

## Digital Initiatives in Higher Education in India

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### Abstract:

Higher Education (HE) is tertiary education leading to award of an academic degree. HE generally means University level education .HE contributes to the national development through dissemination of specialized knowledge and skills. India became a centre of Higher learning with Nalanda, Takshila, Vjjain, Ajanta and many more. India is the third largest country in the world in terms of student enrolment as well as number of institution. In last few year online learning on HE become more popular by its simple virtue of being so much more convenient than traditional face to face courses. Learner can fit them around their existing responsibilities and commitments and can engage with multimedia content and learning materials at whatever time is most convenient to them. Don't have to travel anywhere to study, can simply log in to the virtual campus from home or office or anywhere and also online courses are easily accessible on much smaller budget. Online classes significantly improved students participation and interaction. Besides this, it helps us to assess the ability of students quickly. As India is a second largest populous country, therefore to reach the benefit of higher education to all willing people online education is inevitable. As well as in this present situation it is inescapable in Higher Education. In this endeavour Open and Distance Learning (ODL) is also playing an important role to increase Gross Enrolment Ratio (GER) in our country.

This paper try to present the expansion of access and qualitative improvement in the HE, through the world class Universities, Colleges and other institution through the various Digital Initiative in Higher Education(SWAYAM, MOOCs, NDL,NAD,E-YANTRA,NPTEL etc.) as well as problems faced in this platforms and many more.

**Key words:** Higher Education, Gross Enrolment Ratio (GER), Online Learning Information and Communication Technology (ICT), National Digital library (NDL).

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### I. INTRODUCTION:

In India the origin of education can be traced to the Vedic age. Since ancient literature, namely Vedas, Brahmanas and Upanishads revealed the highest knowledge to mankind through ancient rishis. Higher education provide people with an opportunity to reflect on the critical, social, economical, culture, moral and spiritual issues facing humanity. Higher education is the key element in 'demographic dividend' and also that it intend to make optimum utilization of human resources specifically in age group of 15-59 years. Education system of India which includes technical education as well as commerce, arts, medicine, architecture, chartered accountancy, diploma course and many more. India's higher education system is the third largest in the world. Large section of the population remains illiterate and a large number of children's do not get even primary education.

Despite these challenges higher education system of India equally has lot of opportunities to overcome these challenges and have the capability to make its identity at international level. However, it needs greater transparency and accountability, the role of universities and colleges in the new millennium, and emerging scientific research on how people learn is of utmost important. India provides highly skilled people to other countries therefore it is very easy for India to transfer our country from a developing nation to a developed nation.

#### 1.1 Research Problem:

Higher education has a crucial role in India's ability to succeed in the modern global economic system. The number of institutions serving the sector and student enrolments in India have expanded very rapidly in recent decades. The demand for higher education in India is affected by competition from universities outside the country, as a large numbers of Indian students migrate for higher studies abroad. Even though the pressure of demand for higher education in India remains strong in relation to supply. As India is a second largest populous country, therefore to reach the benefit of higher education to all willing people online education is inevitable. As

well as in this present situation it is inescapable in Higher Education. The main problem is to increase GER up to a certain level which also achieved by other developing nation.

### **1.2 Review of Literature:**

i) Hiwarkar. A, Nirbhavane.S, and Rawat.P,(2016), have mentioned that Knowledge has emerged as a driving force in the rapidly changing economic environment resulting in both challenges and opportunities. In such a scenario, education in general and higher education in particular, has clearly become a crucial determinant of economic growth. They have also stated that “Education is the most significant and essential input for the growth and prosperity of a nation”. It provides strength and resilience to enable people to respond to the changing needs of the industry and economy. Education is the backbone of all national endeavors. It has the power to transform human beings into human resource.

ii) Gillett-Swan.J,(2017), has highlighted on the increasingly flexible delivery modes available for university students provide multiple pathways and opportunities for those seeking further education.

iii) Sheikh.A.Y.(2017), has depicted an idea about the economic success of the states is directly determined by their education systems. Indian higher education system is the third largest in the world, next to the United States and China. Although there have been lot of challenges to higher education system of India but equally have lot of opportunities to overcome these challenges and to make higher education system much better.

iv) Ganai.S.(2019), has realized that the economic success of the states is directly determined by their education systems. Since independence, India as developing nation is continuously progressing in the education field. India need well skilled and highly educated people who can drive our economy forward. Online education changes all components of teaching and learning in higher education.

v) Chaudhary.P. and Sharma.K.K.(2020), have mentioned that Government has an ambitious strategy to bring in digital enablement in India’s education delivery space. Study was carried out through inputs from various stakeholders. Results reveal that institutes lack vision, preparedness and commitment for technology implementation. The study can be further extended to control and monitoring mechanisms to realise the strategic vision of digital universities and a higher gross enrolment ratio with quality education.

