

# A Study of Massive Open Online Courses (MOOC's)



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*Over the past few years, there has been a significant increase in the number of students enrolling in Massive Open Online Courses (MOOCs). Massive open online courses (MOOCs) have emerged as a new option for online learning. Since 2008, various public and prestigious universities have offered MOOCs. Moocs have become one of the most popular e-learning initiatives among universities in India . Recognizing the growing demand for education, India has initiated several projects to offer MOOC courses. This paper presents a brief study of the theoretical and technical aspects of MOOC platforms like NPTEL, IITBX, and SWAYAM.*

**Keywords:** MOOC's, NPTEL, Swayam

## 1. Introduction

Learning is a continuous process and it is applicable to all age groups and professions. While schooling and higher education at a university level follow a structured learning process for the students, people search for new and better learning platforms once they start working after attaining a level of formal education .

Distance or online learning has been available for quite some time but the last decade or so, the combination of technology and content usage, powered by internet brought new innovation in learning which has reached masses. Today, new models of learning have arise to address the growing demand on skill building irrespective of age and academic background. Massive Open Online Courses (MOOCs) now have attained spotlight providing an alternative, informal and continuous method of learning. Massive open online courses (MOOCs) are a recent addition to the range of online learning options. The first known MOOC originated in 2008, when George Siemens and Stephen Downes designed a course on 'Connectivism and Connective Knowledge'; today there are many universities world over who have collaborated to offer MOOCs. (Wiley,2013).

Massive Open Online Courses (MOOCs) are online courses that are designed to be accessible to a large number of learners. They provide an opportunity for individuals around the world to access high-quality education at scale.

MOOCs is a better way to offer corporate skill development opportunities to the working professionals because of its highly flexible and relevance attribute making these learner segment more effective and knowledgeable at their workplaces.

Here are some characteristics and features of MOOCs:

- 1. Open Access:** MOOCs are open to anyone, having internet and allows learners from diverse backgrounds and locations to participate.
- 2. Scalability:** MOOCs are designed to serves a large number of participants simultaneously which is possible through online platform and technologies.
- 3. Diverse Content:** MOOCs cover a broad range of subjects, including humanities, sciences, business, technology, and more which are offered by universities, institutions and organizations globally.
- 4. Free & Affordable:** Many MOOCs are having free access to course content, while some may charge a fee for certification. This is the reason for popularity of MOOCs.
- 5. Flexible Learning:** MOOCs provide flexibility in terms of when and where learners can access course materials. This asynchronous nature allows learners to study at their own pace.
- 6. Interactive Learning:** MOOCs includes various multimedia elements, interactive quizzes, discussion forums, and peer-assessment activities to improve the learning experience.
- 7. Innovative Pedagogies:** MOOCs may experiment with innovative teaching methods, such as flipped classrooms, gamification and adaptive learning technologies.
- 8. Research and Data Analysis:** The large-scale nature of MOOCs generates vast amounts of data, allowing researchers to analyze learning patterns, effectiveness of instructional strategies, and other aspects of online education.
- 9.** Some of the popular platforms offering MOOCs are Coursera, edX, Udacity, Future Learn, etc These platforms collaborates with universities and organizations to provide a wide range of courses.
- 10.** While MOOCs have gained popularity, they also face challenges, including issues related to completion rates, assessment integrity, and ensuring inclusivity.

## 2. Literature Review

The chances for participation offered in the course are what make MOOCs successful, not the structure of the course or the

assigned readings and exercises. These interactions could be with various types of material, instructors, or other participants. The opportunity for lifelong learning and the flexibility with which the knowledge can be accessed are the true benefits. (Bali, 2014; Kitsiri, 2013).

Blogs, specialized and general press, as well as "thinly disguised promotional material by commercial interests... and articles by practitioners whose perspective is their own MOOC courses" are among the many media outlets that analyze MOOCs. according to Daniel (2012).

The Massive Open Online Course (MOOC) is a global and fast developing educational phenomenon but is an ill-defined term due to various challenges. For instance, the phenomenon is still an emerging field (De Waard et al., 2014) and a futuristic trend that has not yet attained a degree of maturity (Atiaja and Proenza, 2016).

MOOC participants frequently face abrupt dropouts as a result of technical issues such as broken links, server crashes, unreliable internet connections, etc. Due to their size, MOOCs must balance a large number of participants with an online platform, which presents significant challenges. Numerous instances of the entire course collapsing and creating a significant MOOC mess have occurred. Example of one of the famous crash downs is 'Fundamentals in Online Education' by Coursera in 2013. (Oremus, 2013).

