Digital Learning: A Transforming Education System in India

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Abstract:- The world is experiencing a strange and painful phase of life since the outbreak of Corona virus throughout. It has crippled the normal life by forcing people to shut themselves within their homes. Education sector suffered with closed institutions and suspended teaching and learning processes. Traditional face-to-face education is slowly becoming the dream of the past. New educational processes, of course a few of them have been in vogue for a quite a long period in some developed countries, are stepping in different countries under the sun. This thematic paper tries to enumerate the impact of technology on education especially in India, and justify the need for transformation to digital learning from the age old face-to-face education. Some light is thrown on what digital learning is about. Benefits, various challenges and obstacles of digital learning and how it transforming is the education system in India are touched upon. Salient features of NEP 2020 find a place connecting the transformation. Finally the responsibilities of stakeholders are reminded.

Key words:- *digital learning, transformation, benefits and challenges, responsibilities of stakeholders.*

I. INTRODUCTION

Educational processes are undergoing a sea change globally, in its own pace of the concerned land and people basing on their technological foundations, aspirations and abilities. The brutal knock of the COVID-19 has shattered the world into shambles; education sector was not an exception. The enforced isolation and quarantine lowered the shutters of each and every educational institution of the entire world (Preethi & Lawrence, 2021). Approximately 1.5 million schools and 1.4 million Early Childhood Development (Anganwadi) centers were closed in India (GoI Report, 2021) and Traditional face-to-face classroom teaching and learning came to a grinding halt during pandemic. No one is dared to continue the old system of education as the pandemic situation is lingering around the world in one way or the other. Then, there is the global hunt for the alternate solutions for the challenges posed and to provide the required education and skills to overcome these challenges in the 21st century. Apart from the pandemic challenges, there are other challenges thrown into the education sector ring by technological development.

Of course the answer or the solution for the challenges is already prevails in the world as the sole privilege of developed countries and affluent people. Developed nations such as USA, European countries, Japan, China etc, have been using digital learning in one or the other forms namely online learning, e-learning, or technology enhanced learning since for a quite long period. However these forms of teaching and learning have a history for more than a few decades. "Leveraging technology for teaching and learning has the ability to transform the educational landscape. Digital learning can provide students with the opportunity to take charge of their learning, encourage deep thinking, and promote collaboration" (Digital Promise, 2022).

The current state of education in India is proving to be a significant "silent barrier" to the country's progress. While everyone's attention is focused on social and political issues, educational improvements should be prioritised. Education has the capacity to cure all problems (wars, unemployment, waste management, corruption, etc.) in the long run, and it is a necessary for a developing country like India. India spends a lot of money on education (second only to defence), The Union Government budgetary allocation for the financial year 2022-2023 is Rs. 1,04,277 crores out of which 63,449 crores is meant for school education and 40,828 for higher education (GoI Budget, 2022).

The educational system must be thoroughly overhauled. On the top of the priority list should be a focus on job experience and adjusting to a 21st-century skill set. As a result, the government is working hard on it, but it still needs to be passed soon by both houses of parliament, otherwise it will be too late. All subject topics could benefit from a practical-oriented curriculum. Also, under the +2 plan, students should be permitted to study diverse subjects from any stream because no subject would live in isolation in the twenty-first century; it is highly interwoven, thus no 'Stream' barriers should exist. The world has seen two decades of 21st century and yet it is a long way to the end of it. It is necessary that the learners are armed with appropriately relevant skills to face, learn and interact with technological developments and digitization of this 21st century.

II. IMPACT OF TECHNOLOGY ON EDUCATION

In the 21st century, technology affects every aspect of human life. Digital change is altering education. Technology has helped teachers and students reach new heights. All stages of global education use technology. It altered school by letting pupils click on stuff. Most countries now offer online and digital education. Incorporating technology into education offers many benefits, including low cost, quick access, self-pacing, immediate reaction, a comfortable learning environment, easiness, and flexibility (Saileela at al., 2020). Digital technologies improved classroom

learning. Technology has improved schooling. Technology lets students obtain information. It eliminated single-source information. A learner can study anything, from anywhere, at any time, and at any level. Technology has always been an element of education, and tech-assisted learning is called modernised learning. COVID-19 changed the importance of technology in teaching. All educational institutions have to accept and integrate technology, which was once an option. The significance of actual classrooms was the foundation of education, but virtual schooling and education have since evolved. Technology enabled education stakeholders to execute digital transformations across the country during the unusual introduction of the Corona Virus. It boosts efficiency, production, and the ability to master new abilities. The difficulty now isn't so much with technology as it is with ideas about how to make online education more beneficial. Education in the digital age is both the present and the future (Saileela & Lawrence, 2021).

