

Determinants Of The Quality And Acceptability Of Moocs: International Vs Indian Perspective

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Abstract

With the economies being fueled by knowledge, Massive Open Online Courses are a new buzz-word in the education sector. These courses were introduced with the intent to provide access to top-tier, cost-free learning to millions on a worldwide basis, using internet technology. Present work investigates the fundamental idea of MOOCs, highlighting their importance in enabling a prospective overturn of the century-old classroom teaching and learning. The major Indian and International initiatives have been discussed, highlighting their specific importance. Along with the enablers for penetration of MOOCs, prominent opportunities and challenges have been presented. The work is very much important from the policy perspective in both the education and industry domain. It puts-up a challenging perspective of quality to the Educational Institutes and at the same time, highlights the acceptability perspective for the employers.

Keywords: Education. India, MOOC

1. Introduction

The word Massive open online course (MOOC) was first introduced to the world by Dave Cormier and Bryan Bryan Alexander in 2008 to define 'Connectivism and Connective knowledge'. The name was lent to the open online course, which was created by George Siemens and Stephen Downes at University of Manitoba, Canada (Daniel,2012). The course was initially developed for a group of 25 fee-paying learners and earned them credit, but simultaneously, it was opened for the students for free for those, who wanted to learn and participate in the course. More than 2000 students got enrolled themselves in the course on a pan-globe basis, out of which 24 were enrolled

for earning credits. The numbers were much more than the expectations of the course introducers and they had achieved these numbers with almost no marketing effort (Mackness et al., 2010). In late 2011, Stanford University Professor, Sebastian Thrun, decided to give an open access of his course, 'Introduction to Artificial Intelligence' that he was teaching to the students at the University. Along with this course two other courses, 'Machine learning' and 'Introduction to databases' were also given an open access at Stanford University (Rodriguez, 2012). In no time after the huge success of these courses, three platforms were set up and year 2012 was declared as 'year of the MOOC' by The New York Times (The NY Times, 2012). With this much of kick-start, some professionally managed initiatives start offering MOOCs to world-wide learners.

- Udacity and Coursera: Two For-profit Silicon Valley start-ups led by Stanford University Professors were found in the 2011 and 2012 respectively. Coursera currently stands at a total funding amount of \$313.1 Million, whereas Udacity with a total funding amount of \$160 Million (Crunchbase.com). Coursera has raised this total funding over nine rounds of financing, with \$103 Million in its last round of funding (IBL News, 2019). Both of these organizations are established at Mountain View, California, USA.
- EdX: A not-for-profit association of Universities established by MIT and Harvard and steered by MIT professor, was found on April 1, 2012 at Cambridge, Massachusetts, USA (Crunchbase.com). EdX was started with a total of \$60 Million funding provided by both MIT plus Harvard (Inside Higher Ed, 2018).

The MOOC competition was intensified, where American Universities had a monopoly in the initial Phase, but in December 2012, British reacted by launching 'Futurelearn.com', followed by Australia 'open2study.com' and Pan-European MOOC initiative 'openuped.eu' in 2013 (FICCI Vision Paper, 2014). Later, China and India also joined the group by developing MOOC platforms named Xuetang X and SWAYAM in the year 2013 and 2017 respectively (Thakur and Kumar, 2019).

Globally, about more than 900 universities offer 11,400 courses on the MOOC platforms. There were close to 81 million MOOC users on a pan-globe basis in the year 2017 and over which 23 million new learners joined only in that particular year, according to the data reported in Class Central (Class Central MOOC Report, 2018). The report also ranks the top five MOOC providers based on the registered number of users. Coursera remains at the top with 37 million users, which is followed by Edx (18 million), Xuetang X (14 million), Udacity (10 million) and Future Learn (8.7 million). These numbers are very much higher in comparison to the total regular enrolments in a university. If we consider the user base of Coursera, it gets the highest number of users from USA (7.8 million), followed by India (3.4 million), China (2.3 million), Mexico (1.7 million) and 1.6 million users of Brazil (Economic Times, 2018). These numbers show a very high popularity of the MOOCs in both the developed and developing countries.

2. Categories of MOOCs

MOOCs were initially put into two categories: x MOOCs and c MOOCs (Conole, 2013; Daniel, 2012), later a third category of Hybrid MOOCs also became popular.

