

Chapter 4

MOOCs in Higher Education: Current Trends in India and Developed Countries

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ABSTRACT

Online education has gained a lot of acceptance among the learners in the recent past. The advances in technology and changing demand from students and business as well as the possibility for reducing costs and generating income has led to a MOOC explosion. Over the last years, massive open online courses (MOOCs) have received a great deal of attention from the academic community, business, and the media, especially after the World Health Organization (WHO) officially declared COVID-19 as a pandemic in March 2020. The pandemic has caused educational disruption across the globe. Educational institutes faced with the challenge of maintaining the continuity of learning and were almost forced to switch to the online mode. The seemingly simple and immediate solution is to conduct school remotely using online resources. The aim of this study is to investigate the current trends and prediction with respect to the adoption of MOOCs in the Indian higher education system and identify various influencing factors facilitating this adoption.

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INTRODUCTION

There are substantial differences in the economic and demographic development indicators in different countries including India and European countries, but one common concern is the need to scale education to keep up with an overwhelming demand of their respective population.

The growing global demand for higher education, especially in India, where 40 million additional University places are estimated to be required by 2025 (Everitt, 2013) provides a strong case for MOOCs.

Like the western-based MOOCs, Asian countries like China and India are showing a great interest in this technology in the past few years. “XuetangX”, and “SWAYAM” may be the best examples. Currently, a Chinese platform ‘XuetangX’ has become one of the largest MOOC platforms of the World, similarly there are millions of learners are studying through SWAYAM MOOC platform in India.. Overall Class Central estimates that there were 110 million people in the world enrolled in MOOCs in 2019 (Shah, 2019). Twice a year, 1000 institutions (2019) across the India pick SWAYAM courses, they’ll grant credit for in the upcoming term. (Mendez, 2019)

MOOCs as technology is one of the most critical tools to support remote learning when learners need to remain outside of classrooms. The most prominent and fiery example is, during the crisis of covid-19 approximately 1.7 billion students and 190 countries have been affected, so OECD, World Bank Group and Global Education Innovation Initiative are working joint international initiative to support quality education using online technology to ensure that classes continue and that the most vulnerable don’t get left behind.

The EMC-LM project is a successful outcome of the European MOOC Consortium, that not only combine the world of education and training, but also the world of work as a Public Employment Service, companies and sectoral organisations (Farrow, 2019).

Many renowned International organization of the world like the Harvard Global Education Innovation Initiative, HundRED, the OECD Directorate for Education and Skills and the World Bank Group Education Global Practice are combining support countries to provide the information and resources from around the world on the education response to the crisis (BRIEF, 2020).

Higher education offers the potential to support global, national, and local development. There is a need to expand educational opportunities for society and humankind. For that educational institution, technologists, governments, internet and hardware providers, NGO’s, etc. can work together to truly democratize education. The MOOCs may create opportunities for universities to take an active role in educating society and provide affordable pathways to lifelong learning for a wider population, on a global scale.

MOOC EVOLUTION

The term MOOC was introduced in 2008 by Dave Cornier by the University of Prince Edward Island and Bryan Alexander of the National Institute for Technology in Liberal Education.

“A MOOC is an online course with the option of free and open registration, a publicly shared curriculum, and open-ended outcomes. MOOCs integrate social networking, accessible online resources, and are facilitated by leading practitioners in the field of education.” (McAuley, Bonnie, George, & Dave, 2010)

Vast interests of public for MOOCs was observed in 2011, with an open online course by Stanford University and Massachusetts Institute of Technology (MIT). This course enticed over 160,000 students

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from more than 190 countries (Porter, 2015). In 2015 Coursera was the greatest stage provider, with 33% of all MOOC courses on offer. MiriadaX turned into the first non-United States MOOC supplier to cross one million enrolled users, taking advantage of the substantial Spanish-speaking market around the world.

LITERATURE REVIEW

In this section the authors attempt to introduce three broad themes emerging from an analysis of the international MOOC literature. Exploration of the regional situations of European and Indian nation, challenges of MOOCs and needs of MOOCs in the Indian context, such as the one undertaken in this research could contribute to enrich the current understanding of MOOCs and throw new light on these themes.

An extensive review of MOOCs literature and India-centric MOOC literature formed the basis for answering the first two research questions RQ1 and RQ2 in the subsequent two sections.

RESEARCH QUESTIONS AND METHODOLOGY

A well-defined research methodology is used for describing, explaining, and predicting and better understanding of phenomena. In this paper, descriptive research methodology is used. Sources such as the Report of Census 2011, Ministry of HRD Report 2020, Economic Survey 2019-20, and some popular magazine like EdTech Magazine, related with MOOCs are consulted. The data is collected and analyzed from the three National Coordinators namely Consortium of Educational Communication (CEC), University Grants Commission (UGC), Indira Gandhi National Open University IGNOU websites. A large¹ amount of secondary information regarding all aspects of MOOC development was taken from SWAYAM, GIAN (Global initiative of academic networks) and largest Chinese MOOC Platform-XuetangX and European MOOC Consortium (EMC).

The present authors visualized an exploratory research aimed at answering the following three research questions (RQs):

RQ1: What has been the development of MOOCs in various countries, especially in the European countries and India?

RQ2: What are the factors to promote the MOOCs in Countries?

RQ3: What are the dark sides of MOOCs?

(a) MOOC Participation in Different Countries

In the year 2011-16 available details on the locations of MOOC participants show that a large majority of participants were from North America and Europe (Liyanagunawardena, Andrew, & Shirley, 2014). There was very limited participation from Asia and even less from Africa.

