages research and creativity. Technology is developing more quickly than relevant laws, rules, and regulations since data is the new fuel, an appropriate channelizing and regulation mechanisms need to be implemented. Due to disparate national rules and regulations, implementing these innovations in the education sector is a difficult undertaking. Priority should be given to cyber security along with the technological infrastructure. Moreover, in higher education, the necessity for qualified driven professors is emphasized in the National Education Policy (NEP) 2020. Building the capacity of educators at all levels is a major priority, such as Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching Centers (PMMMNMTT) and UGC-Human Resource Development Centers (HRDCs), have made a substantial contribution to teacher training.

Nonetheless, given the dynamic nature of teaching and learning, ongoing professional development is vital. In order to improve faculty and teacher training and capacity, the Malaviya Mission Teacher Training Programme (MMTTP) has been relaunched through a reorganization of current processes. Indian values and ethos will be included into teaching, research, publishing, patents, and institutional development in order to transform higher education. All such measures will ensure development and upgrade teacher professionalism and capabilities which will reflect in overall teaching strategies.

India's biggest technical propagation effort is the National Programme on Technology Enhanced Learning (NPTEL), which uses information and communication technology (ICT) in it's programme, all such programmes should be focused more to develop India's technical innovation journey in a more vibrant manner. The All India Survey of Higher Education (AISHE) 2021–22, published in January 2024, registration of students as of 2021–22, there were 4.33 crore students enrolled in higher education institutions, a notable increase from 4.14 crore in 2020–21 and 3.42 crore in 2014–15. Additionally, there were

2.07 crore women enrolled in higher education in 2021-2022, a 32% increase from 1.5 crore in 2014–15. Postgraduate education has the largest percentage of female students (55.4%). No doubt the scenario is changing to a great extent but effort should be given more to the specific matter of improvement. India's Interim Budget 2024–2025 for Education has been cut by 7%, with the University Grants Commission receiving a 61% cut, India should invest more in the areas of Research and Development. Apart from that ,there is also a serious lack of qualified faculty at India's higher education institutions. Because of this talented academics leaving for other nations or the corporate sector in search of better chances and pay is a major problem.

In India, higher education institutions have developed differently in various states and areas. According to quality and accessibility, several states in the North-Eastern and central regions lag behind, whereas states like Delhi, Tamil Nadu, and Maharashtra have a higher concentration of reputable institutions. Government should focus more in least developed states of India to progress evenly in all arenas of development.

Fostering transnational education (TNE) alliances, in which Indian universities link with reputable foreign universities to establish branch campuses, twinning programs, or joint degrees. This strategy could increase information transfer, broaden global exposure, and boost Indian higher education's competitiveness abroad. IIT Madras' recent IITM Zanzibar campus in Africa is a big step in that direction.

Creating specialized centres for innovation and entrepreneurship in academic institutions, based on successful models such as Stanford University's Start X and entrepreneurial initiatives. These facilities might offer academics and students financial support, guidance, and a nurturing environment to help them turn their creative ideas into

profitable endeavours.

Conclusion:

India has one of the biggest higher education systems in the world. From the internationally renowned Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs) to a huge network of universities and colleges, the country is home to an astounding array of educational institutions. However, the potential and difficulties that characterize the present state of higher education in India are hidden beneath this vast framework. Even with greatly increased accessibility, questions about quality, applicability, and the ability to prepare young people for the challenges of the twenty-first century still exist. India, a nation with a greater population, continues to make effective progress in education. The Indian government and other stakeholders play a vital role in advancing higher education. In Indian universities, the government has been funding the growth for research, and facilities. It has also put in place a number of programmes and regulations, like the National Institution Ranking Framework (NIRF) and the Higher Education Financing Agency (HEFA), to expand access to higher education. Although much effort has been laid in this direction, still much more should be done to develop an inclusive and dynamic educational system that benefits institutions, students, and society at large which will ultimately lead India's goal to be truly called "EK BHARAT SHRESHTHA BHARAT" in terms of higher education.

References:

1. Aruna, Dr. Singh Yadav Indrajit, 2021, December , "Importance of Information Technology in Higher Education in India – A review", ijcrt.org, Volume 9, Issue 12
2. Dr. Banwari Vijeta, 2019, January, "Recent Technological Trends in Higher Education sector in India", JETIR, Volume 6, Issue 1, www jetir.org
3. Bhate Krutika, 2020, "Information and Communication technology in higher education ", Shodhganga, INFLIBNET Centre, http://hdl.handle net/10603/333/32
4. Chatwal Tanya, 2019, "Digitalization of Higher Education in India: A Boom or a Bane", Volume -10, Issue-4, DOI: 10.5958/2321-5828.2019.00178.5
5. Editorial on the Article " The hyperpoliticisation of Indian higher education", 18/05/24, The Hindu
6. Dr. Gupta Reeti, Technological Evolution of Indian Higher Education
7. ICT Initiatives of MoE, Department of Higher Education, Government of India, https://www.education.gov.in
8. Kamala Kandi, Dr. Kamalakar Gedam, 2022, August, "Role of Technology in Shaping the Higher Education in Future", ResearchGate, Dogo Rangsang Research Journal, Volume 12, Issue 8, No. 4, https://www.researchgate.net/publication/374087818
9. Prof. Kumar Indu, "Technology in Education", NDEAR, CIET, NCERT
10. Mondal Ajit, Dr. Mete Jayanta, 2012, December, "ICT in Higher Education Opportunities and Challenges", Bhatter College Journal of Multidisciplinary studies, vol- 11,http://bcjms.bhattercollege.ac.in
11. Muthuselvi, L, 2020, "Impact of e-governance in Higher Education Institutions on their work efficiency", Shodhganga, INFLIBNET Centre, http://hdl.handle.net/10603/381628
12. Sai N.Raghavendra, Sai G, Chaitanya Kumar G.Sai, Durga K.,2021, January, "Impact of Technology on Higher Education in India", ResearchGate
13. UGC, Higher Education in India, https://www.ugc.gov.in
14. UGC, MHRD (Ministry of Human Resource Development),2015, 16th June, Scheme of Pandit Madan Mohan Malaviya, National Mission on Teachers and Teaching (PMMMNMTT), Department of Higher Education, Government of India