X MOOCs follow a cognitivist-behaviorist approach and use video plus multiple-choice quizzes or other types of assignments for instruction and evaluation (Conole, 2013; Sharma & Kumar, 2017). Developers and Instructors of x MOOCs try to map their courses with traditional higher education courses. The video lectures are generally around 15 minutes in duration. Ideally, the learners start their every week's lesson by watching the videos for the lectures, going through the assigned reading material like textbooks or articles which are usually available on a non-payment basis, participate in online discussion forums with their co-learners and complete the quizzes, workbooks, or testing materials provided for the courses taken. Students are able to view as well as pause the video lectures at their own pace to enable them to simultaneously take notes (Frank, 2012). Some instructors also used simulations and game-based learning to engage the students. Instructors also solve the queries of the students by dedicating specific time slot for this task. Some instructors also adopted video chat options to encourage student interactions. Examples of x MOOCs cover Introduction to Artificial Intelligence, Machine Learning, Introduction to Databases, Python Programming and Building Search Engine courses etc. (Rodriguez, 2012).

C MOOCs, in contrast, rely on a philosophy of connectivism (Daniel, 2012; Rodriguez, 2012). Connectivism follows an approach of looking for an information from human or machine sources and sharing the same information with other participants (Siemens, 2004). Instructors of c MOOCs provide the course outline and material. The content, however, is defined by the students itself. The major instances of c MOOCs cover Connectivism and Connective Knowledge, Personal Learning Environments, Mobi MOOCs – Mobile Learning, and Edu MOOCs – Online Learning (Rodriguez, 2012).

In the Hybrid category, BOOCs (Big Open Online Course) were launched by Professor Daniel Hickey of Indiana University, in September 2013. BOOCs integrate the features of c MOOCs, which offer distributed learning and x MOOCs, which offer personalized feedback. In another variant of hybrid MOOCs, there are DOCCs (Distributed Open Collaborative Course) with a number of participating universities. Students share their knowledge and learning across these participating universities. Next, we have LOOCs (Limited Open Online Courses). This concept was pioneered by University of Maine in the United States. This is based on the system of LMS where students' login using their IDs. This facility is provided to only 5-7 non-registered students without any financial charges whereas, 15-20 university registered students. Learning Management Systems always play a significant role in the management of teaching-learning processes (Kumar & Sharma, 2016). Massive Open Online Research (MOOR) falls under the fourth category of hybrid MOOCs. This type of MOOC is offered to students who have a background in programming and are inclined into research. The fifth type of MOOC is the Small Private Online Course (SPOCs). Professor Armando Fox from UC-Berkeley introduced this

category courses in the year 2013. These courses are designed for students who have a keen interest in Law and employ the ‘flipped classroom’ approach, where the online learners and the students enrolled at Harvard take this course together. The last category under hybrid MOOCs is the Synchronous Massive Open Online Courses (SMOCs). The pioneer university for this category of MOOC is the University of Texas. Here, the focus is on real-time learning and has a maximum limit of 10,000 students. Live lectures are available to all the students enrolled under this category (Chauhan, 2014).

3. Need for the MOOCs

The popularity of MOOCs is well known in different parts of the world and this is expected to grow significantly in near future. There are many factors, which are responsible for the growing needs of MOOCs:

- **Demand and Supply Gap of the Knowledge Workers**

The demand for a knowledge worker is much more than the availability of the quality work force in most of the economies, across the world. MOOCs can act as knowledge and skill provider for the workforce very conveniently, as world’s best of the knowledge can be accessed with just one click. As per a recent Korn Ferry survey (2018), economies will face an acute shortage of talent to greater than 85.2 million people by 2030 on a worldwide basis. This deficit can inflict huge financial losses of about \$8.452 trillion in the form of unrealized revenues. The survey establishes three milestone years of 2020, 2025 and 2030. The total global labor deficit as a percentage of workforce is predicted to be 3% in the year 2020, growing to 6% in the year 2025 and reaching to 11% in the year 2030. The hardest hit economies would be China, North America and parts of South America (Korn Ferry Survey, 2018). Another report by McKinsey & Company highlights the potential shortages of college-educated workforce to the tune of 38 million to 40 million by the year 2020 (McKinsey Global Institute Report, 2012).

- **Educator Expertise Crunch**

Professional and vocational institutions in India offer an inadequate pool of adequately skilled educators (Das, 2011). Many professional colleges are facing the expertise crunch, because they are under-staffed or the existing faculties lack the expertise required to provide in-depth knowledge to the students. Keeping this challenge in mind, MHRD, Government of India, had launched Annual Refresher Programme in teaching (ARPIT) on 13th November 2018, with the purpose of providing online courses encompassing a variety of disciplines for the professional development of the faculty engaged in higher education using the MOOC platform (<https://ntaarpit.nic.in/>). Attributed to a huge shortfall of investments in the education sector, India faces a deficit of close to 8 million teachers and is plagued from a very high student-to-teacher ratio (Economic Times, 2019). As per the prescribed ratio, every IIM is supposed to have one full-time faculty member for every 10

students. However, none of the IIMs meets to this guideline (Economic Times, 2018). According to a recent report, close to 300 faculty vacancies are there at IIT Delhi for the last 10 years, despite interviews being conducted every six months. The institute is planning to fill these vacancies with 100 foreign faculties due to overcome the sub-standard expertise of educators available (The Hindu, 2019).

