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Research paper

MOOCs: A Comparative analysis between Indian scenario and Global scenario

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Abstract:
Massive open online courses (MOOCs) are most recent and prominent trends in higher education. MOOCs has witnessed tremendous growth with huge enrolment. Having recorded large enrolment, India has initiated various projects such as NPTEL, IITBX, and SWAYAM. Many online platforms have been developed to provide online courses to encourage continuing education. This study detailed the characteristics of MOOCs along with various online platforms across the world. The authors compare the growth of Indian MOOCs with global scenario and list of providers who develop and deliver online courses and possible challenges of MOOCs implementation in India.

Keywords*: MOOC, SWAYAM, Online education, NPTEL, Coursera, and edX.*

1. Introduction:

MOOCs – Massive Open Online Courses are quite new and most conspicuous trends in higher education. It represents learning phenomenon where learners access online educational multimedia materials, and get associated with enormous numbers of other learners via social engagement tools such as discussion forums (Liyanagunawardena et al., 2013). MOOCs is being served as online structured course platform, and glossaries, images, videos, and public repositories have been serving as pedagogical tools in that course platform(Glance, Forsey, & Riley, 2013).MOOCs offered hundreds of courses and witnessed millions of registered users across the world. Nevertheless, the roots of the MOOCs can be traced back to early 2000s (Zawacki, Richter & Naidu, 2016), the year 2008 was affirmed to be a foundation for networked learning and MOOCs. Stephen Downes and George Siemens first coined the term MOOCs in 2008define connectivist learning on networks(MeltemHuriBaturay, 2015).In 2011, some Stanford University professors developed educational videos and released through open online platforms. The year 2011, MOOCs were disseminated across the globe, when Peter Norvig and Sebastian Thurn facilitated the Artificial Intelligence MOOC, which attracted 160,000 learners from 190 countries in 2011. In early 2012, independent platforms such as Coursera and Udacity were developed; the former was paid and later was non-profit initiative by Stanford University. MIT developed MITx web resource later it was incorporated into EdX (MeltemHuriBaturay, 2015). Albeit MOOCs was originated from United States universities, the online educational mode gradually accepted by many countries including India in recent past.

2. Characteristics of Moocs:

- Massive: MOOCs can have enormous of participants. It witnessed more than 81 million registration across the world. It recorded around 23 million new registration in the year 2017 (Class central, 2018).
- Open: Anybody who is willing to learning can enrol and participate in MOOC without any formal qualification restriction.Participation is completely free and open to anyone who has access to the Internet. One might enrol more than one course. The materials developed through the course is shared and available to all.
- Interactive: MOOCs courses are highly interactive. It provides opportunities to interact not only with the tutors but also with fellow students. The participants are encouraged to create and share their contributions.
- Four Quadrant Approach: e-Tutorial, e-Content, Discussion forum, and Assessment.

3. Moocs: Global Scenario

MOOCs has the history of two phases such as cMOOCs and xMOOCs, the former was known as connectivist MOOCs and the later is called as extended MOOCs(Bozkurt, Keskin, & Waard, 2016). cMOOCs is considered to be first generation MOOCs, second MOOC generation called extended MOOCs also known as content-based MOOCs.The first generation cMOOCs period appeared to be short in the history of MOOCs. It was based on "connectivist distributed peer learning model, Courses are developed and directed in open source web platform by academics. The second-generationxMOOCsare imparted by registered learning management platforms of institutions or

individual academics (MeltemHuriBaturay, 2015). At present, most of the MOOCs are predominantlyxMOOCs (Siemens, 2012). People would like to be educated and to receive a certificate are the major reasons why people are enrolled in MOOCs platforms (MeltemHuriBaturay, 2015). Albeit many MOOCs courses are delivered,free of cost, participating the exams and getting certificate are paid.

Across the world, there are many colleges, universities, and other higher education institutions provide several MOOCs platform. Coursera, EdX, Udacity, Udemy, Iversity, MiriadaX and Futurelearnoffer some of the well-known MOOCs platforms around the US and Europe. Table *** shows various MOOCs providers in different nations.