### **1.3 Objectives of the study:**

The basic objectives of the study are as below:

- i. To highlight the need of the higher education in developing our country.
- ii. To mention the necessities of online education in the context of present situation.
- iii. To depict the present scenario of Higher Education in India.
- iv. To highlight various opportunities and challenges faced our higher education in the present globalisation era.
- v. To give some way out to implement the online mode in higher education in India.

### **1.4 Rationale:**

From the above review of literature, it is evident that most of the researcher have stated that on-line education is inevitable to increase the Gross Enrollment Ratio (GER) in our country. Most of them have mentioned that there are lots of challenges and opportunities to implement the digitalization in our country’s higher education system but they have not mentioned the ways of digital initiatives to be taken to increase the GER. This paper is intended to fill-up this gap. Here, we have mentioned different modes of digital initiatives along with their threats and opportunities.

### **1.5 Methodology:**

The present paper is prepared by using available literature in periodicals, books and several journals. It is mainly used secondary data available in the published reports like All India survey of Higher Education (AISHE), Report of Higher Education of different State Governments and University News etc.

### **1.6 Statistics:**

Simple statistical tools and techniques are used viz; percentage, average, ratio etc.

On this backdrop, the present paper is divided into six sections, the first section offers introduction. The present scenario of higher education in India is depicted in second section. Section three describes various initiatives taken by the Central Government and different State Governments to digitalize the higher education in India. Next section highlighted various challenges and opportunities of digitalized mode of higher education in our country. Section five gives some recommendation for online education system. Last section offers conclusion.

## II. PRESENT SCENARIO OF HIGHER EDUCATION IN INDIA:

The education system of India falls broadly under the Ministry of Human Resource Development (MHRD). The Department of Higher Education of MHRD is responsible for overseeing the growth of the higher education sector. Lack of accessibility to higher institutes of education is identified as one of the reasons for low enrolment at college or university level in the country. India's current GER (Gross Enrolment Ratio) is 26.3% and substantially less than the developed countries. The Department aims to improve quality of and access to higher education for all sections of the population. One of the key objectives of the Department is to increase the Gross Enrolment Ratio (GER) in higher education to 30% by 2020.

Fragmented education system is another issue highlighted in the NEP 2019(National Education Policy). While accessibility to higher education institutes remains a problem the higher education system in India also suffers from a non-coherence and high fragmentation. This is aptly represented by near 993 Universities and 39931 colleges. 16.3% of these colleges have enrolment of less than 100 and only 4 % of these colleges have more than 3,000 students as per data of the All India Survey on Higher Education (AISHE 2018-19). According to NEP (2019) points out that 34.8% of the colleges run a single program, which is in contrast to the multi-disciplinary education currently being followed in other countries. During the study period 2015-2019 the GER is increased through regular and distance mode.

**Table2.1: Enrolment in Universities and its constituent Units through Regular & Distance mode**

Level	2015-2016		2016-2017		2017-2018		2018-2019	
	Regular Enrolment	Distance Enrolment	Regular Enrolment	Distance Enrolment	Regular Enrolment	Distance Enrolment	Regular Enrolment	Distance Enrolment
<b>Integrated</b>	92823	1	101696	242	113611	0	131817	313
<b>Certificate</b>	15083	34021	16134	49559	15417	52607	16473	42818
<b>Diploma</b>	183717	94247	156479	90750	164698	99199	132803	130194
<b>PG Diploma</b>	90769	68604	59259	77754	63514	89943	50740	99391
<b>Under Graduate</b>	1599953	2498983	1756975	2656564	1980564	2553590	2127421	2700212
<b>Post Graduate</b>	768640	1107925	760157	1197968	797694	1177430	890404	999087
<b>M.Phil</b>	24878	0	25035	0	17912	0	18649	0
<b>Ph.D</b>	109416	136	123712	0	139218	0	146420	53
<b>Total</b>	<b>2885279</b>	<b>3803917</b>	<b>2999447</b>	<b>4072837</b>	<b>3292628</b>	<b>3972769</b>	<b>3514727</b>	<b>3972068</b>
Percentage	43.13%	<b>56.87%</b>	42.41%	<b>57.59%</b>	45.32%	<b>54.68%</b>	46.95%	<b>53.05%</b>
Increased in DE		<b>13.73%</b>		<b>15.18%</b>		<b>9.36%</b>		<b>6.11%</b>

