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MASSIVE OPEN ONLINE COURSE (MOOC) IN INDIA – ISSUES AND CHALLENGES

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Abstract: *A massive open online course (MOOC) is an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials, such as filmed lectures, readings, and problem sets, many MOOCs provide interactive courses with user forums to support community interactions among students, professors, and teaching assistants (TAs), as well as immediate feedback to quick quizzes and assignments. MOOCs are a recent and widely researched development in distance education, first introduced in 2006 and emerged as a popular mode of learning in 2012. Early MOOCs often emphasized open-access features, such as open licensing of content, structure and learning goals, to promote the reuse and remixing of resources. Some later MOOCs use closed licenses for their course materials while maintaining free access for students. The present paper, the focus is to explore the MOOC in India and issues and challenges.*

Key Worlds*: Open Learning, MOOC, NPTE. SWAYAM, Challenges*

Introduction

Online learning uses technology for delivering the courses. Education with technology is considered as the most promising development in education. With technology globalization, the concept of learning and teaching has undergone a tremendous change. Technological usage in education provides a global learning environment, which allows accessing the course material anytime, anywhere, connect other learners, and get access to the content without considering any geographical boundaries. The significant changes in the use of technology in online education have seen the emergence of the concept of Massive Open Online Course (MOOC).

In recent years, the enrolment in Massive Open Online Course (MOOC) has increased tremendously. 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. Currently, NPTEL, mooKIT, IITBX, and SWAYAM are the platforms used in India for offering courses. In this paper, the theoretical and technical background of these platforms is provided with a discussion of their features. Further, a comparative analysis of the platforms is provided, using web analytics. There are some challenges that are faced in implementing MOOC in India. With the launch of SWAYAM, some of these issues are already addressed.

Nowadays, MOOC is the most popular way used to offer online courses, globally. MOOC is a massive course designed to support unlimited (logically) participation and is offered through a platform. It has gained a lot of popularity since the time of its development in 2008. As of December 2016, approximately 58 million students are registered for the MOOC courses, offered by more than 700 universities and approximately 6850 courses, offered by various providers such as Coursera, edX, Udacity.

India after the US is dominating the global growth in enrollment, accounting for 8,83,400 (27%) users on edX, 1.5 million on Coursera, and 112,000 (13%) on Udacity, from India as in 2016. The massive enrollment is ensuring that the vast majority of the growth in enrollment of learners is occurring from India, and will surely increase in coming years.

In India, the institutes with the organizational capabilities along with the governing authorities are trying to serve the grown educational need of the learners, by offering MOOCs in the country. Maybe the efforts are in the process to grow yet and serve at the rate of growth in demand. Top institutes (IITs, IIMs, and IISC) and authorities (UGC, AICTE, MHRD) have always been involved in the initiative of serving quality education learners in India including traditional as well as the online education. Some of the projects serving currently for providing online education are NPTEL, mooKIT offered by IIT Kanpur, and IITBX of IIT Bombay. The most recent initiative started by the government is "SWAYAM", started with a goal to serve at a very large scale and to cope with the increased needs of the learner's.

Here, the introduction of the Indian MOOC platform is presented by unveiling their potential, the technology used, and features supported. The author has formulated a list of features provided by each of these platforms. Furthermore, based on the data collected from the web, using a tool, the MOOC platforms are compared. Here, various measures are covered for three categories -*1) Website, 2) Website Audience*, and *3) Traffic Sources*. Each category further has subcategories providing a different level of details, for each platform. Also, the author has mentioned some of the challenges to offering MOOC in India and confined the solutions for these issues through the SWAYAM platform.

MOOC in India and Potentiality

MOOC has a huge potential veiled in India. Recent years have seen a tremendous hike in the enrolment by Indian students in MOOCs all over the world. India is among the leading countries in terms of enrolments in courses offered by many popular MOOC providers including edX, Coursera, and Udacity.