- **Cost of Traditional Higher Education**

As the cost of higher education is increasing day by day, the online education through MOOC platforms has become really affordable for the students as they need not pay high prices for the degrees, the instant content is available for a skill that is required by the student. To cite an example, the fees at the most coveted management institutes in India, IIMs, is between 9 lakhs to 22 lakhs for the two-year flagship programmes (Economic Times, 2018). Such high fees force the common people to take the burden of education loans. According to All India Survey on Higher Education for the year 2017-2018, inflation in the education sector has remained at 7% mark on an average since the year 2012, eating up a major share of household's income. This has forced the learners to opt the route of education loans, which stood at 675.5 billion at the end of fiscal year 2019, factoring in the data for only scheduled commercial banks (Financial Express, 2019).

- **Limited intake capacity at Higher Education Institutes**

The number of student intake at old, established universities is not increasing in proportion to the number of learners. The acceptance rate at these universities is sometimes as low as single number percentages at the Government Universities. Availing the online courses offered by these universities can be an easier route to get certification of these universities. The MOOCs are offered by the teachers of the same university and hence the learners get a feeling of attachment with the same university and at the same time quality assurance.

- **Learn While Earn**

Learners may be apprehensive to leave their current employments and sacrifice their income stream to join colleges or universities for sharpening their skill set. MOOCs provide them a platform to integrate learning with working. Hence, serving the purpose of continuous learning, while earning. As per the recent data, 56% of the learners were employed globally, while taking the MOOC courses and 48% of the learners were employed while taking MOOCs in India (Economic Times, 2018). Employees use the MOOCs to enhance their performance at work as well as to substitute for declining opportunities of on-the job training. MOOCs, being comparatively inexpensive and readily available, are being recognized by leading companies like GE, AT&T, Marks and Spencer etc. to collaborate with (Harvard Business Review, 2018). Coursera investigated its available pool of data to provide some vision into the MOOCs scenario in India. Quite unsurprisingly, a big proportion of population in India comprises of young learners where

93% are in the age bracket of 18-39 years whereas it is 74% in the USA. Whereas, 48% of learners in India, and 56% on a worldwide basis are in full-time employment. These statistics indicate that MOOCs have become an integral means to acquire as well as refine a desired skill set by the said population. On the other hand, referring to the data on unemployment, close to 25% are falling in this category and are looking for employment opportunities. They are probably taking the help of MOOCs to enhance their skill set in the intervening period. New-age courses emphasizing on technology like structured and unstructured machine learning, neural networks and deep learning, bitcoin and cryptocurrencies seem to be an obvious choice by the learners worldwide to gain an edge.

4. Indian Landscape of MOOCs

India has a vast proportion of young population. This young population comprises of the people who are keen learners and consist of the working age population. Based on the recent statistics highlighted in the Economic Times (2018), with a global percentage of 83%, India tops the charts for learners within the age bracket of 18 years to 39 years who are enrolled for MOOCs, surpassing US for this age category. A comparison of five countries has been given in the Figure 1.