III. DIGITAL LEARNING

"Digital education is the innovative use of digital tools and technologies during teaching and learning, and is often referred to as TEL or e-Learning", (Celeste McLaughlin, 2018). Teaching and learning process which employs any sort of technology, at any level is known as Digital Learning and is defined as "any instructional practice that effectively uses technology to strengthen a student's learning experience and encompasses a wide spectrum of tools and practices and digital teaching and learning is any type of teaching and learning that is accompanied by innovative technologies or by pedagogical approaches that uses the technology effectively" (US Education Department, 2021). Further Wikipedia states that Digital learning is meant to enhance the learning experience rather than replace traditional methods altogether. Listed below are common pedagogies, or practices of teaching, that combine technology and learning: "Blended/hybrid learning, Online learning, Flipped learning, 1:1 learning, Differentiated learning, Individualized learning, Personalized learning, Gamification, Understanding by Design (UBD) and Universal Design for Learning (UDL)" (Wikipedia). Digital learning is a mine of abundant varieties of teaching and learning methodologies, the benefits are also numerous for the main stake holders, teachers and students.

IV. BENEFITS OF DIGITAL LEARNING

Creativity, critical thinking, and problem solving are taught in traditional classrooms and have been for decades. Learners must stay up with the class, which causes stress. Nia, McNulty (2021) say "Digital education allows teachers to pace learning" It enhances the development of cognitive skills at each learner's level, allowing some to practise more and others to go ahead when ready. Digital learning gives many chances for learners to improve their knowledge and abilities through online activities, projects, and tasks, resulting in 'Extended Learning and self-learning. Learners can access material 24/7, so they can pick where, when, and what to study. Individualized teaching and learning ensures personalised learning. Badging and gamification motivate students to fully engage in subjects and explore new sources

of current information. This type of engagement improves learners' critical thinking and problem-solving skills. When students are disinterested, unwell, or struggling, they are given effective remedial tools. Digital Learning allows students to collaborate with other students from anywhere in the globe who may be accessed online. Teachers might organise groups, provide tasks, and monitor students' performance and development. Easy collaboration tools include video conferencing and document sharing. Students can develop a global peer community. Teacher assessment is easier with digital learning. Effective tailored learning exercises and chances to increase cognitive skills could boost student accountability. Teachers and institutions can track students' progress and intervene if needed to improve or offer remedial courses. "Digital Education enables new learning methodologies." In addition to the learning tactics used by educational institutions, microlearning and gamification are becoming more popular. These "fresh" ideas are given a facelift by digital technology in education (Hanna Walters, 2022). Hence, Digital Teaching and Learning is beneficial for both teachers and the students and it can be summarized as they are:

- to increase the quality of learning interaction between the students and the instructors;
- to enable the learning interactions from anywhere and at any time;
- to reach out the students in a broad range; and
- to facilitate the improvement and storage of learning materials (Frtriani & Yudhi, 2021).

V. CHALLENGES TO DIGITAL EDUCATION

- *Socioeconomic Divide:* Digital education challenges are global as 90% of the population lives in developing or underdeveloped countries. Digital education faces similar issues in India and around the world. The Indian situation isn't better than other emerging countries. India with 140 crore people is still a developing country after 75 years. The NNI is $150k, much below many poor countries. Male literacy is 84.7%, female is 70.3%, and the national average is 77.7% in 2022. Unemployment is 7.11 percent. Lowest salary is INR 2250/- 16K is the average national pay. Nearly 57% of workers make less than $10k. 1% of the population has 98% of the wealth. 40 percent of the population is poor (Statista, 2022).
- *Linguistic and Cultural Divide:* India is a multi linguistic and multicultural nation. Though most of the Indian languages have rich literature of their own, but they lack scientific and technical vocabulary and lag behind scholastic and research initiatives. There are no text books or journals of high standard comparable with global bench marks. Even the universities do not have eminent faculty who can lead research at universal standards on account of poor knowledge of both native and international language. On the cultural scenario, the superstitious beliefs and age old costumes and rituals hold back the society still in this 21st century.
- *Gender Divide:* There is gender divide in India, women are denied natural justice. Boys and girls are treated differently within the families itself right from childhood. In many communities education is denied beyond puberty of the girl child. Even their societal rights curtailed and

they are not allowed to move freely as they are under constant surveillance of the elders or community heads. The bounden duty of girls is to look after kids and cattle discharge household core works and religious rituals. A recent survey revealed that only 28% of girl students had cell phones compared to 36% of boys. In vast majority of the cases smart phone belonged to adult males, with girls having less access to them. Most of families couldn't afford internet services, due to poverty and hence had to relay of television which again relayed on power connection.