India is second to the US, which accounts for 27% with 8,83,400 users of the edX learner base and 1.5 million registered users on Coursera from India, as of December 2016. The growth of the learner enrollment is evident from the fact that the number of learners increased from 11% to 27% in just one year for edX. Also, currently 1.6 million users with 112,000 (19%) from India, are enrolled in Udacity's nano degree (six-ten months) courses including web developer, data analyst, android developer, mobile game developer, etc. Though Udacity offers only paid courses since 2014, it announced scholarships for 500 students from India to pursue its Android nano degree program (priced at Rs.9,800 per month), showing their interest in Indian learners as a market space for MOOC.

Anant Agarwal, CEO, edX, said, "There is a lot of talent in India, but often there are not enough slots for qualified students in colleges, and not enough financial aid ". A study in 2016, reveals that a mere 20% of the country's engineering graduates are readily employable and that over half (53%) of arts, science, and commerce graduates are unfit for employment. So, MOOC is an eminent alternative for the learners in India to have access to higher education and to improve the quality of their education with online learning. Anant Agarwal says "I believe that India ultimately will be a much bigger market for MOOCs than the U.S".

Platforms in India for MOOC

Many initiatives have been taken by the Indian government to provide and support the concept of open education. Initially, the objective was to provide open resources in terms of repositories, libraries, educational media files, e-books, etc. These were made accessible to everybody. Some of the efforts in this direction started as National Digital Repository of IGNOU, Sakshat providing e-content, Shishya for XI-XII Standards by CBSE Board, and Vidya Vahini integrating IT into the curriculum of rural schools by providing interactive training and developmental communication. Most of these initiatives started with establishing a dedicated department to make education reachable to many learners as much as possible. Some of the common names in this path are, Education and Research Network (ERNET) connecting various colleges and schools by providing network connectivity; EDUSAT, a satellite launched for education in India, Consortium for Educational Communication (CEC), use the power of television to act as means of educational knowledge dissemination; Information and Library Network Centre (INFLIBNET) autonomous Inter-University Centre for connecting university libraries, also it has started several other programs. These all

are the initiatives towards open education and education with Information technology still MOOC was out of their reach.

Moreover, the idea of online courses came into play and India started to work for this. In 2013, the government launched e-PG Pathshala run especially for a postgraduate course and it is managed by INFLIBNET of UGC. It is more of a repository of e-content and assessment than a MOOC. Also, two more course providers are Apna Course and myBskool.com, both are run in India. But both of these are being run for profit and clearly, providing open education is not among their motives.

Therefore, the government set off to offer online courses on developing their own platforms. Currently, in India, only a handful of universities and institutes have the facilities to start or support such initiative. Some of these organization and their efforts are as follows:

National Programme on Technology Enhanced Learning (NPTEL)

National Programme on Technology Enhanced Learning (NPTEL) is a project funded by MHRD, initiated 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. Anybody from anywhere can join their course.

MooKIT

MooKIT 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 cMOOC (connectivist MOOC). It has been used in 15 courses with about 100,000 registered learners. 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, mooKIT 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 mooKIT provides – for example, stream only audio and play it in sync with the slides, which is often very close to the video experience. If the bandwidth is still low for that event, the learner can receive a call on the phone and listen to the audio from there using the calling control provided on the interface. This feature is very helpful for learners to belong to rural areas not having a smartphone, laptop, internet connectivity, high bandwidth. They just need a dumb or basic phone. One more special feature of mooKIT is the support of a very powerful analytics interface. Along with the instructor, it also allows the learner to view their course activities, which is not commonly provided in any other platform.

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 is offering 63 courses on different subjects from multiple disciplines.IIT Bombay is implemented as the basic version of the blended learning MOOC with the help of edX organization. Blended learning is a combination of both face-to-face classroom learning and online education methods. This approach is adapted to combine direct supervision in face-to-face learning and academic freedom with self-paced learning using the online courses. Moreover, course completion is not optional but compulsory. This model is named as "Blended Learning - MOOC Model of IIT Bombay (BLMM)". In this system, prime universities from India are offering MOOC courses to Indian local college learners.

Study Webs of Active Learning for Young Aspiring Minds (SWAYAM)

SWAYAM is a MOOC platform MOOC launched by the Ministry of Human Resource Development (MHRD), Government of India, to bind online and offline education together. It is started with an expectation of launching 2,000 courses, to make it largest course catalog, 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. In a talk, Dr. Phatak (IITK) mentioned that the mostly the learner drop out from the course as they find the courses either advance or not suitable to help them in scoring good grades in their university exam. Therefore SWAYAM is a right effort of credits using the course that will definitely 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 catalog in a particular program via SWAYAM.