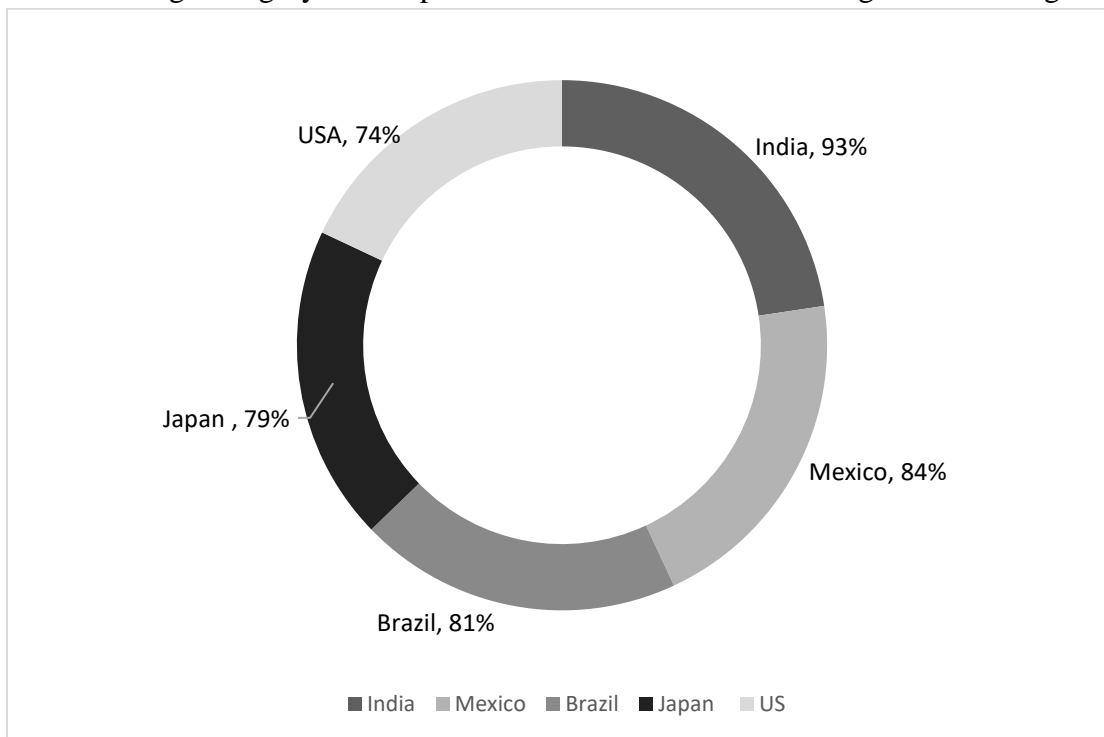


Figure 1: MOOC Learners in the age group of 18-39 years

Further breaking down the data in India according to the age brackets (Figure 3), we observe that the maximum number of MOOC users are in the age bracket of 18 years to 25 years, highlighting the fact that MOOCs are quite popular amongst that category of students who are fresh out of schools and till the time they are over with their basic college educational qualification and are actively searching for job opportunities.

