



DIGITALIZATION OF EDUCATION SECTOR IN INDIA – AN OVERVIEW

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Abstract

It is a well-known fact that digital India is the outcome of many innovations and technological advancements. These transform the lives of people in many ways and will empower the society in a better manner. The Digital India program is just the beginning of a digital revolution, once implemented properly it will open various new opportunities for the citizens. The digital India drive is a dream project of the Indian Government to remodel India into a knowledgeable economy and digitally empowered society, with good governance for citizens by bringing organization and coordination in public accountability. Digital India will provide all services electronically and promote digital literacy, Digital Technologies, Companies all over the world. Hence, an attempt has been made in this paper to understand Digital India – as a campaign where technologies and connectivity will come together to make an impact on all aspects of governance and improve the quality of life of citizens. Digital India stands for transforming India into a digitally empowered knowledge economy. It is an initiative of government of India to integrate the Government Departments and the people of India. It aims at ensuring that the Government services are made available to citizens electronically by reducing paper work. This paper attempts to highlight the basic components required for promotion of digital education. Digital Education Initiatives and their Purposes and tries to study merits and demerits of digital education and the latest technologies and adopt it as a positive step for development.

Keywords: Technology, Digitalization In Education, Smart Classes.

Introduction

Digital India is a campaign launched by the Government of India in order to ensure the Government's services are made available to citizens electronically by improved online infrastructure and by increasing Internet connectivity or making the country digitally empowered in the field of technology. The initiative includes plans to connect rural areas with high-speed internet networks. It consists of three core components: the development of secure and stable digital infrastructure, delivering government services digitally, and universal digital literacy.

Launched on 1 July 2015, by Indian Prime Minister Narendra Damodardas Modi, it is both enabler and beneficiary of other key Government of India schemes, such as BharatNet, Make in India, Startup India and Standup India, industrial corridors, Bharatmala, Sagarmala.

India is an emerging country in the field of digitalization. Digitalization and technology become part of each and everyone's life. In the field of education digitalization and technology is also plays very vital role. The programme contains tasks that target to make sure that govt. services are available to people digitally and people get advantage of the newest information and connections technological innovation. Gandhi ji felt that 'India resides in its villages,' and technology will help the villages to grow and prosper. Digital libraries, online magazines, e-books can be made available for free which will further help in knowledge sharing.

As part of 'Digital India' initiative, the government also started e-Education initiative to provide online education in remote and urban areas using smart phones, apps and internet services. Further, amid the pandemic, the Indian government has taken several initiatives (e.g., PM eVIDYA programme, DIKSHA, etc.) to make it at par with some global online education best practices and relaxed regulations for universities and colleges to offer extended online and distance learning opportunities to students.



Digital Education is a technique or method of learning which involves technology and digital devices. This is a new and broad technical sphere which shall help any student attain knowledge and gain information from any corner across the country. It is believed that Digital Education in India is the future of education and learning.

Various channels have been defined by the Government of India for a widespread of the sources and means to provide education to different corners of the country. Discussed further in this article are the channels and initiatives taken up by the Government for Digital Education in India.

Objectives

- To Study the Digital Education Initiatives and their Purposes.
- To study the basic components required for promotion of digital education.
- To study merits and demerits of digital education

Methodology

This paper is purely based upon the secondary data. Secondary data related to previous studies and other reliable sources like various journals books, and online magazines.

Digital india

According to the Wikipedia website “Digital India is an plan by the Government of India to ensure that Government services are made available to citizens electronically by improving online infrastructure and by increasing Internet connectivity”. The scheme was started on 1 July 2015 by the great effort of our honorable Prime Minister Mr. Narendra Modi. Digital India is a programme to prepare India for a knowledge future. The main aim of this plan is to connect the rural areas with high-speed of network. Digital India is an motivated programme of the Indian Government whose cost is worth Rs 1, 13,000 crores. Department of Electronics and Information Technology (DEITY) play a crucial role in implementation of digital India. This will impact on the ministry of Communication & IT, rural development, HR department & health department. The main focus of this project is to transformative the helps which prove the popular equation i.e. “IT+IT= IT, which means India Today + Information Technology = India Tomorrow”. Digital India is basically a joint effort of the Government of India to connect rural area with the help of internet & provide them access to basic online services. The aim of this programme is to change India into a digitally powerful society and knowledgeable country by influencing IT as a growth engine of new India. The main benefit of this programme is to save valuable time because people don't need to stand in a Queue. There are three most important components of digital India which are following

