Growth and Development of MOOCs in India – Current Status, Progress and Challenges

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Abstract: *MOOC is a web-based platform which provides an unlimited number of students worldwide with a chance of distance education with the best institutes in the world. MOOCs have started in 2008, but the interest has really exploded since 2012. The proliferation of MOOCs happened because of the maturing of many of the technologies such as the wide availability of low-cost broadband, cheaper laptops, tablets, and smart phones, expanded cellular network, cloud storage and computing and social networking. Many MOOCs have communities that have interactive sessions and forums between the student, professors and Teaching Assistants along with the course material and video lectures. India after the US is dominating the global growth in enrolments. Seeing the growth of enrolment from the country and satisfy their need for education, India has started various projects for offering MOOC courses in Higher Education. Currently, NPTEL, mooKIT, IITBX, and SWAYAM are the platforms used in India for offering online courses. MOOCs have played a major role in increasing the Gross Enrolment Ratio in the field of higher education. A key issue that Indian higher education is currently grappling with is the lack of coordination and its application to various economic sectors. However, these problems are eradicated by the MOOC programme because maximum courses of the MOOCs are related to industry demand and needs. In this paper, conceptual and technical descriptions of different MOOC platforms are provided along with their components and features. The present paper also attempts to explain why MOOCs are so necessary in countries like India and what are the benefits and challenges for the implementation of MOOCs.*

Keywords: *MOOCs, Indian MOOCs platform, challenges.*

1. INTRODUCTION:

In a developing country like India, the use of technology for delivering education is increasing day by day. To fulfil this requirement of Education with technology is considered as the most promising development in education. Also, to provide distance education through online courses, many massive open online educations platforms are arising worldwide. Due to this use of technology & globalization, the concept of learning and teaching has become interesting & undergone a massive change. Education with online courses provides a global learning environment for the learner to access study material anytime from anywhere. In addition to that, courses have interactive learning scope like solving of quizzes & assignment to access the knowledge acquired by students. This further increases the bonding between student & teacher. Also, students can collaborate and interact with Each other learner from around the world. Massive Open Online Courses (MOOCs) have become a popular avenue for diverse learners to upgrade their knowledge and skills. For implementing MOOC in India, though there were universities and initiatives that focused on distance education much earlier, the arrival of the internet in the 1990s had also brought in the opportunity for increasing access to education through online learning. The Alliance for Lifelong Learning, a non-profit initiative started by Oxford, Yale, and Stanford University in 2000, is one of the earlier initiatives that tried to offer courses at scale through the online medium. The instructors who are new to creating MOOCs tend to focus on the use of technology features to mimic their classroom actions. While it is necessary to be aware of the technology affordances, it is more important to focus on the pedagogy of how to use the MOOC features effectively to foster student engagement and learning. Hence MOOC instructors need a set of design principles and guidelines to create a learner-centric MOOC. Thus, MOOCs had become a common word by 2012, and the advantages of these courses in terms of access and flexibility that it provides for learners along with the scales that it can reach were widely appreciated by everyone.

2. REVIEW OF RELATED LITERATURE:

Buhl, M., & Andreasen, L. B. (2018) in their work 'Learning potentials and educational challenges of massive open online courses (MOOCs) in lifelong learning.' discusses about benefits and challenges of MOOCs. According to the authors, recent developments of MOOCs seem to be driven by commercial interests rather than by pedagogical concerns. MOOC providers are creating new business models which are gradually connecting the educational activities of MOOCs with various degrees of payment. As an educational newcomer, the MOOC phenomenon prompts optimism as well as scepticism mostly because it is being considered within the discourses it disrupts. As often happens when a new technology emerges, hopes to rise that the ultimate education formula has finally arrived. The ''massiveness'' and the ''openness'' are intriguing thought patterns in a world with ever more inhabitants, ever more need for education, and an ever-growing need for new solutions for societal and environmental issues. But an exaggerated confidence that e.g. self-directed learners follow learning patterns from well-known constellations by themselves or take up a new constellation – albeit on their own – may lead to misunderstandings of the ways in which ''massiveness'' and ''openness'' work for users.

Chauhan, Jyoti. (2017) in her paper 'An Overview of MOOC in India' discusses theoretical and technical background of the platforms available in India. Currently, NPTEL, mooKIT, IITBX, and SWAYAM are the platforms used in India for offering courses. In recent years, the enrolment in Massive Open Online Course (MOOC) has increased tremendously. India after US is dominating the global growth in enrolments. Seeing the growth of enrolment from the country and satisfy their need of education, India has started various projects for offering MOOC courses. There are some challenges that are faced in implementing MOOC in India. With the launch of SWAYAM, some of these issues are already addressed.