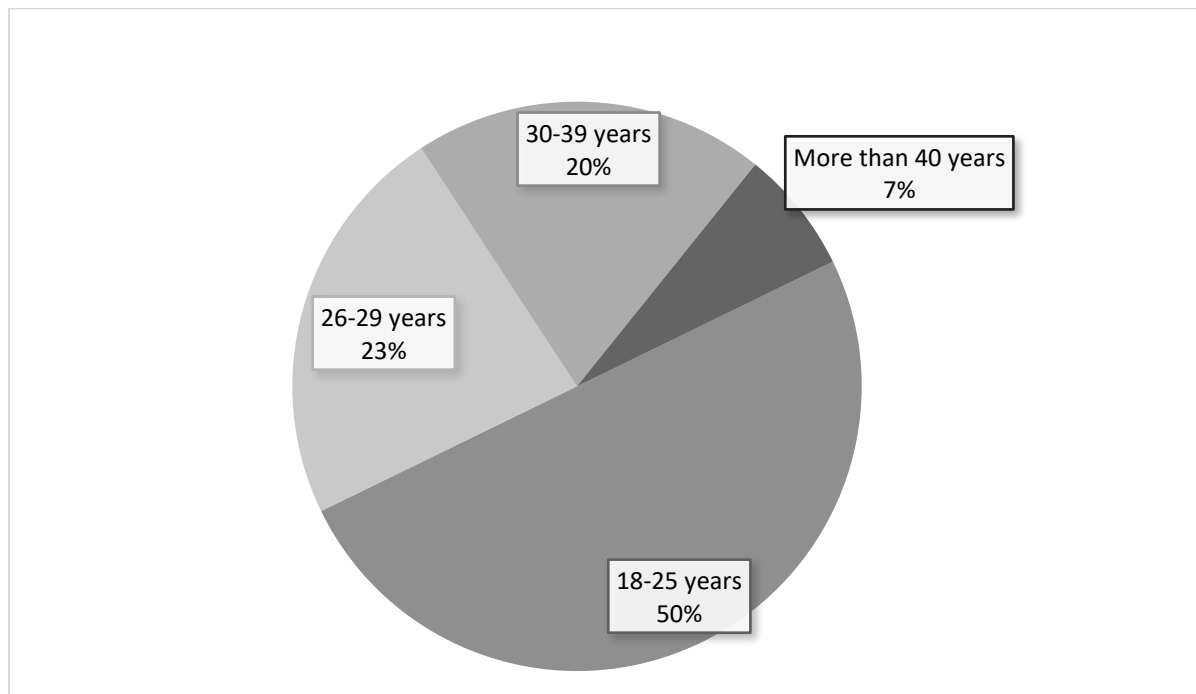


Fig 2: Indian MOOC learners according to age group

Indian Universities are have also started acknowledging MOOCs. To site an example, Mangalore University, in February 2019, has approved 36 papers under MOOCs from which students can choose from as their optional subject and earn credits for the same (The Times of India, 2019). This move has been taken by the University to promote MOOCs, as directed by the Ministry of Human Resources Development. Abdul Kalam Technical University (AKTU), has also extended an option to the students enrolled in B.Tech. to complete the last semester of their programme by registering for MOOCs and not by attending the classes (The Times of India, 2018). According to the latest draft on National Education Policy 2019, MOOCs have secured a prominent position. The policy talks about HEIs (Higher Education Institutions) getting funding and support for putting their best courses on the online platform designed by themselves on their own or by the use of SWAYAM, to feed to large population of young as well as adult learners. Credits earned by the learners through MOOCs will be put in place by the GEC (General Education Council), under the NHEQF (National Higher Education Qualifications Framework). The students may be granted permission by their HEIs to take a part of their total requirement in a semester by the use of MOOCs of their choice, particularly for the subjects which have not been presented yet, by the HEI (Draft National Education Policy, 2019). The policy also aims at Indian HEIs to collaborate with their international counterparts aided by the MOUs, to mutually provide recognition to MOOCs as well as other online degrees and courses. For setting up of virtual classrooms and Massive Open Online Courses (MOOCs), Government has earmarked a total budget of INR 75 crores for the year 2017-2018, up from the actual figure of INR 52 crores in the year 2015-2016, according to the Ministry of Human Resource Development (indiabudget.gov.in).

Two types of models have been developed by the companies providing MOOCs, the recently developed B2B model and the existing B2C model. The B2B model works on partnerships with big business houses to impart skills to their employees. The new model is growing at a decent rate of 100%, however, the traditional model is somehow not exhibiting a very promising growth rate of 45%, as per the Indian scenario. The objective with which MOOCs were created is being getting shifted to aiding the universities to mere gain online presence, instead of altering the educational system. The four major MOOC platforms have been listed in Table 1 (Chauhan, 2014) and the data on the courses and learners of these platforms have been presented in Table 2 (as available with the respective websites).

Table1: Indian MOOC Platforms

MOOC Platform	Year of Launch	Institution Behind Platform	Website Link
NPTEL	2003	IIT Madras	nptel.ac.in/
IIMB x	2014	IIM Bangalore	iimbx.edu.in/
IITB x	2014	IIT Bombay	iitbombayx.in/
SWAYAM	2016	MHRD and Microsoft	swayam.gov.in/

Table 2: Students and Courses with Indian MOOC Platforms

Provider	Course Format	No. of Courses	No. of Enrolled Students
NPTEL	Scheduled	1200	3.6 Million
SWAYAM	Scheduled, Self-Paced	172	N/A
IIMBx	Scheduled, Self-Paced	30	1 Million
IITBx	Scheduled, Self-Paced	289	1.25 Million

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4.1 NPTEL

NPTEL is an acronym for National Programme on Technology Enhanced Learning. It is an initiative taken by seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science (IISc). The aim of this initiative is to create contents for courses in engineering and science. It was conceived in the year 2003 and launched in the year 2014. A proposal was proposed by the said institutions for developing contents for 100 courses as web based substitutes and each course had to be of 40 hours' duration. Contents for the courses were based on the model curriculum suggested by All India Council for Technical Education (AICTE) and the syllabi of major affiliating Universities in India. The top five core subjects identified under NPTEL are:

1. Civil Engineering
2. Computer Science and Engineering

3. Electrical Engineering
4. Electronics and Communication Engineering
5. Mechanical Engineering

In the first phase, 235 courses were developed under this platform in web/video format. This was carried forward in phase two (2009-2014) and additional 600 web/video courses were created in all major branches of engineering at the graduate and post graduate level. Presently, NPTEL boasts of being the largest database world over for courses in engineering, basic sciences and social sciences. It offers more than 56,000 hours of video based content with the maximum accessed library of peer-reviewed educational information in the world (ngit.ac.in).

4.2 SWAYAM

Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) is an initiative of HRD Ministry of India. It is an initiative that uses indigenously developed IT platform that facilitates the hosting of subjects from Class 9th standard to post-graduation and skill sector courses to be accessed by anyone on anywhere, anytime and free of cost basis. SWAYAM is an opportunity to the pioneer teachers to put new courses in the upcoming areas on this platform in the MOOC (Massive Open Online Course) format. For this initiative UGC (University Grants Commission) has also issued guidelines under its UGC Regulation 2016 (Credit Framework for online learning courses through SWAYAM). In the guidelines, UGC has advised the universities to look for the courses where in the credits up to the limit of 20% can be transferred on to the academic record of the students for the courses undertaken by them on SWAYAM platform. On the successful completion of each course, the student would also be evaluated through proctored examination and the marks/grades secured in this examination would be transferred to the academic record of the students. This is a giant leap to integrate online learning with India's education system. Currently, SWAYAM offers a vast variety of 2,000 courses and has secured a world position amongst one of the largest MOOC providers. These courses are being offered by 1,250 instructors and are affiliated with 130 institutions like Delhi University and IITs (Class Central, 2019). On 13th November 2018, Ministry of Human Resources and Development (MHRD) had launched ARPIT under SWAYAM, i.e., Annual Refresher Programme in Teaching, to facilitate development in skills of faculty engaged in higher education. University Grants Commission has already granted ARPIT equivalence with refresher courses for the objective of Career Advancement Scheme (UGC, 2019). Table 3 presents a list of organization responsible for development of e-content for SWAYAM (<https://www.aicte-india.org/downloads/MHRD%20moocs%20guidelines%20updated.pdf>).

