



Asian Journal of Management and Commerce

E-ISSN: 2708-4523

P-ISSN: 2708-4515

AJMC 2023; 4(2): 268-271

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www.allcommercejournal.com

Received: 28-10-2023

Accepted: 30-11-2023

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Digital education in India

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Abstract

The education system across the globe has been expanding and integrating to one another at rapid pace due to digital advancement. The digitalisation of education has brought many scopes and concerns to the world especially developing countries. This has led to education system being unequitable giving disproportionate benefits to better-off individuals in technical know-how world. The issues of pandemics and disasters have signalled towards rapid acceptance of digital education system concerning government to supplement the luminating aspirations with suitable policies. If the digital technology is utilised optimally by the developing world like India, it can evolve as the accepted global educator due to its low cost of service provision.

Keywords: Digital education, technology, digital divide, digitalisation, digital infrastructure

Introduction

Digital education is the way of imparting the education curriculum through digital modes using technology and web-based platforms to ease the teaching-learning process. The proposal of Indian government to connect all the villages with broadband connectivity by 2022 and Saubhagya Yojana to electrify the households are the positive steps towards digital education. The Digital India campaign for e-governance in non-discretion official tasks has incentivized the digital literacy even for older generation people which gives some positive externality to guide their wards in online education platforms. Digital education is giving the option for students to enrol in courses delivered even in distant geography and by the teachers with favourable and interesting teaching process. This would help in achieving equitable, inclusive and quality education in the globalized world (4th SDG goal: Quality Education).

In the era of fourth industrial revolution, Internet of things and 4G technology along with robotics and artificial intelligence place the status of digitalized society in globalized world as one of the principle components for further development. The world is moving towards rapid industrialization with increasing pace of development which can sustain only with continuous knowledge creation and knowledge dissipation. India has improved on its literacy rate since independence with some of the southern states with literacy rates above 90%. This rising development in education sector has not been so satisfactory in terms of education and skill sets that marks Indian youths as unemployable ^[1]. The process of digitalization of education gives the stakeholders a leveraging position in resource-constrained country by optimizing the use of existing infrastructure, human potential and other physical resources. An institute can collaborate with other institute(s) to diversify the curriculum making both the institutions as better education enablers resulting in win-win situation for both education providers and education consumers.

The technology has helped the teachers to aid the teaching equipment with audio-visual presentation of some complex realities. The presentation in 3-D configuration and the phonetics for improved pronunciation of language courses have helped in improved learning of students. The digitalisation of education has also made the lecture timing flexible which has helped students to learn extra skills in leftover time with better management leading to better development of hobbies and personalities. The method of recording the lectures and then sending it to the students has also reduced the scope of mistakes which can be rectified while reviewing the videos which improves the quality of education and learning.

¹ As per Niti Aayog's report- Strategy for New India @75, about 53% of those coming out of India's higher educational institutions are not employable.

In this paper, we try to analyse the status of digital education in India and look for the upcoming scenarios.

Challenges of digital education in India **Digitalisation and digital divide**

In India, less than 15% households own a laptop while only one-fourth Indians use smartphones (Pew study, 2019). The quantity and quality of smartphones and their internet connectivity are the representation of economic status of the family, geographical location of the user and digital infrastructure of the region. The urban localities have better networks with high user base while backward regions of rural India lack the basic facilities. Higher income group families are generally habituated with the technology know-how which is still a dream for poor families and the affordability factor due to financial constraints has created the case of digital divide making resource rich families get additional resource of digital education which is denied to poor families and this may result in skill or knowledge gap to grow larger leading to higher income inequalities.

Female students are the victims of digital divide as they have to sacrifice the limited resources of their families for male students limiting their skill and knowledge advancement. In many families, the same smartphone is used by multiple users limiting the scope of learning and sometimes it creates mental disturbance due to fear of poor competence as compared to peers. Poor electricity and banking ^[2] facilities in backward regions are supplementary factors for digital divide. In the recent times of COVID-19 ^[3], there has been reports of struggling students looking for better connectivity of internet which has forced them to climb on rooftops and nearby high towers to complete the due assignments or classes along with some cases of suicides by deprived students. The frequent disconnections in remote areas are other challenges that makes people in remote areas the victims of digital divide.