MOOCs in Higher Education*Table 1. Literature Review of Current Trends of Education and Educational challenges of MOOC*

S.No.	Source	Findings
1.	(Das, Das, & Das, 2015)	Present Status of Massive Open Online Course (MOOC) initiatives for Open Education Systems in India – An Analytical Study 2015 The authors studied MOOC list directory to find their growth rate, country, subject-wise distribution as well as total courses available in Indian education systems in MOOC within various MOOC platforms. This paper also finds out the various issues and the quality e-contents and education material.
5.	(Y.Wang & R.Barker, 2015)	Content or platform: why do students complete MOOCs? (2015) This research took a step towards better understanding of the relationship between MOOC learner motivation and completion rates. This study extended the knowledge, of course completers versus learners opting not to complete the course.
4.	(Miri, Abeer, & Hossam, 2016)	Motivation to learn in massive open online courses: Examining aspects of language and social engagement (2016) This study suggests three main conclusions: First, similar motivation patterns were found in both English and Arabic participants, indicating a broad cross-cultural trend. Second, social interactions, in the form of large and small online groups, are important for successful learning. Third, MOOC completers can be characterized according to their motivation to learn. In this study, five types of MOOC completers were identified: problem-solvers, networkers, benefactors, innovation-seekers, and complementary-learners.
8.	(Allison, Nina, Colin, & Paige, 2016)	Motivations and self-regulated learning in MOOCs. The Internet and Higher Education, (2016) The study compares the narrative descriptions of behaviour between learners with self-reported high and low SRL scores. Substantial differences were detected between the self-described learning behaviours of these two groups in five of the sub-processes examined. Learners' motivations and goals were found to shape how they conceptualised the purpose of the MOOC, which in turn affected their perception of the learning process
6.	(Markus, Teemu, & Ilkka, 2018)	Interaction and Student Dropout in Massive Open Online Courses (2018) In this paper, the authors pinpoint the reasons behind the high student dropout rate and discuss how the interaction capabilities of MOOCs contributed towards the low completion rate. The above research result shows that, insufficient interaction with both the instructors and the other students may have an effect on the student dropout level in MOOCs.
7.	(Graham, 2018)	The Challenges of Massive Open Online Courses (MOOCs) 2018 This chapter explores some of the issues through a focus on the design of one MOOC. This study also analysis high retention rate for learners.
9	(Bandalaria, 2019) (Dixit, 2019)	Learning experience platforms (LXPs), the next-level learning management systems (LMS), will continue to play a crucial role in providing customized and more social online learning experience.
10	(Syngene Research, 2019)	“Even before the pandemic, the global e-learning market was already seeing a massive annual global growth. It is expected to reach \$336.98 billion by 2026, at a compound annual growth rate (CAGR) of 9.1% from 2018 to 2026.”
11	(Santos, 2019)	The United States, India, China, South Korea, United Kingdom, and have been known to invest most in e-learning
12	(Patra & Sahu, 2020)	“The percentage of graduate students who took entirely online graduate (postgraduate) degree programs has increased from 6.1% in 2008 to 27.3% in 2016.” The percentage of graduate students who take one or more online courses also increased from 16.5% in 2008 to 45.6% in 2016. A survey showed that 52% of graduate students in the U.S. found their online college-level education to provide a better learning experience than their college-level classroom education.

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But as MOOCs technology grown and the benefits of MOOCs have known by various countries, the monarchy of European fades away. Tables- 5 indicates the major MOOCs participation by different countries. We can clearly observe that China has the largest MOOCs platform where approx. 1 billion learners enrolled. Coursera is the second largest platform of United States where 37 million learners are enrolled in the year 2020. In the year of 2020 India, Thailand, and Arabian countries got score high on the basis of MOOCs registered learners. India gets third rank as per registered users on SWAYAM Platform.

Like SWAYAM in India, other national platforms such as K-MOOC in Korea; J-MOOC in Japan; Thai-MOOC in Thailand; OpenLearning.com in Malaysia; University Joint Alliance Platform in China; also emerged. All other national platforms already run their courses in their language, AICTE has also realized that the language is coming as a barrier in achieving this goal and defeating the principle of equity and equality as a majority of students from rural areas and disadvantaged sections are unable to study in English medium. From this concern, SWAYAM has introduced courses in 8 Indian languages, including Hindi and Telugu in 2020. It will be a part of research to analyze how this concept will change the scenario of Indian MOOCs.

(b) Needs of MOOC in the Indian Context

The Indian higher education system has undergone massive expansion to become the largest in the world enrolling over 70 million students. Such expansion would have been unimaginable without the extensive use of ICT tools. To illustrate, if India were to create this additional capacity through increase in brick and mortar institutions alone, it would have been required to build six universities and 270 colleges every month in the last 20 years - a feat that would have been impossible to achieve with India's limited resources. Instead, India chose to go the Massive Open Online Courses (MOOCs) way (Varghese & Malik, 2015).

As stated above that Indian higher education system is massive and one of the largest systems in the world. It has over 37.4 million students enrolled across in 993 Universities, 39,931 colleges and 10,725 standalone training institution and the Gross Enrollment Ratio in 2018-19 was estimated to be around 26.3% where, overall enrollment in regular institutions is 89.38% and Distance mode is 10.62% (AISHE, 2019). If this was to continue in the present scenario or further increase then the present infrastructure will not be capable to cater to such a large influx of learners. It is therefore the need of the hour to support the present education model with a non-traditional model and MOOCs that will ultimately assist and support the landscape of higher education enrollment.