Table 3: Organizations responsible for development of MOOCS in India

Organisation	Responsibility
University Grants Commission (UGC)	Non-Technology Post-Graduation Degree Programme

NPTEL	Engineering or Technical Under-graduate and Post-graduate Degree Programme
Consortium for Educational Communication	Non-Technology Under-graduate Degree Programme
IGNOU	Diploma and Certificates
NCERT	School Educational Programmes catering to classes 9 th to 12 th
NIOS	Out of School Children Educational Programmes catering to classes 9 th to 12 th
IIM Bangalore	Management Programmes
NITTR, Chennai	Teacher's Training Programme

4.3 IIMB x

IIMB x is an initiative of Indian Institute of Management, Bangalore, started in the year 2014. This is a MOOC platform, where free online courses are offered by IIM Bangalore (<https://www.iimbx.edu.in/>). The vision of the IIMB x programme is to use digital learning to enable widespread access to management education. It is operated on edX platform and offers free MOOCs and Micro Masters programs in various disciplines to a worldwide student and faculty body. IIM Bangalore is the only Indian Management institute to offer free online education. Over a very short time period, the programme offers more than 40 courses and has received more than 10,50,000 learners spanning across 190 countries (iimbx.edu.in). The number of enrolments has dramatically increased over the last four years as presented in Figure 3 (www.iimbx.edu.in).

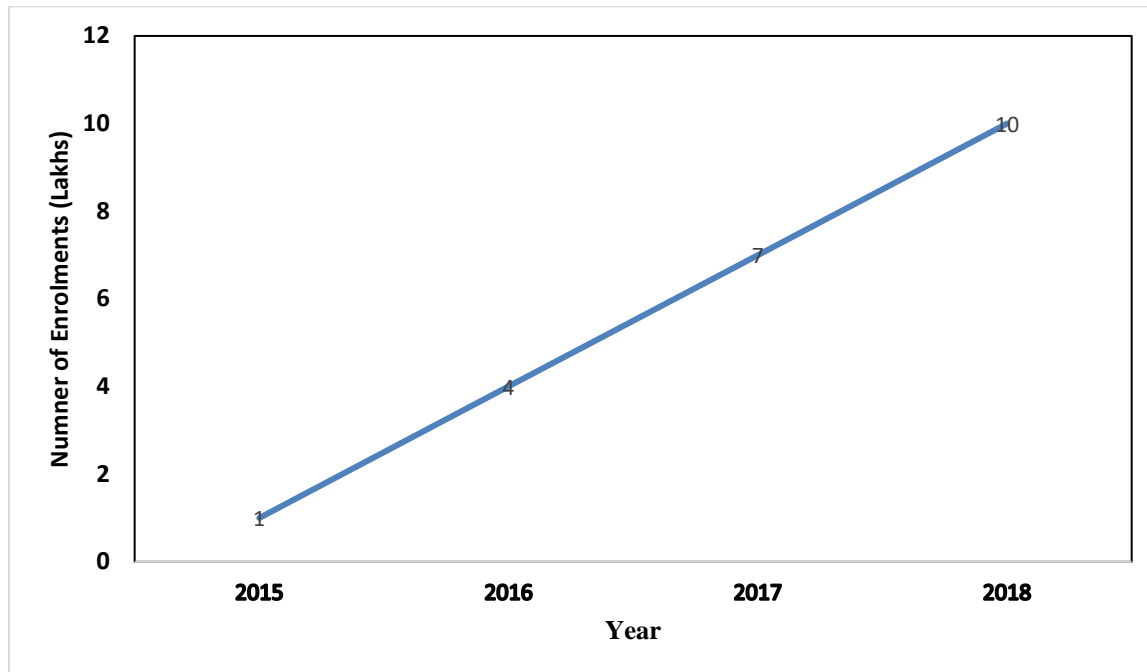


Figure 3: Number of Enrolments with IIMB x

4.4 IIT Bombay X

IIT Bombay X is a not-for-profit Hybrid MOOC platform developed by IIT Bombay using the platform Open edX in 2014. National Mission on Education through Information and Communication Technology (NME-ICT), Ministry of Human Resource Development (MHRD) and Government of India together provided the funding for this initiative. Currently, it is offering various courses under four major categories (IITBombayX.in):

1. Edu MOOCs for academics or education in general.
2. Skill MOOCs for training in skills and vocation.
3. Teach MOOCs for Teacher Training.
4. Life MOOCs for employed people who wish for life-long learning.

