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Digitalization Higher Education in India

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Abstract

India is well-progressing towards digital education, backed by rising adoption of digitalization by universities and colleges, increasing internet penetration and soaring demand from students. As per Red Seer Consulting, the online education market (higher education and lifelong learning market) in India is forecast to reach ~ US$ 5 billion by 2025, driven by the government's focus on designing online education programmes, strengthening digital infrastructure across the country and catering to the rising demand for up skilling among students. This paper presents key initiatives taken by the Indian government to boost digital education in Higher Education.

Keywords: SWAYAM, SWAYAM Prabha, National Digital Library (NDL), e-Yantra, DIKSHA, virtual labs and NISHTHA

1. Introduction

Digital education has been significantly driven by the government's focus on strengthening digital infrastructure in the country, including providing internet connectivity in the remote areas. According to IAMAI-Kantar Cube report, active internet users in India is estimated to reach 900 million by 2025, up 45% over 622 million active internet users in 2020. Also, internet penetration in the country is expected to reach >55% by 2025.

The Indian government also launched the 'Digital India' initiative in July 2015, to strengthen online infrastructure and expand internet accessibility among citizens (for example, connecting rural areas to high-speed internet networks). 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.

2. Digital Education Initiatives and Their Purposes

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

2.1 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.

2.2 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.

2.3 DIKSHA

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.

2.4 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).

2.5 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.

2.6 e Pathshala 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.

2.7 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.

2.8 O Labs

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

2.9 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).

3. Advantages

For strengthening digital education in India, the

govt. eased regulations on online education and finally allowed universities and colleges to extend >20% of a degree online from 2020 onwards. This initiative has enabled Indian institutes to further improve their portfolio of higher education internationally.

Many Ed Tech businesses (e.g., up Grad, Virohan, BYJU's, etc.) have also gained traction in the recent years and are determined to deliver unparalleled learning management resources, such as blended learning, 3D and DIY kits, and AI-based innovative and engaging learning. According to a report published by Red Seer and Omidyar Network India, the Ed Tech market in India is expected to reach ~US$ 3.5 billion by 2022, due to higher uptake of Ed Tech offerings among students.

Further, increasing digital education in India is also helping the government to improve accessibility in rural areas and impart quality education to students in small towns and villages. Further, this also provides an opportunity to private players to venture in the Indian digital education sector. For example, in January 2021, Es per collaborated with 'Teach for India' and 'IT each Schools' to assist in e-learning programmes for rural kids.

Rising adoption of digital education in India is also attracting global key players to offer online courses to students and extend opportunities to learn new skills. For example, in January 2021, Amazon India launched 'Amazon Academy', an online platform enabling engineering aspirants to prepare for competitive examinations such as the Joint Entrance Examination (JEE). Further, Amazon India launched Machine Learning Summer School in June 2021 to help Indian students learn new skills.

4. The Future of Digital Education

Going forward, the government will focus on getting students industry-ready by evaluating their competencies and helping them get aligned with industry-based skills. To achieve this, the government is promoting Indian institutes and colleges to shift from traditional operations to digital modes. In line with this, several educational establishments such as Amity University, Christ University, AIMA (All India Management Association), IIMs (Indian Institute of Management), Ashoka University and ISB (Indian School of Business) have now transferred their examination procedures online.

The government is also focusing on research and innovation to identify sectors that can further support and strengthen digital education initiatives in India. In July 2021, the government stated that space technology (such as satellite communication) is being used for digital education in India. At present, under the Tele-education Programme, 19 states and A&N Islands have been leveraging satellite communication for beaming educational content in the digital form. Indian institutes such as Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N) is leveraging satellite communication for beaming 51 educational channels. Institutes such as the Indian Institute of Remote Sensing is also leveraging digital platforms to train beneficiaries (such as working professionals, UGs/PGs, doctorate students, academicians, school students and school teachers) on space technology and its applications. In 2020-21, these programmes have benefitted ~2.42 lakh members. These initiatives are expected to open the door to more opportunities in space-based applications and digital education.

5. Conclusion

According to the UNESCO, India is expected to join eight other countries (including Brazil, China, Bangladesh, Egypt, Mexico, Pakistan, Nigeria and Indonesia) in a drive to accelerate digital learning and benefit from the global digital education initiative. Together, the countries are expected to drive shift from a traditional education approach towards digital and create more opportunities in the digital education sector globally.

With Indian institutes taking their operations and learning procedure online, the e-learning sector is getting a major boost, which is expected to further structure advance learning procedures in Ed Tech.

Also, digitalization in the education sector has made it possible for kids in remote parts of the country to get access to quality education through interactive digital media and overcome the challenge of teacher shortage. Further, it is also helping teachers in the remote areas leverage technology to upgrade their skills and accelerate adoption of digital methods of learning and teaching in the country.

Rising participation of private players to offer e-learning courses, along with the government's effort to strengthen digital landscape of the country, is expected to boost digital education

and consequently, empower students, and also offer opportunities to emerging technologies.

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