According to 2011 Census Report, nearly 70 percent of the country's population lives in rural areas and over one third of the Indian population living in rural areas is illiterate as per the Socio Economic and Caste Census (SECC), the total Literacy rate of India has been recorded at 74.04% with only an increase of 9.2% to what was prevailing in country in 2001(65.38%). The percentage of graduates and higher education is only 3.45 percent (Census, 2011).

A study conducted by (Pandit, 2016) reveals that "in a country like India, where most people residing in remote areas do not have adequate access to skill enhancement and quality learning, MOOC can play a pivotal role."

This can also combat the toils related to the demographic difficulties faced by the students living in difficult terrains and less developed areas where they have to cross rivers to reach their schools or other educational institutions or where many concerned parents have to shift their household for the sake of the education of their children. MOOCs can play a vital role to rescue such and more people. MOOCs

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can provide the Indian students an edge required to compete in the global market even though they may be residing in the remote and inaccessible areas.

(c) Problem and Educational Challenges of MOOC

The concept of MOOCs, raised in 2008 and developed since then, has spread throughout the world. But with growth new challenges have come to light with respect to technology, delivery and economy, besides pedagogy. After Analysis we have listed down the some researches that are earlier done and the subjects and issues are being greatly accepted for research and to overcome the problems of online learning programs.

To understand the reason for the high attrition rate of the MOOCs, research should have not only concerned with skills education or technology and data science, but more deeply understanding politics, economics, and social structures, as well as fundamental issues like language and conversation and human behavior.

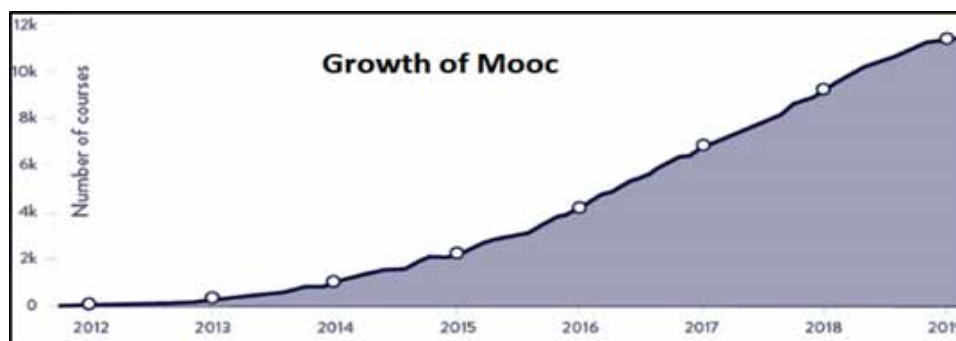
CURRENT STATE OF THE MOOCs IN INTERNATIONAL CONTEXT

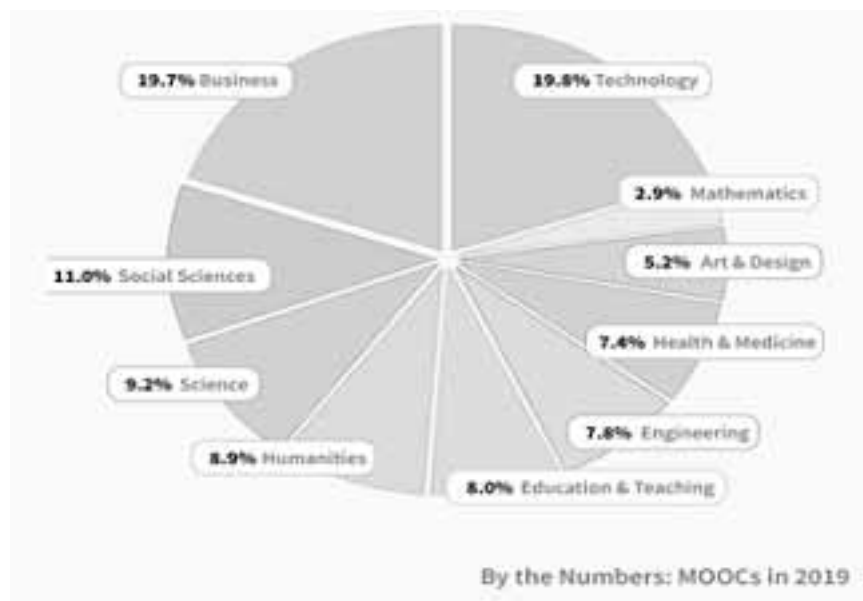
“Now in its eight year, the modern MOOC movement crossed 110 million learners in 2019”. As per Class Central list the top five MOOC providers by registered users are as under (Shah, 2019):

- edCoursera 45 Million
- edX 24 Million
- Udacity 11.5 Million
- Future Learn 10 Million
- Swayam 10 Million

By the end of 2019, over 900 Universities around the World had announced or launched 13.5K MOOCs, with around 2.5K courses were launched to the list this year (Shah, 2019)

Figure 1. Growth of MOOCs. Source: ClassCentra Shah,2019)



MOOCs in Higher Education*Figure 2. Distribution of MOOCs by subject areas. Source (Shah, 2019)*

Apart from this, the distribution of courses across subjects followed in the year 2018 is shown in Figure 2. Table 2 shows the locations of MOOC participants. It reveals that a large majority of participants are from North America and Europe (Liyaganawardena, Andrew, & Shirley, 2014). Many developed countries like Finland, Sweden, Norway, Netherland, United Kingdom, Denmark, Germany, Japan etc. are using MOOC due to advancement of ICT and these countries have understood that there can be a rise in education system incorporating ICT as the technology is very economical, transparent, and maintains a high level of competitiveness.