IIT Bombay X offers vast flexibility to its learner base by offering three different modes of delivery namely (iitbombayX.in):

1. Instructor-Led MOOCs under which new course content is released on a weekly basis and the learners enrolled under this mode have to follow a scheduled timeline for quizzes, assignments and final examinations.
2. Hybrid MOOCs under which the learner has to be associated with the institution as a pre-condition. They get a chance of live interactions during the span of the course using the video conferencing software.

3. Self-Paced MOOCs where the full content for the course is released in one go and as it is very much clear from the name, the learner can learn at his or her own pace and complete the course as per his requirements during the course time.

5. Enablers of MOOCs in India

The number of MOOC enrolments are increasing at a faster pace. This is attributed to many factors including:

5.1 Government recognizing the power of MOOCs

Former President of India, Mr. Pranab Mukherjee stated, 'Internet services have enabled offering of opportunities to quell the divide in terms of access and quality; digital modes are viable and cheap, offer easy accessibility, are interactive and deliver flexibility. A combined effort is required by all to make it available for promotion of teaching' (Class Central, 2019). Needless to say, Government of India has taken many initiatives to promote online education through MOOCs. Most prominent are:

- Government established a thrust area as training on entrepreneurship in 2,200 colleges, 500 government industrial training institutes, 300 schools and 50 vocational training centres via MOOCs (Financial Express,2016).
- Government launched another big initiative of digital literacy schemes to reach six crore rural households in the next three years in the Union Budget 2016-2017 (Financial Express, 2016).
- Government had launched the Indigenous MOOC platform , 'SWAYAM', in 2014. As on July 2015, roughly about 8 percent of the global activity in Coursera comprised of Indian enrollments and close to 12 percent in EdX. The only bigger proportion of participation was of USA, with participation of China being almost at par (MIT Technology Review, 2015). Online learning can prove a be a boon. If reports are to be believed, India hopes to increase the enrollments in higher education to 30 percent by the year 2021, accrediting this to SWAYAM (Class Central, 2019).

5.2 Internet and Broadband Penetration

Nowadays, a huge variety of gadgets are available which can be used by the consumers to get access to internet, namely, laptops, chrome books, tablets and smart phones. Attributed to the speed of technological change and intense competition in this market, these devices are getting more and more affordable to people and rarely anyone is found without it (Rao, 2015). According to Internet and Mobile Association of India (IAMAI) (Economic Times,2018), internet penetration in urban India was 64.84% in December 2017 as compared to 60.6% in 2016. The total number of internet users in India had reached to 500 Million in 2018. Due to availability of low priced devices and easy accessibility of internet, reaching to knowledge via an online platform has become a game of just one touch (Mittal

and Kumar, 2018) . Broadband has penetrated to almost all parts of the country and is available at a low cost (Rao, 2015). According to the Counterpoint Technology Market Research (Economic Times,2018), it is anticipated that country's wireline broadband subscriber base will increase to 26.2 million by 2021 from 18.2 million in 2018, at an annual growth of about 7.6%. The penetration of Broadband has given the access of online education to tier-2 cities and rural areas, those do not have much access to mainstream college education.

5.3 Penetration of Social Networking and Smart Phone

Young generation is very much comfortable in using social networking sites and education has not remained untouched from this (Kumar and Nanda, 2019). It is estimated that there will be around 258.27 million social network users in India in 2019, up from close to 168 million in 2016 (Statista, 2019). The instructors of MOOCs are using social media to connect with the students for query handling, resolving problems, etc. IIMB is using social media connect as one of the USPs of their MOOCs. Smartphone penetration is on a rise in India, with the number of smartphone users set to reach 37.3 crores in the year 2019 (India Times, 2019). Advantages of smartphone usage to aid learning stems from the portability and flexibility it offers.