Currently, SWAYAM offers courses for school, certificate, diploma, undergraduate, and postgraduate. Fig. 4 is showing the home page of SWAYAM portal. The responsibility of delivering courses is assigned to six institutes based on their types, such as NCERT and NIOS for offering school education, IGNOU for out of school learners, CEC for undergraduate education, UGC for post-graduation education, NPTEL for engineering, and IIMB for management studies. Though much of the course content for SWAYAM is the same content that has already been created for NPTEL, which is to be re-purposed for SWAYAM. Also, the content or videos created for this platform will be available on a platform called e-Acharya that already hosts educational video content created by MHRD. So, SWAYAM is promoting the best use of resources, which is already a very costly affair.

Advantages

Improving access to higher education

MOOCs are regarded by many as an important tool to widen access to higher education (HE) for millions of people, including those in the developing world, and ultimately enhance their quality of life. MOOCs may be regarded as contributing to the democratization of HE, not only locally or regionally but globally as well. MOOCs can help democratize content and make knowledge reachable for everyone. Students are able to access complete courses offered by universities all over the world, something previously unattainable. With the availability of affordable technologies, MOOCs increase access to an extraordinary number of courses offered by world-renowned institutions and teachers.

Providing an affordable alternative to formal education

The costs of tertiary education continue to increase because institutions tend to bundle too many services. With MOOCs, some of these services can be transferred to other suitable players in the public or private sector. MOOCs are for large numbers of participants, can be accessed by anyone anywhere as long as they have an Internet connection, are open to everyone without entry qualifications and offer a full/complete course experience online for free.

Sustainable Development Goals

MOOCs can be seen as a form of open education offered for free through online platforms. The (initial) philosophy of MOOCs is to open up quality Higher Education to a wider audience. As such, MOOCs are an important tool to achieve Goal 4 of the 2030 Agenda for Sustainable Development.

Offers a flexible learning schedule

Certain lectures, videos, and tests through MOOCs can be accessed at any time compared to scheduled class times. By allowing learners to complete their coursework in their own time, this provides flexibility to learners based on their own personal schedules.

Online collaboration

The learning environments of MOOCs make it easier for learners across the globe to work together on common goals. Instead of having to physically meet one another, online collaboration creates partnerships among learners. While time zones may have an effect on the hours that learners communicate, projects, assignments, and more can be completed to incorporate the skills and resources that different learners offer no matter where they are located.

Challenges and Criticisms

The MOOC Guide suggests six possible challenges for cMOOCs:

1. Relying on user-generated content can create a chaotic learning environment
2. Digital literacy is necessary to make use of online materials
3. The time and effort required from participants may exceed what students are willing to commit to a free online course
4. Once the course is released, the content will be reshaped and reinterpreted by the massive student body, making the course trajectory difficult for instructors to control
5. Participants must self-regulate and set their own goals
6. Language and translation barriers

These general challenges in effective MOOC development are accompanied by criticism by journalists and academics.

Robert Zemsky (2014) argues that they have passed their peak: "They came; they conquered very little, and now they face substantially diminished prospects." Others have pointed to a backlash arising from the tiny completion rates.

Some dispute that the "territorial" dimensions of MOOCs have received insufficient discussion or data-backed analysis, namely: 1. the true geographical diversity of enrolls in/completes courses; 2. the implications of courses scaling across country borders, and potential difficulties with relevance and knowledge transfer; and 3. the need for territory-specific study of locally relevant issues and needs.

Other features associated with early MOOCs, such as open licensing of content, open structure, and learning goals, and community-centeredness, may not be present in all MOOC projects.

Effects on the structure of higher education were lamented, for example, by Moshe Y. Vardi, who finds an "absence of serious pedagogy in MOOCs", and indeed in all of higher education. He criticized the format of "short, unsophisticated video chunks, interleaved with online quizzes, and accompanied by social networking." An underlying reason is simple cost-cutting pressures, which could hamstring the higher education industry.

