Digital Initiatives: A Holistic Approach Towards Higher Education

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Abstract

Online education is the need of the hour. Improved internationalisation and student mobility, as well as increased access to online and blended learning, have all contributed to significant advancements in higher education in recent years. All of these issues highlight the importance of governments and organisations taking innovative approaches to improve and ensure quality, equity, and access. MOOCs in particular, as well as online learning in general, offer enormous potential since they give new avenues to higher education while also broadening lifetime learning opportunities. It also offers a number of options for people and organisations looking to save money on education. In this article an attempt has been made by the investigator to acquaint the readers for various digital initiatives taken by central and state governments in India. This paper will include all pertinent information about the various initiatives and will assist higher education institutions in implementing these projects in order to improve learning outcomes.

Keywords: Digital Initiatives, MOOC, Blended learning, Open Education Resources

Introduction

The implementation of digital technologies in higher education has gotten a lot of attention in India. Digital technologies have had a considerable impact on institutional administration and governance, as well as higher education institution certification and rating. Educational technology's first and most significant purpose is to save people time and give flexibility, allowing them to more readily deploy successful instructional approaches. Technology can find a compromise between two competing resource demands: fair access and high quality. Education has recognized the relevance of technology in how we live in our society and how our learners will interact with the world once they graduate.

US Department of Education 2009 conducted a study to compare online education to traditional face-to-face method of teaching and found that students who completed their class online did better than those who took the same course by traditional face-to-face method of teaching (Yates, Bakia, Means, & Jones, 2009, p.xiv). The poll also contrasted

blended and purely online courses, concluding that "education combining online and face-to-face characteristics demonstrated a better advantage than simply online instruction" (p.xv). According to current study, blended learning is more effective in certain areas, such as language learning (Zhang & Zhu, 2018).

All university teachers all around the world were forced to provide classes online during the covid-19 pandemic. Despite the difficulties, digital transformation has the potential to address long-standing concerns in Indian higher education and, as a result, improve the employability of graduates. Universities may be able to offer a broader selection of courses to a bigger number of students, as well as a level of assistance that was previously inaccessible through in-person instruction. Online teaching helps to avoids issues like shortage of teachers and orthodox system of university education in India. The higher education market was already experiencing digital transition prior to Covid-19, but the outbreak has hastened the process dramatically. Raghav Gupta managing director of Coursera's for India and Asia-Pacific stated that developments that would normally take "five to seven years" only took five to seven months. More than 3,700 universities have joined the Coursera for Campus platform since countries began closing down in March to prevent the spread of the virus. According to Gupta at Coursera, roughly 70% of students who use Coursera for Campus access content through a mobile device.

Research Questions

Any research study is incomplete without framing the purpose of that study. For fulfilling the purpose of this study researcher has developed following research questions:
(1)   What are the government of India's numerous digital initiatives for the advancement of higher education?
(2)   What programmes has the Indian government initiated to improve digital education in higher education institutions?

Methodology

The focus of this research is on analysis. The information was gathered from a variety of sources, including publications, papers, books, and journals. For this, more internet sources and websites are checked.

Analysis and Interpretation of Data

Data has been collected from various sources and analysed for the study.

National Mission on Education through ICT (NMEICT)

The quality of learning outcomes can be improved by using technology in digital education. For improving the quality of learning outcomes the Ministry of Human Resource Development now named as Ministry of Higher Education has launched a comprehensive project named National Mission on Education through ICT aimed at

embracing digital education solutions to increase access to high-quality material and learning outcomes.

Despite the fact that the NMEICT programme has supported a wide range of initiatives, the most visible current initiatives are SWAYAM, SWAYAM PRABHA, the National Digital Library (NDL), e- Yantra, FOSSE, Spoken Tutorials, and Virtual Labs, which are being implemented by a number of higher education institutions.

SWAYAM https://www.swayam.gov.in/

India's own MOOC network, Study Webs of Active Learning for Young Aspiring Minds, offers free online courses in practically every subject. The Indian government created a programme to ensure that three essential educational policy principles are met: access, equity, and quality. The Hon'ble President of India formally launched SWAYAM on July 9, 2017. SWAYAM has provided around 2200 courses to date, with approximately 500 courses accessible for the January 2019 semester. On the Swayam platform, over 50 lakh students have registered, with over one crore enrolled in various courses. SWAYAM courses have been authorised for credit transfer by 122 institutions/universities thus far, with many more on the way. SWAYAM intends to close the digital divide for learners who have previously been excluded from the digital revolution and thus unable to engage in the knowledge economy. This is accomplished by the establishment of a locally created IT/Cloud infrastructure that allows anyone, from ninth grade through post-graduation, to access all classroom-taught courses from anywhere at any time. The classes are completely interactive and free. Over 1000 of the country's most well known teachers contributed to its creation.