- The formation of digital infrastructure
- Delivering the services digitally
- Digital literacy

Digital Education Initiatives and their Purposes

Key initiatives taken by the Indian government to boost digital education activities are as follows:

- **National Digital Educational Architecture (NDEAR)**

In the Union Budget 2021-22, the Indian government established the National Digital Educational Architecture (NDEAR) to strengthen digital infrastructure and support activities related to education planning. The NDEAR aims to offer distinct education ecosystem architecture for advancement of digital infrastructure in the country and guarantee autonomy of stakeholders, especially states and UTs.

- **PM Evidya Programme**

The government introduced the PM eVIDYA programme in May 2020 to make e-learning more accessible for Indian students and teachers and promote & strengthen digital education in India. The programme aims to converge all activities related to online/digital education and is expected to benefit 25 crore school students.



The programme will also encompass designing unique e-content for hearing and visually impaired students and offering radio/podcasts and QR-coded digital textbooks to school students (Classes 1 to 12) on the DIKSHA portal.

Under this, top 100 universities were permitted to begin online courses, provide better learning prospects to 3.7 crore higher education students and enhance e-learning by relaxing regulatory framework for distance/open/online education.

• **Diksha** (Digital Infrastructure for Knowledge Sharing): e-Learning

In September 2017, the government introduced DIKSHA (Digital Infrastructure for Knowledge Sharing), a national portal for school education, to offer school curriculum-based engaging learning materials to students, teachers, and parents. The portal supports >18 Indian languages and has been implemented by 35 states/UTs.

As part of PM eVidya announced under the Atma Nirbhar Bharat programme, DIKSHA is the ‘one nation; one digital platform’ for school education in India. It was launched in 2017, it is a national platform available for schools in all states. DIKSHA is available for grades from 1 to 12. DIKSHA can be accessed through mobile application and web portal.

Diksha it Contain Courses for Teachers, quizzes and others Lots of e-content will be provided which are aligned with the curriculum. Large number of case studies and solutions will be provided with the help of Energised Textbooks (ETB’s) which are QR coded.

VidyaDaan was launched in April, 2020. It is a content contribution program at national level, that makes use of the DIKSHA platform and tools, it allows donation or contribution of e-learning resources for school education by experts, private bodies, and educational bodies.

Swayam

In 2017, the government launched Study Webs of Active Learning for Young Aspiring Minds (SWAYAM) to offer an integrated platform for online courses at affordable costs to all citizens, especially the underprivileged section in the country.

The portal hosts Massive Open Online Courses (MOOCs) to offer quality education on various subjects for students (from Class 9-12 to Under Graduates and Post Graduates).

Swayam Prabha

In 2017, SWAYAM PRABHA, a group of 34 DTH (Direct-to-Home) channels dedicated to broadcasting educational programmes 24x7, was introduced. The channels broadcast new content for a minimum of four hours every day, and this is repeated five times in the same day for students to select a convenient slot.

This mode of education is for people who do not have access to education. High quality educational programmes are telecasted. There are a total of 32 channels to meet the requirements. Different channels are used for higher education and school education. The Department of School Education and Literacy also tied up with private DTH operators like Tata Sky & Airtel to air educational video content to enhance the reach of these channels. Number of TV channels for school education will increase from 5 to 12 to transform into ‘one class, one channel’, that is, one channel each for all grades from 1 to 12 channels. ensure asynchronous usage at any time, anywhere, and by anyone, the same content will be organised by chapter & topics on DIKSHA.

ePathshala Portal

In 2015, the government launched the ePathshala portal to build a resource store for educational videos, audios, flipbooks, etc. Resources on the portal are available in Indian languages such as Hindi, English and Urdu and can be accessed via smartphones, laptops, desktops and tablets.