The changes predicted from MOOCs generated objections in some quarters. The San Jose State University philosophy faculty wrote in an open letter to Harvard University professor and MOOC teacher Michael Sandel:

Should one-size-fits-all vendor-designed blended courses become the norm, we fear two classes of universities will be created: one, well-funded colleges and universities in which privileged students get their own real professor; the other, financially stressed private and public universities in which students watch a bunch of videotaped lectures.

Cary Nelson, former president of the American Association of University Professors claimed that MOOCs are not a reliable means of supplying credentials,

stating that "It's fine to put lectures online, but this plan only degrades degree programs if it plans to substitute for them." Sandra Schroeder, chair of the Higher Education Program and Policy Council for the American Federation of Teachers expressed concern that "These students are not likely to succeed without the structure of a strong and sequenced academic program."

With a 60% majority, the Amherst College faculty rejected the opportunity to work with edX based on a perceived incompatibility with their seminar-style classes and personalized feedback. Some were concerned about issues such as the "information dispensing" teaching model of lectures followed by exams, the use of multiple-choice exams and peer-grading. The Duke University faculty took a similar stance in the spring of 2013. The effect of MOOCs on second- and third-tier institutions and of creating a professorial "star system" was among other concerns.

At least one alternative to MOOCs has advocates: Distributed open collaborative courses (DOCC) challenge the roles of the instructor, hierarchy, money, and massiveness. DOCC recognizes that the pursuit of knowledge may be achieved better by not using a centralized singular syllabus, which expertise is distributed throughout all the participants and does not just reside with one or two individuals.

Another alternative to MOOCs is the Self-Paced Online Course (SPOC) which provides a high degree of flexibility. Students can decide on their own pace and with which session they would like to begin their studies. According to a report by Class Central founder Dhawal Shah, more than 800 self-paced courses have been available in 2015.

Although the purpose of MOOCs is ultimately to educate more people, recent criticisms include accessibility and a Westernized curriculum that lead to a failure to reach the same audiences marginalized by traditional methods.

MOOCs have been criticized for a perceived lack of academic rigor as well as the monetization strategies adopted by providers. In *MOOCs: A University Qualification in 24 Hours?* Michael Shea writes "By offering courses that are near-impossible to fail and charging upfront fees for worthless certificates, Coursera is simply running a high-tech version of the kind of scams that have been run by correspondence colleges for decades."

Conclusion

The language of instruction is one of the major barriers that ELLs face in MOOCs. In recent estimates, almost 75% of MOOC courses are presented in the English language, however, native English speakers are a minority among the world's population. This issue is mediated by the increasing popularity of English as a global language and therefore has more second language speakers than any other language in the world. This barrier has encouraged content developers and other MOOC stakeholders to develop content

in other popular languages to increase MOOC access. However, research studies show that some ELLs prefer to take MOOCs in English, despite the language challenges, as it promotes their goals of Economic, Social, and Geographic mobility. This emphasizes the need to not only provide MOOC content in other languages but also to develop English language interventions for ELLs who participate in English MOOCs.

Areas that ELLs particularly struggle within English MOOCs include MOOC content without corresponding visual supporting materials (e.g., an instructor narrating instruction without text support in the background), or their hesitation to participate in MOOC discussion forums. Active participation in MOOC discussion forums has been found to improve student's grades, their engagement, and leads to lower dropout rates, however, ELLs are more likely to be spectators than active contributors in discussion forums.

Researching studies show a "complex mix of effective, socio-cultural, and educational factors" that are inhibitors to their active participation in discussion forums. As expected, English as the language of communication poses both linguistic and cultural challenges for ELLs, and they may not be confident in their English language communication abilities. Discussion forums may also be an uncomfortable means of communication especially for ELLs from Confucian cultures, where disagreement and arguing one's points are often viewed as confrontational, and harmony is promoted. Therefore, while ELLs may be perceived as being uninterested in participating, research studies show that they do not show the same hesitation in face to face discourse. Finally, ELLs may come from high power distance cultures, where teachers are regarded as authority figures, and the culture of back and forth conversations between teachers and students are not a cultural norm As a result, discussion forums with active participation from the instructors may cause discomfort and prevent participation for students from such cultures.

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