- *Digital Divide:* Digital divide is the lack knowledge of computer or digital devices. At the outset poverty and illiteracy denies a majority of people to own a digital device, at least a cheaper smart phone. This digital divide prevails among teachers, especially among primary and secondary level teachers. Parents, who are responsible for their wards' education, are least concerned about building a sound knowledge fit for 21st century life. Though private institutions boost to have some digital infrastructure to their credit, commercialization of education by way of exorbitant fee structures shut the doors for intelligent but poor students. Digital divide persists among the political administrators as there is no tangible policy for providing the necessary infrastructure for 'Digital Learning.'

- *Technical Shortcomings:* Technical flaws abound. Digital Learning System suffers from a lack of skilled staff and quality instruments. Data transmission couldn't reach India's remotest villages. Without internet, learning wouldn't happen. Internet learning is hard. Google, Firefox, and other browsers are fantastic information sources, but they're problematic for online teaching. It's absurd to expect teachers who have always worked in schools and universities to generate digital content and offer it online, and for students to adapt easily. Reading a student's body language and eye contact in an online lesson is tough. In a typical classroom, students would ask questions as the subject progressed, but this is rare online.

VI. NEED FOR TRANSFORMATION

"The move is from face-to-face to blended learning, and it's being forced to adopt an online system that uses digital media to maximise a better learning environment." (Zuhdi & Nurhadi, 2019). The age-old brick-and-mortar, four-walled classroom teaching and learning process must be replaced with a personalised, intelligent, self-motivating, immersive, barrier-free, technology-driven teaching and learning system known as Technology Enhanced Learning (TEL) or Digital Learning (DL) (Ajaysingh, 2020). Digital learning can range from utilising tablets instead of paper to employing complex software and equipment. (Panworld, 2017) The transition to Technology Enhanced Learning (TEL) or Digital Learning (DL) is not "just giving pupils with devices" But integrating technology to engage students with ideas and peers enhances learning (Schoology Exchange, 2020). Educational institutions around the world are introducing digitalized teaching by integrating online learning, with a few exceptions. If managed appropriately, online-based learning can improve students' ability to interact, establish collegial attitudes, and think critically, which helps improve academic talents, social awareness,

and emotional control (Yadav, 2016). Digital transformation in teaching is a philosophical and physical change to meet campus, faculty, and students' aspirations for a connected learning environment. This digital environment combines security, services, and technology to offer interactive, collaborative, and personalised learning (Vasilis Bouronikos, 2020). Digital Learning is revolutionary and changes with new technology, especially modern internet user experiences and AI. The technology can be adaptive, augmentative, personalised, and/or virtual (Superadmin, 2019). Educationists around the world believe technology can greatly improve digital education. Digital technologies are a curricular prerequisite, encompassing ICT and STEM (Blundell et al., 2016).

VII. MAJOR OBSTACLES TO INTEGRATING ONLINE EDUCATION

Integrating online education into the general curriculum is a difficult process, and the new set of laws brings with it a slew of new obstacles. In rural India, about 30% of the population is computer illiterate, and many do not even know how to turn on a computer. If we want to deliver online courses in every corner of the country, we need to have a fundamental understanding of computers. Un-affordability is a major problem. Obtaining a computer or laptop is extremely tough for low-income individuals such as farmers, maids, home staff, and sweepers. It is also a significant challenge for teachers. It isn't necessary for a classroom teacher to be an excellent online instructor. Online classes do not allow for practical learning. Even if teachers can convey the theoretical components, students require practical instruction to understand what they've learned, which is most frequent in science and practical arts.

India has a restricted number of assets available for conducting an online examination, and the number of questions asked is likewise limited. Because of the inadequate network connectivity, organizing live sessions and broadcasting them for children in rural areas of India is just not possible. Even when rural communities gain knowledge of new technology like as cellphones, laptops, and tablets, and do everything they can to afford them, a lack of internet network provision remains a major concern.

VIII. NEP 2020 (NEW EDUCATION POLICY)

The government will create an Academic Bank of Credit to store academic credits earned at various Higher Educational Institutions digitally so that they can be transferred and tallied toward a final degree. A regulating agency, the National Educational Alliance for Technology (NEAT), will be established to promote the use of technology to improve learning outcomes. NEAT intends to employ artificial intelligence to make learning more individualized and tailored based on a learner's needs, (NEP 2020).

IX. DIGITAL LEARNING, THE ONGOING TRANSFORMATION OF EDUCATION SYSTEM OF INDIA

The Corona virus pandemic made 2020 and 2021 the darkest years in recent history. Enforced Indian shutdown damaged the education system. Late 2021 saw a glimmer of normalcy's return. People doubt the safety against corona virus mutations. The epidemic and technology have expedited the digital transformation of the Indian education sector. Digital transformation of the education ecosystem is essential to help learners solve their difficulties and boost accessibility, which would improve children's skills and aid the economy (India Education Diary, 2021).