A SWAYAM course is broken down into four parts: I video lectures; (ii) downloadable or printable study materials; (iii) self-assessment examinations and quizzes; and (iv) an online discussion forum where questions can be answered.

The learning experience has been improved through the use of audio-video and multimedia, as well as cutting-edge pedagogy and technology.

SWAYAM PRABHA https://www.swayamprabha.gov.in

Swayam Prabha is a Direct-to-Home (DTH) initiative that intends to broadcast 32 high-quality educational channels 24 hours a day, seven days a week across the country. This would make it possible to deliver e-education in the most cost-effective and inclusive way possible. As a result, two GSAT-15 transponders have been assigned to the mission by the space agency. The Swayam Prabha was unveiled on July 9, 2017 by India's Hon'ble President. These educational channels will be available on the same set-top box and TV for subscribers of Doordarshan's (free dish) and Dish TV's (Zee) free DTH services. No further funding would be required. These channels are also available through the Jio mobile TV app. CEC, IGNOU, IITs, NIOS, and NCERT were among the MHRD agencies that contributed to the content. At the postgraduate and undergraduate levels, curriculum-based course content in subjects such as arts, science, commerce, performing arts, social

sciences and humanities, engineering, technology, law, medicine, agriculture, and so on. If all courses were delivered through SWAYAM, the MOOC platform in development, all of them would be certification-ready.

SHODHGANGA http://shodhganga.inflibnet.ac.in/

The term Shodhganga was established to characterise the INFLIBNET Centre's digital archive for Indian Electronic Theses and Dissertations. D Space, open-source digital repository software developed by MIT in conjunction with Hewlett-Packard, is used to organise the shodhganga (HP). Shodhganga is a platform for researchers to deposit their Ph.D. theses and make them freely available to the academic community. Researchers can submit ETDs (Electronic Theses and Dissertations) to the repository, which can subsequently be recorded, indexed, stored, disseminated, and maintained.

SHODHGANGOTRI http://shodhgangotri.inflibnet.ac.in/

Under the Shodhgangotri initiative, universities are required to deposit an electronic version of approved synopses produced by research scholars in order to register for the Ph.D. programme, which has since been expanded to include Emeritus Fellowship and other options. On the one hand, the repository would reveal the patterns and directions of research at Indian universities, while on the other, it would avoid research duplication.

e- SHODH SINDHU http://ess.inflibnet.ac.in/

It provides its member institutions with current and up-to-date access to over 15000 core and peer-reviewed journals, as well as a variety of bibliographic, citation, and factual databases in various disciplines from a large number of publishers and aggregators. Its members include centrally-funded technical institutions, universities, and colleges covered by the UGC Act's Sections 12(b) and 2 (f).

National Digital Library (NDL) https://ndl.iitkgp.ac.in/

IIT Kharagpur has been tasked with building the overall framework of a facility that might provide learners with a single window access to e-contents/resources as part of the National Digital Library of India (NDL) project. The goal is to transform NDL into a national knowledge asset that will advance India's education, research, innovation, and technology economies. NDL presently has more than 200 million users and 200 million content items. NDL combines existing digitised and digital content from educational and cultural institutions/bodies, publishers, and others into a single point of access for users of all demographics. NDL gathers metadata from materials and stores and indexes it on its servers so that users can search and access all e-contents in full text from a single window. NDL does not keep actual things on its servers; instead, as part of search results, it offers users with links to comparable content hosting sites. By clicking on these links, users can access content from a variety of content hosting sites.

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e- Yantra http://www.e-yantra.org

IIT Bombay's e- Yantra initiative intends to give effective embedded systems and robotics instruction to engineering colleges across India. The principles of embedded systems and programming are taught to workshop participants, who comprise both teachers and students. It also helps institutions set up Robotics Labs/Clubs so that robotics learning may be included into their regular training programme. Around 275 colleges in India have benefited from this project. On the e-yantra website, www.e-yantra.org, all projects and scripts are available as open source context. By training the next generation of embedded system engineers with a practical perspective, this one-of-a-kind project aims to give practical answers to real-world challenges using robotics and autonomous systems.

Virtual Lab http://www.vlab.co.in/

This programme now allows remote access to labs across a wide range of science and engineering fields. Students can extend their learning by conducting virtual lab experiments at a time and place of their choice outside of lab hours. These virtual labs would be available to undergraduate, graduate, and research scholar students. The twelve participating institutes include IIT Delhi, IIT Bombay, IIT Madras, IIT Guwahati, IIT Kharagpur, IIT Kanpur, IIT
Roorkee, NITK Surathkal, COE Pune, Amrita Vishwa Vidyapeetham, and Dayalbagh

Educational Institute Agra. IIT Delhi is one of the participating schools. Anyone's finances are not jeopardised by using virtual labs. It is completely unrestricted and unrestricted. All technical institutes and science colleges are invited to participate.