Trehan.S, Sanzgiri.J, Li.C, Wang. R, Joshi.RM. (2017) in their paper 'Critical discussions on the Massive Open Online Course (MOOC) in India and China' situates the discourse around
MOOCs from the unique perspectives of India and China with three broad objectives of sharing MOOC development in these countries, conducting a high-level discussion of the potential value of MOOCs for their HE systems and critiquing current issues with MOOC development there. This discussion is timely, since MOOC discourse in the international literature has swung between trumpeting MOOCs as "disruptive" technologies to warning of the "MOOC delusion". We find that the concept and practice of MOOC in India and China are emerging. From the supply side, there is a need to focus on sound design, quality and accessible delivery, multi-lingual facilitation and efficient regulation of MOOC-credits, besides development of critical literacies for MOOCs in learners to realize the potential and promise of the MOOC.

Malik, Sumeet (2015) in his paper 'Indian MOOCs (Massive Open Online Courses): Need of the hour' discusses the concept, features and role that MOOCs can play in Indian context and already existing popularity in terms of participation by Indian students in MOOCs over famous platforms such as Coursera, EdX and Udacity. The participation by Indians has been overwhelming in the major platforms such as Coursera, edX and Udacity. Indian MOOCs may also have subject topics that have not been explored yet, such as Classical Indian Music, Indian History, Yoga, etc. They can also be used to provide high quality education to remote parts with subjects that require intensive graphics and visual illustrations.

Nath.A, Karmakar.A, Karmakar.T (2014) in their paper 'MOOCs Impact in Higher Education Institution: A Pilot Study in Indian Context.' Examined MOOCs methods and its impact on higher education institution. According to authors, following changes are almost unavoidable in Higher educational Institutions (HEI) such as (i) Globalization and the increased momentum for internationalization in HEI, (ii) Worldwide increased demand for access to HEI with a projection that there will be 120 million students worldwide by 2020 which means MOOCs will be one alternative to cater these needs. The time is not very far when MOOCs will be one alternative method for implementing green computing in HEI and giving degrees, diplomas to learners those who are situated in a remote place. There is a lot of scope in India to introduce MOOCs to make more sustainable and financially viable education policy. The reputed universities in India should come forward to start MOOCs in coming years to solve 100% literacy program and also to spread HEI.

3. OBJECTIVES OF THE STUDY:

The following goals are being attempted to be met this study:

- To study the basic conception and features of MOOC programmes in India.

- To know about various MOOCs offered in India.
- To study the advantages and disadvantages of MOOC courses.

4. METHODOLOGY:

The paper uses a qualitative method of literature study. Required information has been gathered from a variety of secondary sources, including articles, books, journals theses, different official websites of the government, and MOOC platforms like SWAYAM, NPTEL, mooKIT, IITBX, etc. The researcher also analysed various literature reviews related to MOOCs published by several academicians, scholars, and researchers to gain a better understanding of the concept.

5. EVOLUTION OF MOOCs:

The term Massive open online course was framed by Dave Cormier, while christening a course developed by Siemens and Downes at the University of Manitoba More than 2,000 students enrolled for the course (massive), and it was delivered using various open and free to use educational resources (open) such as wikis, online forums, Google Docs, YouTube, and Facebook groups As the name suggests, these courses are massive in terms of number and distribution of participants across globe per course, are open access, and available online. The four basic elements of MOOC are defined below:

The meaning of the acronym MOOC is as follow:

- **M is for Massive:** An 'M' in MOOC stands for "Massive" because it attracts tens of thousands of participants per intake. There is no limit to the number of users. A course once designed, can be accessible to a large number of participants.
- **O is for Open:** Open means the course is open to everyone. The course is accessible, available to everyone freely. Thus the "Open" in MOOC means the Course can be accessed by (almost) anyone anywhere at any time as long as they have an internet connection.
- **O is for Online:** The second O in MOOC refers to the fact that the course is delivered over the Internet. This might involve the distribution of video clips and downloadable readings, supplemented by plenary discussions, segregated social media activity, and the occasional synchronous event such as a live chat.
- **C is for Course:** A full course is offered including designing of learning goals; availability of course content; and assessment of learners through quizzes, formative assessment, and summative examination for certification purposes.