The above table depicted that majority of learner opt to learn in distance mode than traditional learning mode, if possible to provide digital learning platform to learner of each corner of India then they can access it from home, workplace and any other place at any time as a result our Gross Enrolment Ratio (GER) will be increased and this will be future of our higher education of India.

To improve Gross Enrolment Ratio (GER) to 30% by 2020 Government of India has felt that conventional mode of education shall alone not be sufficient to achieve this goal and has decided to utilise ICT in a big way in education.

## III. DIGITAL INITIATIVES OF HIGHER EDUCATION IN INDIA:

The Covid-19 pandemic seems to have foreshadowed a new change in education systems across the world. While digital learning has been the ground plan of professionals looking to up skill in an increasingly automated world, e-learning found a place in the curricula of schools and universities amid the lockdown to ensure academic continuity.

Online Education system is more likely to be meaningful to learners when it is Learner centred, easily accessible, clearly organized, and well written and has a facilitated learning environment. India is second most populous country in the world and has a great responsibility of educating its masses with diverse backgrounds. Many initiatives have been taken by the Indian government to provide and support concept of open education. Initially, the objective was to provide open resources in terms of repositories, libraries, educational media files, e-books, etc.

Various initiatives taken by Union Government are briefly described below one by one:

### Massive Open Online Courses (MOOCs):

Massive Open Online Courses (MOOCs) are free online courses available for anyone to enroll. MOOCs provide an affordable and flexible way to learn new skills, advance to learner career and deliver quality educational experiences at scale. The University Grants Commission (UGC) along with the HRD (Human

Resource Development) Ministry has launched the MOOC program in India for higher secondary, bachelor's and master's degrees. This will cover a wide range of subjects that may or may not be taught in regular campus studies. Government set off to offer online courses on developing their own platforms. In India only a handful of universities and institutes have the facilities to start or support such initiative.

**Table 3.1: Features of the MOOCs platforms.**

INITIATIVE	COURSE FORMAT	MODE	PLATFORM LANGUAGE	MOBILE APP	NO.OF USERS	Website Link
SWAYAM	Scheduled, Self-Pace	Blended	Hindi, English	Yes	More than 10 million	Swayam.gov.in/
NPTEL	Scheduled	Online	English	Yes	More than 1.5 million	Nptel.ac.in/
NDL	Self-pace	Online	All Vernacular Languages	Yes	More than 2 million	ndl.iitkgp.ac.in/

#### **Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM):**

SWAYAM is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy. This is done through a platform that facilitates hosting of all the courses, taught in classrooms from Class 9 till post-graduation to be accessed by anyone, anywhere at any time. All the courses are interactive, prepared by the best teachers in the country and are available, free of cost to any learner. More than 1,000 specially chosen faculty and teachers from across the country have participated in preparing these courses. The courses hosted on SWAYAM are in 4 quadrants – (1) video lecture, (2) specially prepared reading material that can be downloaded or printed (3) self-assessment tests through tests and quizzes and (4) an online discussion forum for clearing the doubts. Steps have been taken to enrich the learning experience by using audio-video and multi-media and state of the art pedagogy or technology. Courses delivered through SWAYAM are available free of cost to the learners, however learners wanting a SWAYAM certificate should register for the final proctored exams that come at a fee and attend in-person at designated centres on specified dates. Eligibility for the certificate will be announced on the course page and learners will get certificates only if these criteria are matched. Universities or colleges approving credit transfer for these courses can use the marks or certificate obtained in these courses for the same.