Table 2. Places where 3 MOOCs students come from, Source University UK, 2013 (Joyce, 2013)

<i>Origin</i>	<i>Percentage</i>
North America	35.2%
Europe	28.2%
Asia	21.4%
South America	8.8%
Africa	3.6%
Oceania	2.8%

MOOCs in Higher Education*Table 3. Top 10 Countries harnessing Information technology. Source: (World Economic Forum, 2016)*

<i>Europe: Top 10 countries harnessing information technologies. Network readiness Index 2015-16 Global Rank**</i>	
Finland	2
Sweden	3
Netherlands	4
Norway	5
Switzerland	6
United Kingdom	8
Luxembourg	9
Germany	13
Denmark	15
Iceland	19

Table 4. Top 10 Countries, which government is the most tech-savvy

Europe: Top 10 countries which are most tech savvy. Network readiness Index 201:Indicator focus Global Rank *	
Singapore	1
United Arab Emirates	2
Bahrain	3
Korea, Rep.	4
Qatar	5
Malaysia	6
Japan	7
Estonia	8
Luxembourg	9
United Kingdom	10

Generally, it may be seen that the country that provides more internet facility and a government that is more technology savvy provides a favorable environment for development of the MOOC concept.

A statistical representation of the data related to the access of internet facilities in different countries around the world is represented in Figure 3. The accessibility to internet facility is a variant for development of MOOC.

As we delve deep into the study related to the use of the Internet, we find that the more proactive a government is towards digitalization the better is the use of the internet that affects the search for internet facility throughout the world. This may lead to the heading of the use of MOOC with general awareness. From these statistical charts, Figure 3, depicting Network Readiness Index, an analysis to check the desire of using network facility, it was observed that in 2016, India ranked 91 out of 139 countries on “Network Readiness Index” rankings of the World Economic Forum (WEF), but according to the analysis of NRI 2019 analysis report India ranked is 79. (Lavin & Dutta, 2019), it shows the last 3 years

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Figure 3. Average hours available for Internet access per day. (Guido, 2015), Source Information Technology group, Center for development at Harvard University

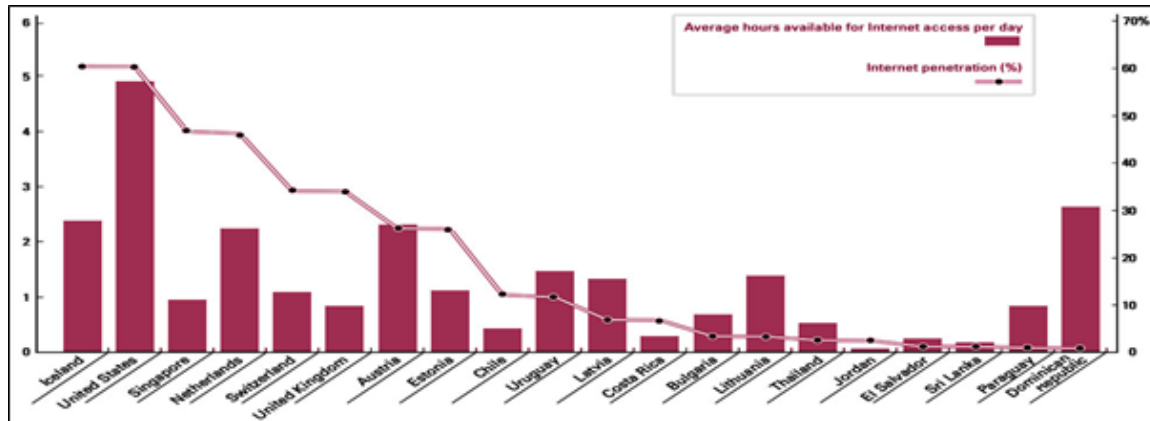
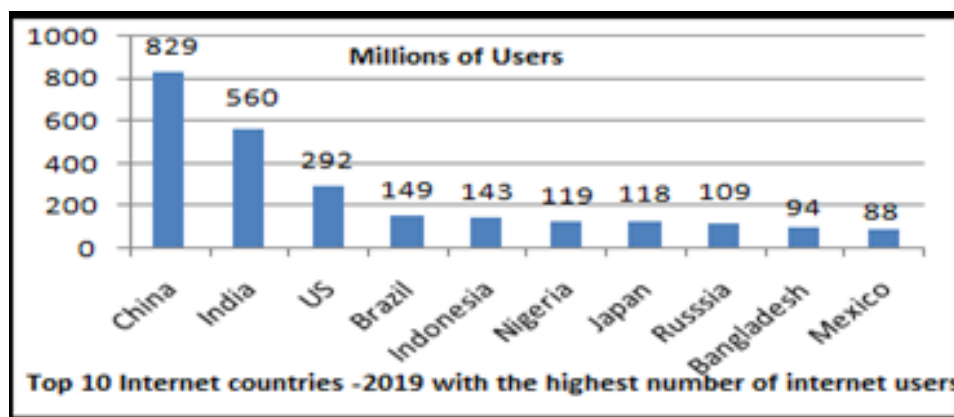


Figure 4. Top 10 Countries with highest number of Internet Users
Source: <https://www.internetworldstats.com/top20.htm>



India has grown tremendously in the field of Internet. People are aware of the use of the internet that's why the above chart shows the ranking of two in India in the highest number of Internet users in the list (Figure 4). This may be attributed to the awareness created through Digital India Program.