Trehan et al. (2017) researchers identified 10 key issues connected to MOOC design and implementation i.e. language and curriculum, Internet connectivity and MOOC reach, MOOC pedagogy and delivery, MOOC accreditation etc.

MOOC completion rates, learner experience, and opinions are directly impacted by issues including language, communication, and accreditation. Things like digital fluency, Internet access, and MOOC accessibility are significantly more important in China, India, and Africa. (Hakami et al., 2017). The culture and local environment factors play an important role in learners' motivation and thus opens up a challenging area for cross cultural research on MOOC's.

Jordon (2015) states that completion rates can approach 40% (and occasionally exceed it); the current average completion rate for MOOCs is approximately 15%. An essential component of every teaching and learning process is assessment. The process of formative and summative evaluation establishes whether or not a goal or target has been accomplished.

"MOOCs have demonstrated the ability to stimulate conversations about the opportunities to redefine, rethink and transform educational practices in higher education." Johnson, Nafukho, LeCounte, Valentin, and Valentin (2014).

### 3. Discussion

MOOC platforms are being used globally for offering online course and India is no exception. There are various MOOC platforms that are being used in India for offering the courses, such as, NPTEL, moo KIT, IITBX, and SWAYAM. Except the NPTEL, these are the new platforms which are launched very recently .i.e. SWAYAM.

Therefore, to set up a ground for understanding including theoretical as well as technical aspects, a continuous improvisation is required with their advanced features. Also, while using these platforms it is needed to understand their current state, popularity among learners, use of social media for referring, searched etc, and several other parameters or features. For the purpose of assessment of success, web analysis considering several parameters is to be developed and utilized.

Furthermore, there are some issues that are faced while implementing MOOC in India. Some of these issues are already addressed by SWAYAM. On other hand MOOCs would bring a huge audience under the light of quality education that was not able to get it due to different constraints fixed up by the academic institutions or some other causes.

#### MOOC Platforms in India

##### 1. NPTEL

NPTEL stands for National Programme on Technology Enhanced Learning. It is a project funded by MHRD, started in 2003. It is a joint initiative of seven Indian Institute of Technology (IITs) and Indian Institute of Science (IISc) for offering courses on engineering and science, initially. Now, NPTEL has started an online course in computer science; electrical, mechanical, and ocean engineering; management; humanities, music etc. It offers a free course with nominal fees for certification.

NPTEL uses open-source technology for offering courses. The courses are powered by Google's open-source platform Course Builder that runs on App Engine and Compute Engine. The course content are in the form of video lectures prepared in a conventional classroom environment and some are presentation slides to share the content.

##### 2. Moo KIT

Moo KIT is a lightweight MOOC management system built entirely using open-source technologies by Indian Institute of Kanpur (IITK), in 2014. It is a powerful system that can be used to offer online courses at any scale, from micro to massive. It is designed to offer c MOOC (connectivist MOOC). It has been used in 15 courses . It is specially designed to solve the problem of dealing with low-bandwidth and low-computing power situations using existing MOOC platform. To solve the problem, moo KIT provides an indicator that shows the current bandwidth of the connection, similar to the bars on a mobile phone. It gives a visual indication of a bad connection to the learner and they can use other content delivery options that moo KIT provides .

For students who live in remote locations without access to a laptop, smartphone, internet, or large bandwidth, this function is quite helpful. All they require is a simple, basic phone. An additional unique characteristic of moo KIT is its support for an extremely potent analytics interface. It gives the student the ability to view their course activities in addition to the instructor, something that is not typically offered on any other platform..

### 3. IIT Bombay

IIT Bombay is a non-profit MOOC platform developed by IIT Bombay using the open-source platform Open edX, in 2014. It was created with funding from National Mission on Education through Information and Communication Technology (NME-ICT), Ministry of Human Resource Development (MHRD), Government of India. Currently, it offers courses of different subjects from multiple disciplines.

IIT Bombay is implemented as the basic version of the blended learning MOOC with the help of edX organization. This approach is adopted to combine direct supervision in face-to-face learning and academic freedom with self-paced learning using the online courses. Course completion is not optional but compulsory. This model is named as "Blended Learning - MOOC Model of IIT Bombay (BLMM)".