Government policymakers, educationists, parents, and even students recognised the need for a revolution in education to face closure of institutions and isolation of professors and students, which denied access to education. Some educational institutions have used digital teaching and learning for years. Some colleges, elite institutions, and schools provide digital education as an alternative. "Digital revolution was happening in higher education before Covid-19, but the epidemic hastened it faster" and "it's not a choice, it's necessary" (Coursera Panelists, n.d). With 70% of India's population living in rural areas and a large tribal population in distant woods, providing decent education is a huge problem for the government and educators. "The government learned that technology can reach rural areas and supply quality teachers. Massive tech disruptions across the country have accomplished the unimaginable" (CEO, The Hindu Businessline).

Digital technology provides a significant solution by way of interactive digital media, and teachers can update their skills through the web site Digital Infrastructure for Knowledge Sharing (DIKSHA) Digital transformation in Indian education is a breakthrough. Education facilitators' digital actions will affect learning for decades (Srikant, 2021).

The University Grants Commission (UGC) allowed students to obtain 20% of their Certificate, diploma, and degree online through the Indian government's MOOC platform SWAYAM in 2018. UGC updated online learning standards in 2020 to provide 40% credit. "Higher Educational Institutions having National Assessment Accreditation Certificate (NAAC) score 3.26 and above or having rank in Top-100 in University category of National Institutional Ranking Framework, at least twice in three preceding cycles (at the time of application), shall be permitted to start full-fledged Online programmes without prior approval of the UGC" (Dhawal Shah & Suparn Patra, 2022).

UGC Chairperson Jagadesh Kumar told Manash Pratim Gohain (2022) that online, ODL, and conventional degrees will be of equal value. The UGC has identified roughly 900 autonomous institutions for delivering various online courses. The chairman said, "The new regulatory framework aims to enable all the autonomous colleges to offer online education because if we stick to only universities, it becomes constrained." High-quality autonomous colleges are widespread. This improves learning. These institutes will provide UG and PG online programmes. Online degrees are equivalent to physical degrees (Jagadesh Kumar, 2022).

The government is establishing Digital Universities, which will offer 100% online services, including admission, fee collection, content delivery, interactive classes through online platforms and video conferences, assignment and project awarding, assessment and evaluation using online test software, results declaration, and convocation. Kerala's digital university exists. Digital libraries are appearing in universities, and the central digital university has been formed in IIT, Kharagpur. This library has 4,600,000 e-books on all topics (ndl.iitkgp.ac.in). Digital learning is altering Indian education for a brighter future.

Before the shutdown, the Tamil Nadu government implemented a number of innovative methods. For example, our new textbooks were issued as electrified textbooks with QR codes inserted into each lesson. These QR codes were placed in each chapter to aid in the development of Higher Order Thinking Skills (HOTS) as well as to clarify concepts (Lawrence et al., 2021).

X. RESPONSIBILITIES OF INDIAN STAKEHOLDERS

The stakeholders of Education owe greater responsibilities than the beneficiaries. The governments, both at the state and at centre, are equally responsible for formulating policy and executing it by way of providing appropriate hardware and software infrastructure required. Provision and availability of uninterrupted internet connectivity to the remotest habitations, even in the nook and corner of nation, is the first priority either through aerial signal towers or land cables. Creation and development of free and cheaper online platforms to cater the needs of different educational streams according to the gradation of classes is the second responsibility. Imparting relevant technical training to the staff including pedagogical training to the teachers is an important step. Educational institutions must be encouraged to develop educational content basing on the cultural and societal needs and appropriate delivery system. Society and the NGOs have a responsibility of extending its shoulders to the governments in creating awareness and helping the poor and needy wherever and whenever possible. Parents, the important stakeholder of the process, must provide emotional and material support to their wards in their endeavor of acquiring knowledge its application. At last but not the least the student community must dedicate their physical and mental abilities to acquire knowledge through digital learning with whole hearted commitment.

XI. CONCLUSION

Digital Teaching and Learning process has really thrown the guiding light to the 21st century educational endeavor. The various strategies of digital learning such as blended learning, mobile learning, online learning, e-learning etc have become household names in the education sector since quite a long time ago in the developed countries and among the affluent people of developing countries. But the sudden attack of COVID-19 fell like a thunderbolt on human lives and yet the world has to recover from the shock. If Digital Learning could transform Indian education system, it would be the dawn of heaven on earth. It is up to the stakeholders to see it happens at the earliest.

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