FOSSEE https://fossee.in

The FOSSEE (Free/Libre and Open Source Software in Education) Project promotes the use of FLOSS (Free/Libre and Open Source Software) tools in education in order to improve educational quality in our country. Its purpose is to reduce the reliance on proprietary software by educational institutions. It is up to IIT Bombay to put it into action. Educators and academics are encouraged to employ cutting-edge free and open source software (FLOSS). These include Scilab, Python, R, DWSIM, Open Modelica, and Open FOAM, to name a few. New FLOSS tools, such as e Sim, are being developed, as well as updates to existing ones. It also supports the usage of open-source hardware like Arduino. To promote these technologies, students and researchers are urged to participate in activities such as Textbook Companion, Lab Migration, Conferences and Workshops, Massive Blended Training, and others.

SPOKEN TUTORIAL https://spoken-tutorial.org

This effort enables anyone to independently learn various Free/Libre and Open Source Software. The self-paced, multilingual courses allow anyone with a computer and a desire to learn to learn from anywhere, at any time, and in any language. Spoken Tutorials can be used without the usage of the internet. This project is overseen by IIT Bombay. The spoken Tutorials, which are available in all 22 languages mentioned in Schedule 8 of the Constitution, can benefit even students who do not have a solid command of the English language.

e- PG Pathshala http://epgp.inflibnet.ac.in/index.php

It's a Ministry of Human Resources and Development programme run by the University Grants

Commission as part of its National Mission on Education via Information and Communication Technology. Subject experts from Indian universities and other research and development institutes created high-quality, curriculum-based, interactive e-content in 70 subjects, including social sciences, fine arts and humanities, natural and mathematical sciences, linguistics, and language. Each subject was worked on by a team of main investigators, paper coordinators, content writers, content reviewers, language editors, and multimedia experts.

OSCAR http://oscar.iitb.ac.in/

The Open Source Courseware Animations Repository is a repository of "learning objects," which are web-based interactive animations and simulations. At the college level, these learning items address scientific and engineering concepts, whereas at the school level, arithmetic and science are taught. Students and teachers can research, run, and download these teaching resources.

NPTEL http://nptel.ac.in/

The National Programme on Technology Enhanced Learning was launched in 2003 by seven Indian Institutes of Technology (Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati, and Roorkee) and the Indian Institute of Science (Banglore) (NPTEL). This phase produced 235 web/video courses and identified five major disciplines: civil engineering, computer science and engineering, electrical engineering, electronics and communication engineering, and mechanical engineering.
NPTEL Phase II (2009-14) aimed to expand the number of engineering and core science courses available in Phase I. Another 600 Web and video courses have been produced in all major subjects of engineering and physical sciences at the university and postgraduate levels, as well as postgraduate management courses. For all video and web courses, several changes have been incorporated, including keyword search and indexing.

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GIAN http://www.gian.iitkgp.ac.in/

The GIAN has endorsed the Global Initiative of Academic Networks, which aims to supplement the country's existing academic resources, accelerate quality improvements, and strengthen India's scientists by allowing the government to tap into the global talent pool of researchers and entrepreneurs to encourage their involvement with Indian higher education institutions.

In order to incorporate the best international experiences into our educational institutions, a Foreign Summer and Winter Term Scheme is required. It allows students and teachers to communicate with the world's top academics and industry leaders. Smriti Zubin Irani, the Minister of Development for Human Resource, stated in Goa on June 29, 2014 that the Minister of Development for Human Resource would establish a guest lecture system for experts from around the world and from well-known countries, as well as a full Faculty Development Program for future IITs, IIMs, and IISERs, as well as other institutions in the country.

Conclusion

All digital transformation solutions in higher education do not have a single dimension. The nature, scope, and location of higher education institutions (HEIs) differ. Technological advancements, on the other hand, have an impact on people's daily lives, the development of societies, the skills and competencies required to engage in society, and, most importantly, how individuals access information and knowledge around the world. Despite the fact that transformations occur in diverse ways, at varying rates, and with different means and opportunities, all HEIs are dealing with the question of how to adapt and shape higher education in an increasingly digital environment.

We live in a world that is highly advanced. The majority of us blend online and face-to-face interactions with individuals every day. Thanks to smart phones, tablets, and laptop computers, information and media are at our fingertips and available on demand. Digital technology is becoming an increasingly natural element of our physical settings as we grow more connected. To generate unique, optimal living experiences, each of us blends physical and digital activities. Online quizzes can provide students with immediate feedback and the option to retake them. The ability to learn on mobile devices while riding the bus or anytime one has free time makes education considerably more convenient and accessible. Technology has the ability to enhance educational experiences, but we must be wary of assuming that technology increases learning in and of itself. Technology is only a tool; if we want to improve the learning outcomes of our children, we must change our teaching methods and practises. We can use technology to help us make those adjustments more quickly. Also, good adjustments in teaching and learning may be enjoyable for all parties involved. Teachers can use online learning to establish themselves on a path of continuous improvement.

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