### 4. SWAYAM

SWAYAM stands for "Study Webs of Active Learning for Young Aspiring Minds". It is a MOOC platform launched by the Ministry of Human Resource Development (MHRD), Government of India, to combine online and offline education. It started with an expectation of launching 2,000 courses, to make it largest course catalogue, among all provided so far. For SWAYAM an independent platform is developed.

Learners across the country can get credit for MOOC courses offered on SWAYAM, and they can get their credits transferred and recognized at the parent institution, that was not possible in conventional MOOC platforms. SWAYAM is a right effort of credits using the course that will encourage the learners to complete the course and get their certificate. For SWAYAM, a credit framework has been finalized that would allow the transfer of credits between institutions. An academic institution in India can offer up to 20% of its catalogue in a particular program via SWAYAM.

### Challenges for moocs in India

The primary issues regarding the performance of MOOCs in India are discussed in detail below. Few of them include lack of digital infrastructure, need for investment, adaptability of MOOCs by the learners, focus on enhancing the quality of content created for MOOCs, and catering to the diversified needs of the Indian students.

1. **Lack of digital infrastructure:** MOOC platforms offer short-term courses with high-quality content, they necessitate high-speed internet connections. India, which is still developing, is unable to offer simple access to computers. Furthermore, computer equipment and continuous Internet access are still considered costly items, which limits their availability to primarily urban areas. In the same way, MOOCs' limited reach is a consequence of the restricted availability of critical infrastructure. More advancements in digital infrastructure are required to enable countrywide connectivity.
2. **Need for Investment:** Investments of huge scale are needed for the creation, administration, and dissemination of MOOC platforms. Hiring human resources, social overheads, content generation, etc. are some of the numerous expenses incurred. The precise requirements must be satisfied by significantly reducing the traditional limitations and guidelines. Additionally, it is necessary to promote public-private partnerships for the creation and management of MOOCs..
3. **The adaptability of MOOCs by the learners:** Written communication serves as the primary method of interaction between the teacher and the student. As a result, the students' speaking abilities will be weak, demanding their enrolment in a standard course. Additionally, MOOCs provide little opportunity for interaction amongst course participants, which might lead to a sense of isolation. Lack of social support has a big impact on a learner's ability to learn and overall wellbeing. Furthermore, some hands-on courses that need for offline instruction may not be appropriate for online learning. Technology adoption itself can present difficulties for students.
4. **Enhancing the Quality of the Content:** A skilled teacher or instructor is the most crucial stakeholder in raising the standard of MOOC courses. In addition to the lack of effective, enough infrastructure to support the high-quality delivery of MOOCs, the nation is experiencing a teacher shortage of qualified full-time instructors. The New Education Policy 2020 makes a number of recommendations to close these gaps. Such as using the credit transfer method, promoting MOOCs, etc. It also stresses the importance of periodically holding teacher training sessions.
5. **Diversified Needs:** In a diverse and multicultural country like India, where several languages are spoken, courses only in one language can limit the potential of the courses. NEP focuses on vocational and technical training, which requires multilingual training and educational content. Although it was noticed while converting the content in regional languages, its uniformity and quality were compromised. Moreover, designing the course material, delivering it, and managing the MOOC platforms was a challenge in itself too.
6. **Quality of Research Compromised:** There is a direct correlation between teaching and research. The act of teaching in class, filled with spontaneous interactions and new methods for an explanation, can promote productivity in the research work. In MOOCs, such interactions are missing, adversely affecting the quality of teaching. Planning, creating, editing, and managing MOOCs can be highly time-consuming, resulting in minimum contribution in the research field, thus reducing the growth potential and quality of the faculty and MOOC.
7. **Relies on Self-Motivation:** One of the many elements influencing the popularity and use of MOOCs is the expectation that the learners will be self-motivating and self-directed. Additionally, learning benefits rather than completion rates should be used to gauge the success of MOOCs. It is difficult to measure the same since most MOOCs' response rate is

low (Murugesan et al., 2017). Therefore, an extensive restructuring of the E-learning/MOOC platform is necessary to align with the evolving demands of our students both now and in the future.

#### 4. Conclusion

India is not an exception to the global usage of MOOC platforms for online course delivery. In India, MOOC platforms like IITBX, SWAYAM, moo KIT, and NPTEL are used to deliver the courses. It's important to understand these networks' current state, learner popularity, how social media is used for referrals, searches, and other purposes, among a number of other factors. In India, there are certain problems with MOOC implementation. These difficulties are discussed here. SWAYAM has previously addressed some of these difficulties.

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