#### **National Programme on Technology Enhanced Learning (NPTEL):**

The National Programme on Technology Enhanced Learning (NPTEL) was initiated by seven Indian Institutes of Technology (Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati and Roorkee) along with the Indian Institute of Science, Bangalore in 2003. Five core disciplines were identified, namely, civil engineering, computer science and engineering, electrical engineering, electronics and communication engineering and mechanical engineering and 235 courses in web or video format were developed in this phase. NPTEL is one of the most extensive educational YouTube channel covering engineering, basic sciences, and some humanities and social science subjects. Since March 2014 NPTEL began offering online courses along with certificates to those who completed the courses successfully.

#### **National Digital Library of India (NDLI):**

Ministry of Human Resource Development (MHRD) under its National Mission on Education through Information and Communication Technology (NMEICT) has initiated the National Digital Library of India (NDLI) project to develop a framework of virtual repository of learning resources with a single-window search facility. Filtered and federated searching is employed to facilitate focused searching so that learners can find out the right resource with least effort and in minimum time. NDLI is designed to hold content of any language and provides interface support for leading vernacular languages, (currently Hindi, Bengali and several other languages are available). It is designed to provide support for all academic levels including researchers and life-long learners, all disciplines, all popular forms of access devices and differently-abled learners. All types of resources are available such as Books, Audio Lectures, Video lectures, Lecture Presentations or Notes, Simulations, Question Papers, Solutions, etc. It is being developed to help students to prepare for entrance and competitive examinations, to enable people to learn and prepare from best practices from all over the world and to facilitate researchers to perform inter-linked exploration from multiple sources. It is being developed at Indian Institute of Technology Kharagpur.

**National Academic Depository (NAD):**

National Academic Depository (NAD) is an initiative of Ministry of Human Resources Development, Govt. of India (MHRD) to facilitate digital issuance, storage, access and verification of Academic Awards issued by Academic Institutions. NAD is a Unique, Innovative and Progressive initiative under “Digital India” theme towards achieving Digital enablement of the Education Records. NAD aspires to make the vision of Digital Academic Certificates for every Indian a reality. This touches the lives of Indian youth and empowers them with Digital, Online, Trusted, Verifiable Certificates which are accessible in a secure manner at all times. NAD promises to do away with difficulties or inefficiencies of collecting, maintaining, and presenting physical paper certificates.

**Virtual Labs:**

Virtual Labs project is an initiative of Ministry of Human Resource Development (MHRD), Government of India under the aegis of National Mission on Education through Information and Communication Technology (NMEICT). This project is a consortium activity of twelve participating institutes and IIT Delhi is coordinating institute. It is a paradigm shift in ICT-based education. For the first time, such an initiative has been taken-up in remote- experimentation. Under Virtual Labs project, over 100 Virtual Labs consisting of more than 700 web-enabled experiments were designed for remote-operation and viewing.

**IV. CHALLENGES AND OPPORTUNITIES OF ONLINE HIGHER EDUCATION IN INDIA:**

In India the digitization initiatives are encountered with the problems such as lack of national policy, lack of preservation policy, no intellectual property rights policy for content development of digital information, rigidity in the publishers’ policies and data formats, lack of multiple Indian language (Optical character recognition) OCR facilities etc. Government tried to boost the education system and implemented various education policies but they were not sufficient to put an example for the universe. UGC is continuously working and focusing on quality education in higher education sector. Still we are facing lots of problems and challenges in our education system. Some of the basic challenges in higher education system in India are discussed below:

**a. The demand-supply gap:** The Gross Enrolment Ratio (GER) of India in higher education is only 26.3% which is quite low as compared to the developed as well as, other developing countries. With the increase of enrolments at school level, the supply of higher education institutes is insufficient to meet the growing demand in the country.

**b. In adequate facilities and infrastructure:** In India, many of the universities don’t have adequate infrastructure or facilities to each student. Even many private universities are running courses without classrooms. Internet and Wi-Fi facility is still out of reach of many students.

**c. Quality:** Quality in higher education is a multidimensional, multilevel, and a dynamic concept. Ensuring quality in higher education is amongst the foremost challenges being faced in India today. However, Government is continuously focusing on the quality education. Still Large number of colleges and universities in India are unable to meet the minimum requirements laid down by the UGC and our universities are not in a position to mark its place among the top universities of the world.

**d. Faculty:** Our education system is torture by issues of quality in many of its institutions and universities. Many of the issues like shortage of faculty, poor quality teaching, traditional teaching methods, out dated and rigid curricula and pedagogy, lack of accountability and quality assurance and separation of research and teaching are raising questions on Indian education system.