Table 1

S. No	MOOCs Provider	Country
1.	Coursera	United States of America
2.	edX	United States of America
3.	Udacity	United States of America
4.	Kadenze	United States of America
5.	Canvas Network	United States of America
6.	Stanford Languita	United States of America
7.	FutureLearn	United Kingdom
8.	European Multiple MOOC Aggregator (EMMA)	European Union
9.	Open Education (openedu.ru)	Russia
10.	XuetangX	China
11.	CNMOOC	China
12.	Chinese MOOCS	China
13.	University of China MOOC	China
14.	Zhihuishu	China
15.	OpenHPI	Germany
16.	gacco	Japan
17.	Fisdom	Japan
18.	OpenLearning	Japan
19.	JMOOC	Japan
20.	ewant	Taiwan
21.	Open Education (openedu.tw)	Taiwan
22.	Edraak	Jordan
23.	Miríada X	Spain
24.	MéxicoX	Mexico
25.	France UniversitéNumérique	France
26.	EduOpen	Italy
27.	Federica.eu	Italy
28.	ThaiMOOC	Thailand
29.	K-MOOC	Korea
30.	IndonesiaX	Indonesia
31.	Prometheus	Ukraine

Source: Class central, 2018

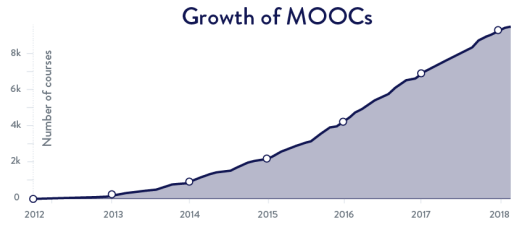
Class central statistics reported that total number of leaners enrolment rose to 81 million in the year 2017; it includes 23 million new signed up. Coursera is the leading MOOCs provider with 30 millionregistered users. The table 1 depicts top five MOOCs providers in the world by registered users.

Table 2

S. No	MOOCs Provider	Number of Users
1.	Coursera	30 million
2.	edX	14 million
3.	XuetangX	9.3 million
4.	Udacity	8 million
5.	FutureLearn	7.1 million

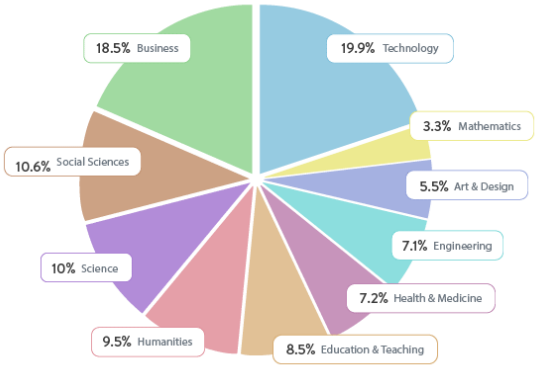
Source: Class central, 2018

New courses have been developed and launched as ever. Many institutions have launched at least a MOOCs course. Total number of MOOCs courses have been stated stands at 9400 in the year 2018. It rose form 6850 last year (Class central, 2018). The report says more than 800 universities have started at least a MOOCs course. Coursera is ascertained to be largest MOOC provider in the world; it boasts a catalogue of over 2,700 active courses (Class central, 2018).



Source: Class central, 2018

In the year 2017, technology courses (Computer Science, Programming, and Data Science) grew drastically and attracted by many learners, around 20 % of all courses.Business courses also equally got plenty of enrolment as technology courses. Collectively Business and Technology courses make up almost 40% of all courses in 2017.(Class central, 2018).



Source: Class central, 2018

4. Moocs: INDIAN SCENARIO

MOOC has enormous opportunities veiled in India. The students' enrolment have increased drastically in recent past in India.India is ascertained to be one among the leading countries in terms of enrolments in courses offered by many popular MOOC providers including edX, Coursera, and Udacity. At present MOOCs have directed many people in India to overcome unmet demand for higher education. This online education available in English and applicable to translate in many regional languages to deliver greatest and comprehensible education in different parts of India.

India recorded massive growth and dominating the global development after United States of America. Having witnessed huge enrolment in MOOCs platforms such as Coursera, edX, and Udacity, many online sources established and deliver education from India. Coursera CEO Mr. Richard Levin said that India is one among the top five nations in terms of revenue generated for Coursera, furthermore it is second largest country with respect to registered users (Economic Times, 2014). At present IITBX, mooKIT, NPTEL, and SWAYAM are started and operating from India to offer courses. The major reason for this growth is low rate of enrolment in higher education.