6. Challenges for MOOCs

Although the number of MOOC courses and the number of learners are increasing at a very high speed, still there are many challenges to the actual success of MOOCs. In particular, the net achievement of the objectives of MOOCs is subjected to many challenges and obstacles. Most important of them include:

- **Course Completion Rate:** Across the world, it has become a challenge to create the interest in the courses, being offered on the online platform. There is a hindrance in interest creation amongst the students due to lack of student-teacher interaction, low problem solving rates, lack of peer support etc. Most of the students enrol themselves in the course just to explore the subjects, rather than pursuing the course for obtaining degrees. As per a recent study conducted by MIT, online courses have witnessed a huge dropout rate of close to 96 percent on an average over a period spanning over five years (Financial Times, 2019). In another article by MIT, it was observed that majority of the learners who get themselves registered for MOOCs leave as soon as enrolling themselves into the course. Out of the number of learners enrolled, a number as high as 52 percent never access the courseware and dropout rate is higher in the first two weeks. This scenario remains abysmal from the last six years (The MOOC Pivot, 2019).
- **High Level of Heterogeneity:** As these courses are available on open platform, where anybody can enroll without any restriction, the variety of students has increased in

terms of culture, native language, age, orientation and grasping power. Therefore, the challenge of delivering a lecture that fits to the pace and accent of all the students is something to be taken into consideration. Also, the traditional brick-and-mortar colleges provide a holistic, customized experience to the students which cannot be made possible with the help of MOOCs. With no personal contact with peers and faculty members, the learners may not be able to fully develop their intuitive skills as well as may be unable to broaden their horizons (Livemint, 2019).

- **Identity Theft:** Due to a consistent increase in the number of enrolments, it has become a big challenge for the MOOC platforms to ensure the identity of the student. Thus identity management is a big challenge (Kumar & Bhardwaj, 2018). It is very difficult to track whether the student who has enrolled in the course is giving the exam and assignments himself/herself or someone else is doing this. The providers of MOOCs have tried to overcome this issue by introducing ID verification systems like webcams, valid photo identification, in-person test centres and keystroke analysis. These systems aid the MOOC providers to verify the identity of the students enrolled into the course and also confirm that these are the people themselves who have submitted the work (Forbes, 2018).
- **Quality Concerns:** With the emergence of online education and the education industry being revolutionized through the MOOCs, faculties from various institutions all over the globe have come to a common platform to deliver their courses to the interested learners. Hence, it is very much possible that a same course is being taught by many different instructors coming from different universities as well as different parts of the world, at the same time. These different instructors would be having different styles and different ways of teaching and assessments. As a result, there is a great need of standardization of the content being taught to the students. The procedures, policies and assessments should be transparent and standardized as the trend and demand of online education is increasing.
- **Reliability:** Reliability of MOOCs as a source of gaining knowledge can be questionable. Students may feel that the information given by the MOOCs may be something to be relied upon, but to a certain extent. They may be apprehensive in relying upon the information once they have passed the fundamental facts and dates. Since, there is a lack of strict regulatory overview and possibly anyone can create a MOOC, this attributes to the questionable legitimacy of the courses offered (Cole, & Timmerman, 2015). As per a study by QS encompassing a huge number of 4,654 employers as respondents, it was found that 71 percent employers were not aware of the concept of MOOCs (Forbes, 2018). Hence, they may not find the MOOCs reliable for the purpose of their employees.

- **Low validity of accreditations:** The accreditations of MOOCs is still questionable. There is still a persistent belief that traditional classroom teaching plays a significant role in learning. MOOCs are still unable to draw the desired attention of the accreditation bodies (Eaton, 2012). As per an article published in Forbes in July 2018, MOOCs offered by MIT are seemingly considered to be having equivalent weightage to a degree actually conferred by MIT to its students, however, as per the statement of their Registrar, MIT does not have any provision for offering an online degree (Forbes, 2018). As per the same article, the alternatives chosen in lieu of actual degrees such as certification courses are ‘essentially worthless.’
- **MOOC 2.0:** Companies offering MOOC courses are switching to ‘freemium models’, i.e., offering both paid as well as zero-cost courses. The primary objective of providing free education is getting modified to a partly fee-based education, which might be posed as a challenge to growth of MOOCs. As a matter of fact, no major platforms which offer MOOCs provide free certificates to the learners. Thus, it is safe to say that certification MOOCs are always paid for, for courses that are offered by reputed platforms (Class Central, 2018).

7. Conclusion

MOOCs have come-up as a quantum leap in the area of education. With total number of learners enrolled reaching a new record with each passing year, these online courses are definitely enhancing the skill sets of the learners and aiding in filling the knowledge gaps. However, the question of the credibility and acknowledgement of MOOCs is still looming large. Whether the employers are acknowledging the knowledge acquired through MOOCs and this is creating an equal ground to the rigorous teaching-learning practices of the brick-and-mortar classrooms is still to be seen and proved. Educational Institutions and MOOC developers need to work with the Govt policy makers and the private sector employers to improve the acceptability of MOOC based education. With the advancements in technology and increasing penetration of internet, it would be interesting to see where this new innovation heads in the years to come.

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