CURRENT STATE OF THE MOOCs IN INDIAN CONTEXT

Due to a large population, there is a need for more education infrastructure development in India. It is the responsibility of the respective government to provide the basic infrastructure for education to the citizens. ICT can render a great help in this as with the growing field of ICT, the education methods can be changed from traditional to technological based. In India, many elite institutions are imparting

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the courses on MOOCs pattern. India's spending on higher education as mentioned earlier is one of the highest in the world. India's vast size and rapid development will always reflect a deficit of educational tools including structure for education and manpower to teach through the available resources. Therefore, Indian government is trying to fulfill the above dearth of teachers and infrastructure with the help of MOOCs.

India has given a good response to the MOOC phenomenon after 2016. India has not only partnered with some global MOOC platforms like Coursera, edX and FutureLearn, but has also developed platforms of its own like SWAYAM, NPTPL, IIMBx, etc.

In 2016, the number of India's MOOC learners ranked in 3rd place in the world, after the U.S. and Brazil with China at 4th place after India (Shi & Yu, 2016). By October 2016, Coursera had 1.7 million users in India, making it their second largest market, after the US, indicating an interest and hunger for better education platforms to enhance career or academic profile. Class Central has been keeping track of SWAYAM's progress since the platform was first announced back in August 2014. Since its beta launch in July 2017, the platform has enrolled over 10 million learners. At this rate of growth, it can be clearly assumed that within a few years, SWAYAM could become the world's largest MOOC provider, offering courses in a wide variety of disciplines from prestigious Indian institutions such as IITs and Central Universities.

The University Grants Commission has set a target to increase the Gross Enrolment Ratio (GER) in higher education to 30 per cent by 2020 from the present 25.4 per cent (India Today, 21stAug, 2019).

Indian Government has thus realized the importance of MOOCs. The Gazette of India (basically an authorized legal document of the Indian government) that infused an interest in the study related to SWAYAM states that (UGC, 2016):

“No university shall refuse any student for credit mobility for the courses earned through MOOCs.”

There are various MOOC suppliers in India like edX, Coursera, and Udacity.

Realizing the importance of MOOC, its ability to attract many aspiring youth, India has also initiated a good number of MOOCs platforms. Some of the MOOCs available in India are shown in *Table 5 and Table 6* below.

We can compare these various platforms with some of the below mentioned features to authenticate the study and carry it to further areas of research.

- 1) **Learning Model:** Which learning model is supported by the platform, online or blended?
- 2) **Number of courses:** A platform is running at present.
- 3) **Number of Users:** Already registered in any course of the platform.
- 4) **Institutional Credits:** Whether other institutions provide credit for courses completed on the MOOC platforms.
- 5) **Platform Language:** What are the languages in which the platform is provided?

Apart from the above-mentioned platforms, many other platforms have also been developed over the past years that provide online courses in various fields but are largely unknown. A comprehensive analysis of the same has been done below.

MOOCs in Higher Education*Table 5. Comparisons of Major MOOCs Platform Available in India*

Provider	Learning Model	Total Courses	No of Users	Platform Provided By	Web Site Link	Platform Language
NPTEL	Online	420	471 million+ views	IITs, IISc	https://nptel.ac.in	English
MooKIT	Blended	60	2 Lakh	IIT Kanpur	https://mookit.co	English, Hindi, Kannada, French, Russian, Ukrainian
IITBX	Online	142	1.25 Million	IIT Bombay	https://iitbombayx.in	English
SWAYAM	Blended	699	10 Million	MHRD and Microsoft	https://swayam.gov.in	Hindi, English
IIMBX	Online	44	1.5 Million	IIM Bangalore	https://www.iimbx.edu.in	English, Hindi transcripts for videos

Sources are taken from the above given website link.

Table 6. Comparisons of Specific MOOCs Platform available in India

Provider	Learning Model	Total Courses	No of Users	Types of Courses offered	Platform Language
Shikshit India	Online tutoring sessions	58	500	Photography, Business and Technology	English, https://www.shikshitindia.co.in/
Vskills	Online	441	2.5 Million	Banking and Finance	English, https://www.vskills.in/
Apna Course	Online	214	1,00,000	Data analytics	https://www.apnacourse.com/
UpGrad	Online	12	20,000	Machine learning	https://upgrad.com/

Sources are taken from the above given website link.

THE DARK SIDE OF MOOCs WITH RESPECT TO THE INDIAN CONTEXT

Apart from looking at the brighter side, it is also important to understand the other side of the MOOCs.

Today's MOOCs challenges are vast and can be classified as strategic and technological challenges. In this paper, we describe some challenges that are necessary to be considered during, so that they can be overcome.

I. Low Retention Rate

The major challenge is that the MOOC platforms have in general failed to raise the low retention rate and rising affluence among students. A number of researches are being conducted to study this aspect. Figure 5 (Growing chart of NPTEL Online certification from 2007 to 2019) in the above also depict that variation in the number of enrolled students and those that actually appeared in the examination is very less.

According to (Kizilcec, et al., 2020) the study "one of the largest global field experiments in higher education," covering more than 250,000 MOOC participants for more than two years. And if you're a believer in and supporter of MOOCs, the results are disappointing (Newton, 2020).