Shortage of trained teachers

Teachers in rural and semi-urban areas are generally not well versed with the digital technology and feel digitalisation process as being a divisionary tactics to take their jobs away. They don't wish to train themselves with the latest technology and upgrade themselves as they prefer chalk and talk method of traditional education system. Senior teachers who had not seen such rapid technology development in their career feel themselves as technically handicapped and are reluctant to shape their skills for digital education. Moreover, such disadvantaged groups argue that students are loaded with excessive study materials in digital world resulting in mental pressure on students.

Language barrier

Language plays a critical role for the passage of knowledge

² Electricity and banking facilities for digital education are like jam and butter for bread consumption. Good electricity supply helps in charging the dead batteries of smartphones suitably while banking facilities help in access to recharge of internet connectivity.

³ COVID-19 (CORonaVirusDisease-2019) is a novel Severe Acute Respiratory Syndrome Virus arising from animal food market of Wuhan city of Hubei province in China affecting more than 6 lakh people in India and more than 10 crore people globally disrupting the economic activities throughout the world

and information. India being a country with diverse culture and number of languages, find it difficult to process the same content in various languages effectively. The language of the technology is not yet designed sufficiently to equip the locals with regional language proficiency and hence this may lead to improper passage of information and knowledge by the educating platforms and lesser learning for the budding generation who prefer their mother tongue.

Insufficient funds

Digital technology adds high fixed costs for the institutes along with high maintenance cost which will result in increasing the cost of education in India that may deprive the financially weak stakeholders. The cost of training the existing staffs will add up the costs for the institutes as well. The cost to secure the digital data of the institutes is quite high and none of the institutes are immune from cyber-crimes which prompts for higher investments by the institutes limiting their scope to avail the digital technology at optimum level.

Benefits of digital education in India

Benefits to teachers and institutes

The digitalisation process results in flexibility of the time schedules and minimises the scope of error by teachers. Teachers can supplement their curriculum with digitalisation and enhance their lecture presentation. The static portion of the syllabus can be recorded once and be shared with upcoming batches as well. This would reduce the time required for lecture delivery which can be utilised either for effective delivery of dynamic portion of the course or in promotion of research. The provision to conduct online exams through digital technology would increase the pace of examination and grading process. The managerial time and costs needed for this process will be reduced by digitalisation and can be used for other productive purposes.

Benefits to students

Students get wider platform to reach knowledge and information. They can access the missed lectures anytime anywhere and minimise the loss. They can access e-library facilities to enhance their knowledge base with better and easy access of academic materials. The ease of examination process can boost their zeal for practical knowledge creation and this would upgrade their skills.

Benefits to parents

Parents can access the reports and progress of their wards regularly through digital mode. They could also suggest some changes related to teaching facilities and may demand the substitution of some lectures by inefficient teachers with well versed teachers. Parents may also have a check on the attendance of their wards, the evaluation process, various school events and guide the school administration towards effective management.

Benefits to society

The resource and time saved in the digital process can be engaged in other productive processes resulting in more value addition. The digital infrastructure and knowledge created will widen the scope of society to access e-governance and improve their citizenry activities. People acquainted with the digitalisation process can help other

deprived residents to access the welfare measures of government, e-NAM for better marketing of their agricultural produce and explore the rising scope of online shopping.

Scope of digital education in India

India has become the second largest market after US in digital education. India with vast education system is expected to have \$1.96 billion worth e-learning sector with around 9.6 million users by 2021 (Indian education sector in India Industry Report, 2020). The rising aspirations of the middle class and rising real income of the people reflect the wide scope of digital education in India. The tilt of younger generation towards digital mode reflects their interest and ease of access to digital process. The universal electrification scheme of Indian govt. along with the mission to provide broadband connectivity to rural households by 2022 proves to be the supplementary factor in expansion of digitalisation of education system. Make in India scheme and assemble in India (as proposed in Economic survey 2019-20) with emphasis on consumer goods especially electronics and smartphones would expand the consumer-cum-user base which will result in near universalisation of digital education beneficiaries.

The upcoming 5G technology with Artificial Intelligence and Robotics would incentivise the technical know-how of the students and the demand of market will drive students to engage in education process in digital mode. The industrialised nations are moving towards substitution of labour by robots to perform repetitive tasks and engage the human resources in capital and knowledge creation to enhance the research output. The fate of developing nations like India is similar in coming decades. The challenge of Indian economy would be to absorb the large chunk of population with low or no skill base. This serious issue linked with globalisation asks policy makers to improve the digital education system in India.