Nishtha

In FY21, the National Initiative for School Heads and Teachers' Holistic Advancement (NISHTHA) - Phase II was launched at the secondary level to tailor modules for online education. As per the Union Budget 2021-22, 5.6 million teachers will be trained under the NISHTHA training programme in FY22.

OLabs

To offer students lab learning experience via the internet, the government introduced OLabs in November 2014 for those who do not have access to physical labs.

Virtual Labs

The Government of India introduced a pilot virtual lab in 2009 and the main one in 2010 to enable undergraduate and post-graduate students (pursuing science and engineering courses) remotely access the labs and enhance their study experience.

The virtual labs offer students a Learning Management System and various study aides such as video lectures, web resources, self-evaluation and animated demonstrations.

Along with these, other digital initiatives taken by the government include Shiksha Vani for widespread use of radio, the Central Board of Secondary Education's (CBSE) podcast, sign language content on the National Institute of Open Schooling (NIOS) website/YouTube and Digitally Accessible Information System (DAISY) for accessing special e-content for hearing and visually impaired learners, and Free Open-source Software for Education (FOSSEE).

Radio Broadcasting

The radio broadcasts focus on activity-based-learning For broadcasting content related to National Institute of Open Learning – NIOS (grades 9 to 12), 289 community radio stations have been used. This mode of education is particularly useful for students who are living in remote areas, particularly for grades 5 to 1. Shiksha Vani is a Podcast of the Central Board for Secondary Education (CBSE). Shiksha Vani is used by learners of grades 12 to 9. There are more than 430 pieces of audio content for all subjects from grade 12 to 1, in Shiksha Vani

Massive Open Online Courses

Massive Open Online Courses (MOOCs) are empowering self-learning in a crucial way. The popularity of online courses via MOOCs programs in India is a growing movement. They are helping young minds in the country to upgrade their qualifications and skills, and allowing millions of Indians access to affordable education to improve their employability by gaining access to a range of skill-based courses.

It facilitates students and working professionals to study at their own convenience from anywhere and at any time. Moreover, several courses offered under this platform provide a valid certificate that is duly acknowledged by institutes and companies. India is the second biggest market for MOOCs in the world, after the U.S. However, it is expected that India, in the coming years, will supersede the U.S.

India is home to the largest population of children in the world, with an estimated 430 million children in the age group of 0-18 years in the country. Digital education is going to be the new way of learning in India. Smart and innovative technologies are changing the overall educational framework in the country. The penetration of digital education in rural India is evolving fast. Online learning platforms have large amount of user data, which enables them to use machine learning algorithms to enhance the learning patterns of people. Pattern recognition is used to personalize the content for each individual. For example, when a student repeatedly struggles with a concept at the course, the platform adjusts the e-learning content to provide more detailed information to help the student.

The instantaneous feedback loops inside the platforms, which are provided by other online students or the platform improves the learning curve. This also offers shy or more reticent people the opportunity to participate in class discussions more easily than face-to-face class sessions.



LMS - Advance Learning Management Systems (LMS)

Advance Learning Management Systems (LMS) with its right knowledge management tools will help in improving the design and delivery of educational courses being offered by universities and colleges in India. In Karnataka state has successfully implemented LMS Karnataka scheme successfully during COVID-19 times.

Digital technology is also helping overcome all language barriers. Now, learning material can digitally be made available in regional languages as well. Through e-learning and m-learning initiatives fostered by the government and private players, students and teachers can get access to the vast pool of knowledge content.

Basic Components of Digital Education

Use of information and communication technology in education is based on certain pre-requisite and only after meeting out these basic infrastructural requirements we can move towards digitization of education. Some of the important peripheral components towards digital bound class rooms are expressed below:

1) Smart Boards

SMART Board is an interactive whiteboard developed by SMART Technologies. It is a large touch-sensitive whiteboard that uses a sensor for detecting user input (e.g. scrolling interaction) that are equivalent to normal PC input devices, such as mice or keyboards. A projector is used to display a computer's video output onto the whiteboard, which then acts as a huge touch screen.