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Figure 5. Growing chart of NPTEL Online certification from 2007 to 2019

Source: https://nptel.ac.in/images/booklet_19/Booklet_Final-%202019.pdf

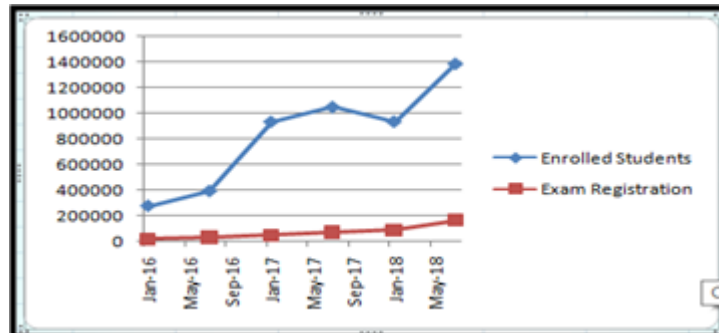


Figure 6. growing chart of IIBX Online certification from 2015 to 2019

Source: <https://www.iimb.ac.in/sites/default/files/inline-files/IIMBx-Brochure.pdf>

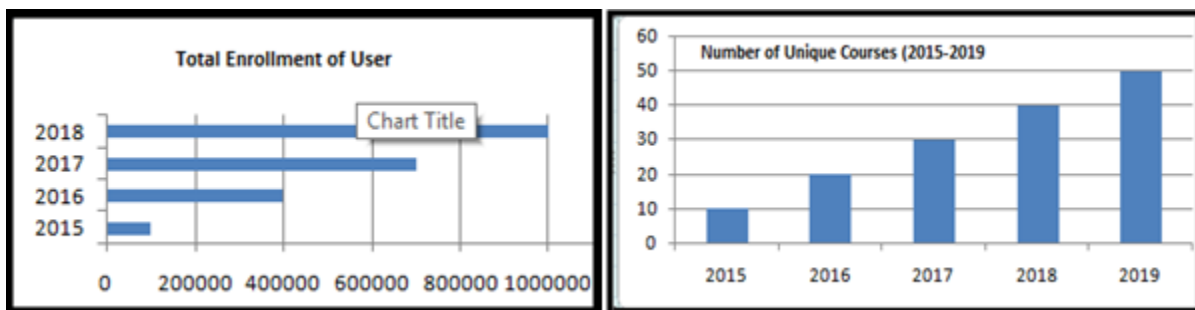
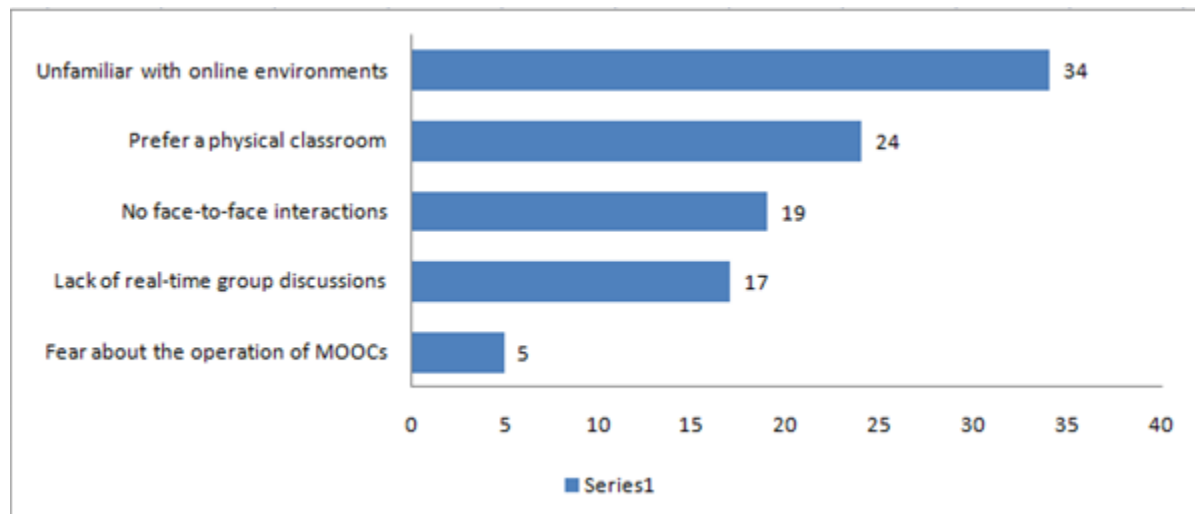


Figure 7. Reasons for not participating in MOOCs (Data from Chang et al., 2015)



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It is further interesting to see that in not only India but also globally MOOCs are undergoing a decline in enrollment of students. This forced MOOCs to pivot to MOOC 2.0 with fermium models, offering a mix of free and paid courses.

Table-8 analysis shows the big loopholes in the system. Only 30-40% students are able to pass and complete the examinations, which are offered through the CEC, UGC and IGNOU till 2019.

II. Language Proficiency and Cultural Background That Impact Learning

One of the main concerns regarding MOOCs initiative moving forward in India is the necessity to develop high quality technology, diversification and investment.

MOOC providers need to think about the educational needs in different countries and provide different options to meet them. India is a widely diversified country having multicultural societies, MOOCs require addressing this issue in a more practical way.

Due to global area of MOOC, there is a need to develop a fast way to make common policy, rules and regulations for regulating MOOCs. It's a big challenge for all the service providers of MOOCs.

Generally it seems that objective of MOOCs are not sufficient for transforming education Worldwide. Instead of focusing on helping colleges they take attention on their online academic programs.

III. Need for Teachers to Acquire Competence of Digital Instruction and Technologies

One of the biggest problems with MOOCs is their impersonal nature. In many cases, thousands of students enroll in a single section with a single instructor. However, the Indian Government through SWAYAM regulation tried to address this problem by assigning one teaching assistant to the course coordinator for every 500 enrollments with an assumption that only 10 percent of the registered learners are active participants. Sometimes the instructor is only a "facilitator" rather than the course creator, and other times the instructor is absent altogether (Glance, Hugh, & Barrett, 2014)

IV. Quality of Contents

In a global environment, ensuring a high level of quality is a challenge in itself. So, for quality of contents, it is suggested that an advisory committee should be formed, that would only choose selected experts from diverse knowledge areas, but can also provide standards-based, customizable, high quality content from them, that can be shareable not only with Indian Institutions but can also be released for global consumption.