Along the evolutionary path, the earliest documented predecessor of MOOC is distance learning, which started in the form of correspondence courses delivered *via* posts in early part of last century and is still prevalent in many parts of the world. Indira Gandhi National Open University is one such example in India. Later, the courses were delivered *via* radio and television broadcasts, in isolation or in conjunction with both classroom and distance education. With the advent of Internet, online or e-learning provided added advantage of synchronous interactions between students and faculty. Advancements in online accessibility has revolutionized the open learning opportunities and promoted acceptance of MOOC. The scope and spectrum of MOOC has been further broadened by the introduction of peer review, peer assessment, and self-assessment in-built into its scheme.

6. NEED OF MOOC IN INDIA:

The unique characteristics of MOOC are free registration, open access to everyone, no prior qualification required, self-pace (Mostly), accessible anytime anywhere and provision of certificate after completions shows the importance of an online learning like MOOC in a huge populated and economically diverse country like India.

In 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. It can be beneficial for those who are bound by financial instability, physical limitations or commuting issues. MOOCs represent a huge opportunity for Indians in terms of an open education revolution. It could potentially give millions access and availability to high quality learning if they have Internet connectivity. First, there are more applicants than slots at top Indian universities. Second, millions of Indians live in poverty and are unable to afford or gain access to a higher education. MOOC can provide the Indian students an edge required to compete in the global market.

7. FEATURES OF MOOCs:

The Key Characteristics of a MOOC are

- **Liberty of choice:** MOOCs allow learners to choose where, when, how, with whom and even what to learn.
- **Diversity:** MOOCs get variety of learners from all corners of the world and promote to diverse thinking & readings.
- **Connectedness:** Through MOOCs, people are constantly interacting with each other and tried to knowledge building.
- **Self - paced:** MOOCs provide the Autonomy to Learners to decide how and when they like to learn the MOOCs contain documents.
- **Lifelong Learning:** Learners improve their lifelong learning skills, as participating in a MOOC.
- **Recognitions and Certificates:** Most MOOCs award some kind of recognition for successful completion of a course, based on a final computer - marked assessment.

8. MOOC PLATFORMS IN INDIA:

Realizing the importance of MOOCs, 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 1 below.

Table 1: MOOCs available in India

Sl.No	Name of the MOOC	Platform providing Institution	Website Link
1	SWAYAM	MHRD and Microsoft	https://swayam.gov.in
2	NPTEL	IITs,IISc	https://onlinecourses.nptel.ac.in
3	mooKIT	IIT Kanpur	https://www.mookit.co
4	IITBombayX	IIT bombay	https://iitbombayx.in
5	IIMBx	IIM Bangalore	https://www.iimbx.edu.in
6	agMOOCs	IIT Kanpur	https://www.agmoocs.in

9. SHORT DESCRIPTION OF MOOCs IN INDIA:

9.1. SWAYAM

SWAYAM Stands for Study Webs of Active Learning for Young Aspiring Minds. It is an India Chapter of Massive Open Online Courses, indigenously developed IT platform, initiated by Government of India, which is instrumental for self-actualization providing opportunities for a life-long learning. It is an integrated MOOCs platform for distance education that is aimed at offering all the courses from school level (Class IX) to post-graduation level. SWAYAM was developed in 2014, collaboratively by MHRD (Ministry of Human Resource Development) and AICTE (All India Council for Technical Education) with the help of Microsoft and is capable of hosting 2,000 courses. The courses on SWAYAM are produced and delivered by AICTE for self-paced. The courses are provided by NPTEL for engineering, UGC for post-graduation education, CEC for under-graduate education, NCERT & NIOS for school education, IGNOU for out of the school students and IIMB for management studies. The courses hosted on SWAYAM are in 4 quadrants – (1) video lecture, (2) specially prepared reading material that can be downloaded/printed (3) self-assessment tests through tests and quizzes and (4) an online discussion forum for clearing the doubts.

9.2. NPTEL

NPTEL is an acronym for National Program on Technology Enhanced Learning which is an initiative by seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science (IISc) for creating online course contents in engineering and science. It is a project funded by the Ministry of Human Resource Development (MHRD) and 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 project was first proposed jointly by five IITs (Bombay, Delhi, Kanpur, Kharagpur and Madras) and IISc for creating contents for 100 courses as web-based supplements and 100 complete video courses, for forty hours of duration per course. The entire portal is powered by Google as part of their continuing partnership with NPTEL. NASSCOM is a partner in the program, and NASSCOM member companies such as TCS and CTS have participated in syllabus and content creation.