MOOCs progress in India

Table 3

Web Platform / Provider	Year	Initiatives
NPTEL	2006	NPTEL was started as educational content repository as MIT Open Course Ware. Today, It is one of largest publishers of OERs in the world.
	2014	NPTEL MOOCs powered by Course Builder were launched. Course builder is Google's open-source platform. The first batch provided three courses.
	2015-16	In 2015, NPTEL offered 90 MOOCs courses. January – May 2016, 47 new courses were offered and 100 MOOC courses have been stated between July to December 2016.
mooKIT	2012	A lightweight platform designed and developed in IIT Kanpur in the year 2012
	2014	Two MOOCs were launched using this platform: (a). Architecting Software for the Cloud[2] and (b). MOOC on MOOCs It witnessed around 2300 participants.
	2016	It launched a program called ag MOOCs comprised with set of five agricultural courses. Students and teachers of agricultural programs were the target of sg MOOCs.
edX and Coursera (Indian MOOCs)	2014	In July 2014, The first Indian MOOC on edX developed and targeted learners across the world. It witnessed massive success with attracting over 35,000 learners.
	2015	IIT Bombay, Birla Institute of Technology and SciencePilani, IIM Bangalore, and Indian School of Business were launched MOOCs on edX and Coursera.
SWAYAM	2014	Ministry of Human Rights Development (MHRD) announced SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) under its National Mission on Education through Information & Communication Technology (NME-ICT).
	2015	MHRD formed the 'Main Committee regarding SWAYAM platform for MOOCs' to conduct a thorough examination of all elements for a successful MOOC project.
	2016 (March)	MHRD developed and provided Guidelines to institutions for development and implementation of MOOCs.
	2016 (June)	Microsoft was awarded a contract for development of SWAYAM.
	2017	The SWAYAM portal was successfully launched on July 9, 2017

Source: SangeetaTrehan et al., 2017

5. Mooc Platforms in India

Governmen of India has taken many initiatives to support online education, which eventually used to continue education for many people, and help to increase enrolment ratio of the nation. NPTEL, mooKIT, edX, Coursera, and SWAYAM are the prominent online platforms in India. Apart from the above-mentioned platforms, others also providing online education in various field but are highly unknown. Following is the list of online course providers in India.

- SWAYAM
- NPTEL
- mooKIT
- IIT BombayX
- Shikshit India
- Vskills
- U18
- Million Lights
- Apna Course
- UpGrad
- EduKart Open
- LearnVern
- Digital Vidya

Factors that influence significance of MOOCs in India:

There are some factors listed below, certainly influence the advancement of online courses in India (SangeetaTrehan et al., 2017).

- Overcoming the constraints of physical infrastructure and teaching resources
- Facilitating movement towards 'Open'-ness.
- Promoting development and practice of online and blended pedagogy to improve quality and scale within the existing University system.
- Better recognition of online learning and even online degrees.
- Promoting international marketing and outreach of Chinese and Indian Universities and institutions.

Albeit penetration of MOOCs in many universities is notably high, awareness about MOOCs is still dearth in institutions located in Tier 1 and Tier 2 cities. A survey revealed that many people outside higher education did not even hear of MOOCs (The Chronical of Higher Education, 2013). People said they have awareness about online education yet did not know about MOOCs. There are some factors deemed as setback for online education in India. But having seen drastic advancement of technology and readiness to accept the technology, the factors are considered to be transient setbacks.

The major challenges for MOOCs in India are

- Creation of digital content: It is a big challenge. Digital content includes voice, video, formatted text, and animation. It requires digital content developer other than subject experts.
- Devices: The end devices used to view the digital content and if possible to download it.

- Internet access: One of the most important and challenging factor is internet access and speed. It requires minimum bandwidth to access the online platform, which is major setback in rural part of the nation.
- Language barrier: Language barrier is a major constraint for online education particularly in India. Almost every online platform delivers courses in English. MOOCs ought to consider this factor and deliver the courses in multiple languages and adopted in local contexts.
- Assessment& Evaluation: Proper assessment methods need to be incorporated where huge investment has been taken place.
- Dropout ratio: One of the biggest challenge of MOOCs is high dropout ratio. Hardly 5 to 10 percentage of people will complete the entire course (De Coutere, 2014). Motivation to participate and continue the courses is required to overcome the dropout ratio. Economic benefit, personal growth, and professional identity are the factor would be used to motivate the learners.

6. Conclusion

MOOCs intrusion influenced the academic world through many conceptual and technological changes. Many people considered growth of MOOCs as a big advancement and opportunity for continuing education. Major technological advancement in augmented and virtual reality could revolutionize MOOCs future where many subjects needs close supervision, expensive equipment and state-of-the-art laboratory to impart knowledge and skills. MOOCs platforms are being widely used for offering e-learning contents and India is no exception. Various MOOCs platforms that are being started in India for deliveringonline courses, such as, NPTEL, mooKIT, IITBX, and SWAYAM are the notable platforms among the MOOCs provider. These are the newly started web platforms having history of hardly 4 to 5 years except the NPTEL.SWAYAM is launched very recently by MHRD, Government of India. A comparative analysis is depicted for MOOCs platforms using available secondary data considering several parameters as mentioned. Furthermore, there are certain difficulties that are faced while implementing MOOCs in India. These challenges are discussed in this study. Some of these issues are already addressed by SWAYAM, which is the most recent platform.

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