In short, if we talk about some of the major concerns regarding the implementation of MOOCs, only in Indian context, they are as follows: the technological infrastructure, investment, diversified population, quality of courses, adoption of MOOC among learners and their acceptance by the academic institutions.

V. Accountability and Accreditation

Another challenge to MOOCs reaching the mainstream has to do with accountability. To solve the problem of cheating, a variety of technology-based solutions, including remote proctoring by humans, and

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even using the student's computer microphone and camera to make random recordings during exams. Some of these solutions are already in use on the major MOOC platforms.

In short, if we talk about some of the major concerns regarding the implementation of MOOCs, only in Indian context, they are as follows: The completion rate, accessibility, technological infrastructure, investment, diversified population, quality of courses, adoption of MOOC among learners and their acceptance by the academic institutions, and financial sustainability

CONSIDERING FACTORS FOR CHOOSING MOOCS PROGRAM BY LEARNERS

Popularity of MOOCs education can be influenced by a number of factors. Both learners and course facilitators have their own reasons for choosing MOOCs programs and offering them.

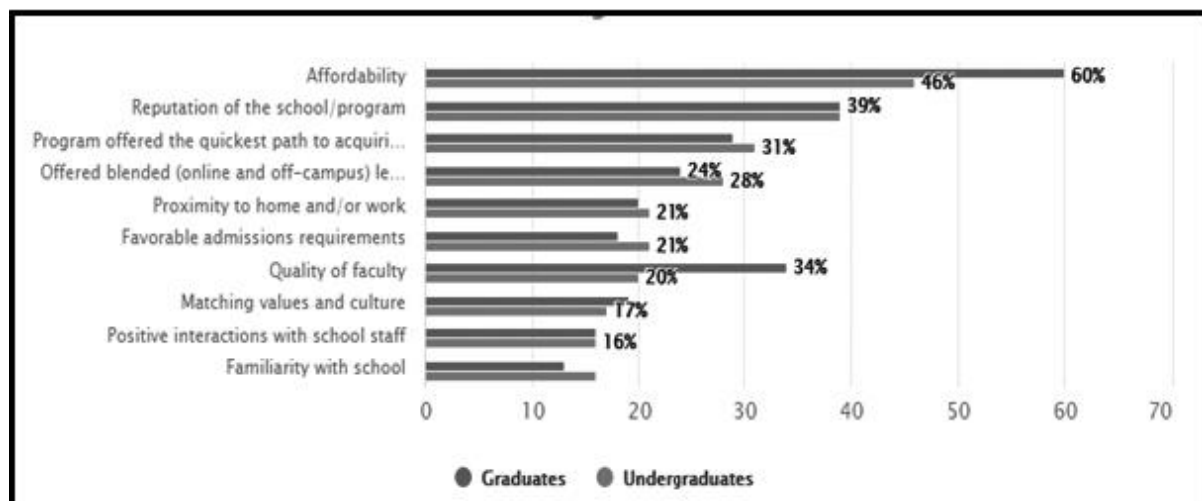
In a 2019 survey of 1,500 online student respondents, it was found that the top reasons why students choose online programs include the affordability of the course, the reputation of the school/program, and how a program offers the quickest path to acquiring a degree (Duffin, 2020).

MOOCs is a popular learning mode as it offers an affordable and flexible way to learn. MOOCs courses also tend to be more affordable than their on-campus counterparts. But not all online education is created equal. Earning a degree, whether graduate or undergraduate, is no small feat. It takes persistence, commitment, time, and money. It's important to choose the right online option that maximizes your chances of success and return on investment. According to figure no. 8 Affordability factor is highest among 10 factors, which generally student keeps his or her mind when choosing any online course. Beside this Brand recognition is significant when looking for an online degree. For example, if any MOOC course program was developed in response to specific market needs by a reputable institution; it could indicate that it's in demand by employers.

If a big number of learners in the program are not completing it, it's a red signal and it shows some problem to implement with program quality, delivery, engagement, or any other aspect crucial for student success.

Figure 8. growing chart of 10 factors, student consider when choosing an online program

Source: <https://www.guide2research.com/research/online-education-statistics>



MOOCs in Higher Education**DISCUSSION**

A thorough analysis of the references given below was done and the important data was tabulated and converted into various charts. The analysis revealed several facts related to the MOOC users as mentioned below.

1. Figure 1 represents the popularity of MOOC's, and shows how the numbers of users have increased within only eight years of emergence of MOOC's.
2. Most of the MOOCs courses are in English. However, since 2013, a service provider Coursera has been running some courses and programs in five languages like English, Chinese, Italian, French and Spanish. In India, NPTEL like service provider of MOOCs are running regional language courses which are likely to be most effective. The figure 2 represents the distribution of MOOCs by subject areas.
3. On analysis of table No. 2, 3, 4 and figure number 3, and 4 we find that MOOC's programs are popular only in those European countries that utilize a lot of Information technology. Finland, Sweden, Netherland, and Norway are the countries that are actively involved in utilizing information technology very much and they have more engagements in MOOCs also.
4. A careful analysis of table 4 has categorized most tech-savvy governments and these countries also run MOOC's program in high scale. This analysis also shows that in order to promote digital education, we require good internet facility, computer work ability backed by the political willingness of the nations involved in its use.
5. From table number 7 representing many countries like China and India, which have a high population density they are exploiting more and more online teaching services, due to their cost effective reasons.
6. In view of advantages of MOOCs, the Indian Government had taken various initiatives to promote MOOCs. Currently, a student can get a degree only via full-time courses at a college or university by attending regular classes, or through distance education. From 2017, the government had allowed Universities to offer 20% of their course material through the Massive Open Online Courses (MOOCs) platform called SWAYAM (Roshni, 2019).