Scope of digital education post-COVID

The rapid globalisation and urbanisation have led to the catastrophic effect of COVID-19 with a novel influenza virus arising from Chinese city of Wuhan in Hubei province. This global pandemic has led to complete lockdown of most of the economies for at least two months. This lockdown has affected the stakeholders of academia quite negatively with education and research getting stagnant for almost a quarter of a financial year which could not be minimised with the digital technology due to serious challenges of lack of equitable digital resources and digital infrastructure being spread non-uniformly. The state universities and school education system with lesser resources for digital education have been badly hit losing the time with running costs but no productivity. The stature of central universities and Institutes of Eminence has somehow minimised the repercussions but couldn't mitigate the effects.

The pandemic situations like that of COVID-19 highlight the need to upgrade the digital education system to have smooth process of teaching and learning with sound research work. The vast countries like India where the cost of travelling is high can boost the digital infrastructure to reduce the cost of travelling and aid the teaching faculty with researchers and academicians from distant geographical locations. The educational institutes can

collaborate with foreign and domestic counterparts to broaden the knowledge base which will improve the quality of research and academic curriculum. The institutes can collaborate with other parties to leverage the resources reducing the costs of education provision which would enhance the societal benefits. The emergence of digital educators like Byju, Unacademy and other private educator channels on YouTube and Telegram with increasing user base has resulted in expansion of education engaging even some deprived students for preparatory exams as the fees of online educators are relatively lower than classroom-based educators with additional savings on residence costs.

The lack of digitalisation has halted the semester/annual exams of colleges, universities and various school examination boards restricting the future options of the stakeholders. Students stuck with final year exams could have been set free after the due process of exam and look for different future options utilising the time during the pandemic which couldn't happen due to lack of digital infrastructure losing huge human potential. Students suffering from mental stress due to halted education process could have learnt various online supplementary courses to aid on their skills to enter confidently in the market seeking jobs. The availability of low, semi and high skill education platforms ranging from handicraft/manual arts to software skills could have been utilised by the youth to enhance their skills even during the pandemic.

The recent announcement of STARS (Strengthening Teaching-learning and Results for States) programme by World Bank with \$500 million loan to improve the quality and governance of school education across six states of Himachal Pradesh, Madhya Pradesh, Maharashtra, Kerala, Rajasthan and Odisha with increased participation of non-state actors is one of the suitable measures to upgrade the school education. The provision for technology assistance through the said programme will boost the aspirations of the six states providing model base for other states to address the issues of school administration and quality of education.

Conclusion

In the world of globalisation, the education is more demand driven as per the requirements of the skill sets in different sectors of the economy. The Indian education has been expanding continuously and the expansion has been aided with digital technology upgradation as well. The digitalisation of education sector has eased the teaching-learning process by bringing the educator to the students rather than students being driven to formal institutes for their education. Although there has been significant increase in digitalisation of formal education system, India is still in initial phase of digitalisation of education as the digital technology has not reached uniformly across the country and the institutes have not complemented the technology with approaching hands. The issues of copyrights (as piracy is common in developing world like India), absence of concrete Data Protection law to prevent the misuse of identity and limited cyber-attack resistance have limited the acceptance of digital education.

The rapid increase in capacity and production of smartphones as well as rise in its demand due to improving economic aspirations and standard of living indicates rapid increase in the pace of digitalisation of education. To smoothen the acceptance of digital technology, the government has to supplement them with better security in

terms of infrastructural protection, cyber resistance and effective Intellectual Property Rights apart from its policies on expansion of digital infrastructure, good governance and engagement of private investors and educators to expand the education system and leapfrog its human resource capability to become a service provider to the world in education sector as well. The policies can be formulated targeting the user base based on its demography and integrate the aspirations of the people with upcoming realities.

We would assert the digital technology not to be confused as supplementary to the existing traditional educating process. Both the education delivery mechanisms have different limitations and may vary in the preference order of the students. This entails the stakeholders to make the two systems complementary to each other and address the loopholes of the education system and devise favourable education system to facilitate the education of under-served people. All the stakeholders must concern of the fact that digitalisation is just a process of education delivery or knowledge sharing and it must not be confused as the main goal of the stakeholders to reach universal digital literacy. They must access the digital technology just as means to achieve the larger goal of educated society, skilled labour force and knowledgeable investors or entrepreneurs. This would in the end lead India to be educator of the world or Vishwa Guru as envisioned by our policymakers.

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