9.3. mooKIT

mooKIT is a light-weight MOOC Management System which is conceived, designed and developed at IIT Kanpur to deliver and manage a course online. mooKIT Management System has been built ground up at the Computer Science department at IIT Kanpur with best- of-breed features and state-of-art technology. It has been running since 2012. It provides instructions to learners and the architecture that is highly customizable and cost effective. It has been used in 15 courses with about 100, 000 registered learners.

9.4. IITBX

IITBX is MOOC platform developed by IIT Bombay through significant customization of open edX code base. IITBX platform is an integration of Drupal with Open edX. The courses are offered using Open edX, while Drupal is used to fetch and display courses in various ways. This platform has been created for learners including academicians, students, researchers, professionals, administrative staff, and novice users, including educationally, socially, economically, physically disadvantaged groups or others that seek to transform themselves through cutting-edge technologies, innovative pedagogy, and rigorous courses. The basic aim of IITBX is to become a leading resource for learners through focused goals and principles, thus imparting quality education at scale.

9.5. IIMBx

IIMBx is a MOOC founded on the philosophy that management education has strong potential to transform our educational systems, and that high quality education must be available to all unconstrained by limitations imposed by location, finances or prior educational background. The vision of the IIMBx program is to use digital learning to enable widespread access to management education.
The MOOC led is offered by the faculty at IIM Bangalore, It offers online courses and programs covering core and advanced business and management subjects. Online programmes by IIMBx use technology to enable anytime, anywhere learning in a global classroom.

9.6. agMOOCs

agMOOCs (Agriculture Massive Open Online Courses) is an online course for anyone and everyone interested in agriculture. It is a consortium led by IIT-Kanpur and other members includes, the commonwealth of learning (col), the Indian institute of management-Calcutta (IIMC) and the university of agricultural sciences-Raichur (UASR). It MOOC was developed with the understanding that agriculture is a crucial sector on which India's well-being and is the sector where the need for improved skills is the greatest and most massive. The platform promises thousands of learners to access high-quality agricultural education in a single offering. The platform provides free access to numerous high-quality courses offered online by renowned faculty from the premier institute of the country. One can learn them on their own schedule and receive a certificate as well on completion.

10. IMPORTANCE AND ADVANTAGES OF MOOCs:
- Learner can use any online tool which are relevant for them.
- Learning takes place in a more informal setting, and it can be organized easily.
- The content to be shared can be easily modified based on the context of the target audience.
- Learner can connect across disciplines and corporate/ institutional walls. Learners will improve their lifelong learning skills, by participating in MOOCs.
- Learner doesn't need a degree to follow the MOOCs, only the willingness to learn is important.
- There is no age bar. MOOC is an open course allowing individuals of any age group to join the course.
- MOOC also provides opportunities to many people who could not continue education due to lack of money. Most of the MOOC courses are either free or have nominal costs.
- Enrolment of MOOCs is open to anybody in the World, no fee, no age bar, no credentials needed.

- MOOC can be organized in any language depending on the main language of the target audience within any Country / State; MOOCs are also being used for learning technical subjects (such as Robotics, Programming, etc.)
- MOOC saves on space and costs. Accommodating large number of students in schools and colleges is not feasible

11. BARRIERS AND DISADVANTAGES OF MOOCs:
- It cannot replace the experience of real classroom learning and physical presence of a teacher.
- It cannot provide personalized content and individual attention by the teacher.
- Internet connection is a basic requirement and can be a barrier in remote areas where internet connection is not strong.
- One of the barriers of MOOC courses can be language. Most courses are offered in English. Hence the spread of MOOCs is limited in India
- It is difficult to keep track of students' assignments and involvement.
- There is a chance of plagiarism as MOOCs are web based and there is no monitoring of students
- Interaction with teacher and other students is essential for overall development of personality and development of attitude which is missing under MOOCs.
- MOOCs have very low completion rates as only 5% of enrolled students complete a free MOOC.
- It's boring to be learning by staring into a computer screen. Learning is lonely since one has to do learning by oneself. And the taught rarely get any feedback or encouragement.

12. CONCLUSION:
Online education is very important for a big country like India. MOOCs platform is one of these, with the help of which we can reach education to the last person standing in line. Through MOOCs, we will also be able to reduce the drop-out ratio of students in villages and rural areas. Through MOOCs, education can be made accessible to the villages of India; this one acts as another option for the students to complete their studies.

Though there are number of challenges that needs to be addressed such as internet facility, adoption of this new method by the students and their parents, self-motivation of learners to complete the courses, quality of study material, interactive sessions, etc. If we are able to overcome these challenges then we will be able to reach basic facilities like right to education to everyone no matter he or she lives in urban, semi-urban of lives in a small village of India.

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