In January 2018, the Indian government mandated that 15% of Indian Universities must deliver online degree courses.

FUTURE RESEARCH

The COVID-19 pandemic enforced to shift the teaching, learning method towards online method, so it is creating space for more flexible learning possibilities, exploring blended learning. The pandemic has led to the capacity building of staff and faculty, compelling them to learn and test new tools and systems, like MOOCs, for online teaching and learning. This apparently will lead to an increase in innovation in teaching pedagogies. The pandemic has worked as a wake-up call and demonstrated the importance of technology in teaching, learning, and research.

In future, it will be an interesting field of research to know the effective and positive impact of online teaching and learning and to investigate the retention rate of MOOCs before covid -19 and during covid-19.

MOOCs in Higher Education*Table 7. Top 14 Countries, which run MOOCs Courses*

Provider	Country	Course	University Partners	Registered Students
Coursera	United States	3,100	160	37 million
EdX	United States	2200	139	18 million
FutureLearn	U.K	15	105	10 million
SWAYAM	India	2,150	135	10 million
XuetangX	China	942000	1454	1.18 billion
Miríadax	Spain	494	91	2.5 million
France Université Numérique	France	461	93	2 million
EduOpen	Italy	70	17	14,000
ThaiMOOC	Thailand	50	80	1.4 million
Campus-II	Israel	230	160	2 million
Edraak (Arabic)	Jordan	220	160	2 million
JMOOC	Japan	430	60	1.2 million
Open Education	Russia	629	16	1.5 million
OpenHPI	Germany	74	15	1.3 million

Table 8. Status of MOOCs offered through CEC, UGC and IGNOU till April 2019

Status (till April 2019)	CEC	UGC	IGNOU
Partnering institutes	19	22	3
Completed courses	265	220	36
Student's enrolment	263560	164997	47529
Registered for the examination	5,221(2%)	4965	483
Successfully completed	1,625	1853	None
% of successfully passed-out learners	31.12	37.32	0%

Source(s): (www.swayam.gov.in)

CONCLUSION AND RESULT

MOOCs are the latest addition to the field of distance learning and becoming an important part of modern education system. Open participation for everyone, free access, minimum necessary qualification is something that is needed in this era. Moreover, MOOCs help one gain education from the best faculty of top universities, where admission to traditional teaching class is just a dream. It is also helpful for those who want to excel while being in jobs by gaining expertise in the very minute field of their interest (Chakravarty, 2016). MOOCs are known to inculcate competency skills, innovation and learning thrust in its users.

In a country like India, where most people residing in remote areas do not have adequate access to skill enhancement and quality learning, MOOCs can play a pivotal role.

MOOCs in Higher Education

Undoubtedly, there is an increasing interest among Indian students in MOOCs to obtain a standardized education. As the Indians show great interest in the area, the government is also vented towards this field and if this continues then within 2 to 3 years a number of MOOC's providers will be providing services in India.

However, the challenges are also not less. According to Vineet Chaturvedi, Cofounder, Edureka, an online education portal, "Motivation to complete the course, and immediate doubt resolution are learners' needs which cannot be met by MOOCs and often this leads to drop offs. (Priyanka, 2019)"

As far as the condition of European Universities and other developed countries is concerned, it is necessary that they strengthen their efforts in MOOC development and provision as soon as possible otherwise all the space will be filled by initiatives coming from other places.

The socio-economic context is different in European countries, so the motivation to establish MOOCs, in Europe, cannot be the same as that in the other regions of the world. But using MOOCs we can reach the SDG4 goals.

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ADDITIONAL READING

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KEY TERMS AND DEFINITIONS

COVID-19: COVID-19 is the infectious disease caused by the coronavirus, SARS-CoV-2, which is a respiratory pathogen. WHO first learned of this new virus from cases in Wuhan, People's Republic of China on 31 December 2019.

MOOCs in Higher Education

EMC: European MOOC Consortium. The creation of the European MOOC Consortium (EMC) accelerates the collaboration between the major European MOOC players and creates the power and the volume for a serious European MOOC movement.

EMC-LM: European MOOC Consortium - Labour Market. EMC-LM brings together MOOC platforms, universities and public employment services to meet the learning needs of the European labour market.

HundrED: HundrED is a global education nonprofit. HundrED has released a website and a summary report, Quality Education For All During Covid-19, in partnership with the Organisation for Economic Co-operation and Development (OECD), expanding on the opportunities and challenges for education during this unprecedented time.

MOOCs: Massive open online course. It is possible to study almost any subject through this method, and dozens of famous universities worldwide is now offering MOOCs.

OECD: Organisation for Economic Co-operation and Development

“SWAYAM”: Study Webs of Active-Learning for Young Aspiring Minds, is an Indian Massive open online course platform.

“XuetangX”: XuetangX is a massive open online course (MOOC) platform.

ENDNOTES

- ¹ <https://www.oecd.org/education/Supporting-the-continuation-of-teaching-and-learning-during-the-COVID-19-pandemic.pdf>
- ² https://www.researchgate.net/publication/340341491_COVID-19_20_countries'_higher_education_intra-period_digital_pedagogy_responses
- ³ https://emc.eadtu.eu/images/publications_and_outputs/EMC-LM_WP1_REA_Report_v.1_web.pdf
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