**e. Research and Innovation:** In India Ph.D enrolment in 2018-2019, less than 2 lac students are enrolled in Ph.D. which is less than 0.5% of the total student enrolment. There is inadequate focus on research in higher education institutes. There are insufficient resources and facilities, as well as, limited numbers of quality faculty to advice students. Most of the research scholars are without fellowships or not getting their fellowships on time which directly or indirectly affects their research. Indian higher education institutions are poorly connected to research centers. This is another area of challenge to the higher education in India.

**f. Structure of higher education:** Management of the Indian education faces challenges of over centralization, bureaucratic structures and lack of accountability, transparency, and professionalism. As result of increase in number of affiliated colleges and students, the burden of administrative functions of universities has significantly increased and the core focus on academics and research is diluted.

Indian higher education system is growing very fast irrespective of various challenges but there is no reason that these Challenges cannot be overcome. With the help of new-age learning tools, it is easy for country like India to overcome these problems and bring a paradigm shift in the country’s higher education sector. With such a vibrant country with huge population properly educated, the possibilities are endless. If knowledge is imparted using advanced digital teaching and learning tools, and society is made aware of where we are currently lagging behind, our country can easily emerge as one of the most developed nations in the world. There are opportunities for strategic engagement and capacity building in higher education leadership and management at the state level.

There are opportunities for India to collaborate at national and international level on areas of systemic reform, including quality assurance, international credit recognition, and unified national qualifications framework. Equality of educational opportunity in higher education is considered essential because higher education is a powerful tool for reducing or eliminating income and wealth disparities. The idea of equalising educational opportunities also lies in the fact that “the ability to profit by higher education is spread among all classes of people”. There are great reserves of untapped ability in the society; if offered the chance they can rise to the top.

## **V. RECOMMENDATION:**

Some approaches are proposed to betterment the Higher Education system in India through online programme.

- There should be carry out innovative and transformational approach from primary to higher education level to make Indian educational system globally more relevant and competitive.
- Government must promote collaboration between Indian higher education institutes and top International institutes and also generates linkage between national research laboratories and research centers of top institutions for better quality and collaborative research.
- There is a need to focus on the graduate students by providing them such courses in which they can achieve excellence, gain deeper knowledge of subject so that they will get jobs after recruitment in the companies which would reduce unnecessary rush to the higher education.
- There should be a multidisciplinary approach in higher education.
- More opportunity should be created by the government for Ph.D programmes through Open and Distance Learning (ODL) mode.

## **VI. CONCLUSION:**

In India Large section of the population remains illiterate and a large number of children's do not get even primary education. No doubt India is facing various challenges in higher education but to tackle these challenges and to boost higher education is utmost important. With the availability of advanced information and communication technologies (ICTs) and information infrastructure, India becomes an active contributor in digital library movement by digitizing and providing free access traditional knowledge, century-old publications and rare documents, theses and dissertation and journals available in Indian libraries. The National Digital Library of India is one major initiative that is striving to create a truly digital library. Open courseware and cross archive search services are also being developed by different organizations, including the apex higher education agencies. India has spearheaded the digital library movement in developing countries. MOOCs promoted by the government reach a wider audience, especially those which are out of reach. For those who can't take up a full time course can go for these online courses. Through SWAYAM, students from the backward rural areas can access teaching from the best institutes in the country electronically, thereby, raising the overall standards of higher education in the country. To reach and achieve the future requirements there is an urgent need to relook at the Financial Resources, Access and Equity, Quality Standards, Relevance, Infrastructure and at the end the Responsiveness. The e-content should be translated to regional languages so that people from every walk of life may benefit from it. The colleges in remote and rural parts should be provided with broadband connectivity and smart classrooms to embed the e-content in teaching. Teachers should be trained to be technology savvy and adapt to incorporate the e-content in university curriculum. Students should be made aware about the free availability of digital content by organizing special campaigns and promotional events.

An educational system that is advanced, liberal and can adapt to the changing demands of a changing society, a changing economy and a changing global world. Indian higher education system and regulatory bodies must identify the key issues and quickly make policies to remove those hurdles. Only one or two universities can't make much difference. If the government welcomes such initiatives which drive our education system forward, then future will be ours. We will be able to match and compete with other countries and the dream to be the world's greatest economy won't be difficult to achieve.

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