2) Class Room PC

Most classes require students to prepare lot of reports and assignments followed by presentations. Thus the basic requirement of digital class is availability of personal computers/ laptops/ tablets wherein large amount of educational information and data be stored and retrieves as and when required. This allows students to be more in tune with their learning by allowing them to have their own personal computers.

3) Projectors

Projectors are the basic requirement for digital class as it helps in displaying on board the presentations both be teachers and students for imparting broad based learning. Projectors are hooked with the laptop and acts as a reflector of information from laptop to large screen on the whiteboard for visual presentation before class.

4) Internet Connectivity

For successful implementation of ICT in education uninterrupted internet connectivity is the basic requirement. Thus good internet connectivity should be ensured so that information can be shared with others without any delay and so also e-mails and browsing of study material, research reports, world bank and other national and international reports can easily be assessed.

Merits of digital education

Technology, including online education has brought in the following advantages –

1) Minimizes infrastructure Traditional education used to take place in classrooms wherein teachers or lecturers use to teach a group of students using chalk and board method. But in the digital method people can study from any part of the world using digital technology.

2) Reduces the Cost of Education Online learning or digital learning will cost (about 30-40 per cent) less compared to traditional learning. In traditional method people need to pay management fees and other expenses whereas in digital learning you have no such expenses.

3) 24X7 access to lessons E-learning can be done 24X7 and from any part of the world. It has no particular time.

4) Student centric Classes Students are able to solve problems themselves by investing more learning time using Artificial Intelligence and combining it with both teacher-student and student-student interaction than using



traditional classroom teaching methods. Information seeking today is virtually information digging what with data mining.

During 2019-20 when India and the entire world were fighting the COVID-19 pandemic, Digital Education in India was the sole source of learning for the students in the country. Discussed below are a few other benefits of Digital Education in India:

- This initiative has made students not just gain bookish information but also gain practical and technical knowledge.
- No limitation as to the place of learning or studying. With digital learning, a student can engage in online classes or learning anywhere, at any time.
- With study material available online, students can take their time to understand any topic.
- Through the mode of digital education, learning can be made more engaging and interactive between the students and teachers.

Demerits of Digital Education

Some of the difficulties in digitalization are –

- 1) Misguided by the wrong information - All information given in the internet may not true. In some case it may misguide people by providing wrong or fake information.
- 2) Major Source of distraction -While one refers the e-book through internet several advertisements pop out and disrupt the learner.
- 3) Extinct of good handwriting -Since there is no manual writing of notes and examinations, one's handwriting may go bad. Hence it leads extinct of good handwriting.
- 4) Replacing books with e-books -Hardcopies of books have been replaced with softcopies, pdf, and kindle versions.
- 5) The feedback might not be enough- While online instructors do give students feedback, they still might not have enough time to work with them properly, explaining every detail. This could lead to some students falling behind, having gaps in their knowledge, and not completing the course successfully enough.
- 6) Language barriers In many countries – with little knowledge of English – people find it very difficult to grasp what the Internet says. Our study also finds that there is poor translation from English to Kannada (the official language of Karnataka) as we see in Wikipedia, Face book etc.

Conclusion

With the help of all above scheme, India is supposed to be get maximum revelation and will lead in the world with IT interface, e-Governance and e-Service. With the help of these 'e' services like e-education, e-health and ebanking the expectation from the Indian organizations is to leave the best effect in the world. The main benefit of this programme is to save valuable time because people don't need to stand in a Queue. The successfully implementation of digital India will help the government to involve the people in a more well-organized way. A Digital interface is convenient to both the government as well as the public also. As part of the digital agenda, the government main agenda of digital India is that the government wants to make every family and every human being digitally empowered. Digital education is a powerful tool if it is used wisely. The educational process will became more flexible and will fulfill to the needs of lifelong learning. Digital education can also assure good educational opportunities for rural area learner to gaining new knowledge, skills and experience. So, digital education has its pros and cons. So, teachers, students and our educational system need to be properly guided to use the technology.

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