MOOC: A TRENCHANT TECHNOLOGICAL TOOL FOR QUENCHING THE QUEST OF LEARNING OF MASSES

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Received: June 24, 2018  Accepted: August 04, 2018

ABSTRACT
21st century is the eyewitness of transforming world globally in terms of not only in technology and innovations but also has brought great revolutions in the field of Education. MOOC is one the revolutionary step bringing milestones in teaching learning process. MOOCs stand for Massive Open Online Courses (MOOCs). MOOC provide online courses aimed at unlimited participation of the learning community via web or internet with no formal entry requirement and offering open access which is free of charges and do not earn credits. MOOCs promotes peer to peer learning in discussion forums, using nudge email communications to influence retention, and to provide methods for faculty to structure the pedagogical, technological and strategical aspects of the teaching-learning process. MOOCs is broadening its horizon in higher education. MOOCs have brought together thousands of people from different geographies and demographic backgrounds but still there are lot of barriers, challenges and issues regarding its effective implementation. This paper will focus on the issues and challenges faced while implementation of MOOC along with some Pedagogical and technological methodologies adopted and some research trends for its successful implementation.

Keywords: MOOC (Massive Open Online Learning Courses), Higher Education.

Introduction
MOOC (Massive Open Online Courses) is gaining momentum and attention at global level and becoming more popularize in comparison to the traditional classroom teaching learning process. David Wiley can be credited as an author of the first conceptual MOOC (at Utah State University) in August 2007. MOOC is a platform which provides free to access, cutting edge courses, reduce the cost of education at university-level education and challenging the existing traditional models of higher education. This has encouraged elite universities to put their courses online by setting up open learning platforms, such as edX. New commercial start-ups such as Coursera and Udacity etc. have also been launched in collaboration with prestigious universities, which offer online courses either free or by charging a small fee for certification. Larger corporations such as Pearson and Google are also planning to move into the Higher Education sector as global players and are likely to adopt a MOOC-based approach as a part of their plans.

Indian higher Education is no less than behind the foreign education in the field of providing online course at Massive Level. India is considered to be the second most dominating country after United States at global growth in enrolments. Initially the objective for launching MOOC courses was to offer open resources in the form of e-books, educational media files, library and responsibilities. IGNOU made a milestones in this direction by starting National Digital depository in the form of ‘Sakshat’ offering e-content, then CBSE launched ‘Shishya’ for Senior Secondary standards and ‘Vidya Vahini’ integrated I.T in to the Curriculum for schools located in rural areas. They started providing interactive training and Developmental communication. They established Education and Research Network departments (ERNET) so that different colleges and schools may interact by Network Connectivity. Similarly Edusat Satellite launched in Indian to spread Consortium for Education Communication (CEC). Presently NPTEL (National Programme on Technology Enhanced Learning) 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 online course in computer science; electrical, mechanical, and ocean engineering; management; humanities; music etc. It offers free course with nominal fees for certification. Anybody from anywhere can join their course.

Moolkit, IITBX and SWAYAM are some of the other milestones which lay down the foundations for offering online courses in India. SWAYAM is one of the Indian Government initiations to affect courses at massive level for quality enhancement and to make education easy and accessible to all. It stands for ‘Stands Webs of Active Learning for young Aspiring Minds. It is now most widely recognized MOOC platform launched by MHRD (Ministry of Human Resource Development), Government of India, so that both online and offline
education can be brought together. India accounts for 8, 83,400 (27 %) users on edX, 1.5 million on Coursera, and 112,000 (13%) on Udacity. Now It can be easily answered, that why MOOC are gaining popularity so rapidly just by having some comparison of it with other online courses. MOOC employs a technological design that helps in dissemination of the activity of participants through one or more platforms. They are more open and have more ease of free access for massive participation. It is also equipped with a communication tools (including the use of social networks) utilized for designing and approaching the programmes to the participants. Other online courses use an e-learning platform (LMS) with a set number of functions and structure designed for interaction with lecturers which is limited for a specialized group and demands for a registration fee. In such online e-learning courses communication occurs in the forms of debate forums. Such courses suits for only evaluation and accreditation purpose.

Characteristics and Features of a MOOC are as follows:

- **Autonomy:** The structure is conceived to promote autonomous learning with a number of resources in the form of videos, links, documents, etc. and spaces for debate and communication.
- **Massive:** The number of places on courses is unlimited, the scope is global and the courses are aimed at people with different interests and aspirations.
- **On line:** To take these courses all you need is a computer, Smartphone or tablet with internet connections and the use of a global web server (most platforms offer free apps). One can learn at home conveniently, flexibly and at his own pace.
- **Open and Free:** The course materials are available on internet and are all completely free (except some courses) but the assessments submission is possible only after buying a certificate.

Some other Major Characteristics of MOOCs are as follows:

- They don’t enforce prerequisites.
- They are better suited for highly self-motivated learners.
- A web-based class environment aimed at large-scale global participation and open access via the Web.
- Multimedia text books are available for Web-based distance education.
- They allow flexible learning style where students can pick and choose which classes they take, and when and where they do their work.
- It is highly flexible, low cost and reduces the teachers’ need. MOOCs allow faculty to choose with whom to reach their courses, even across institutional boundaries.
- Access to high-quality materials and expositions.
- Rapid feedback to students via auto-grading, to maximize the leverage of the scarce resource – the instructor time.
- Foster learning activities as discussion based learning and open-ended design projects.
- Students are active auditors who use MOOCs like streaming, on-demand, educational TV shows, delivered by inspiring teachers.
- MOOC is well suited for Computer Science, Business, Mathematics, and unsuited for Chemistry, Biology, Physics, Architecture or Medicine.
- Massive open online course offers opportunity to dropout students and helps in scale down the dropout rate of the students. With the help of MOOC they can continue their courses from the medium of class forums, video lectures, video conferences etc. and these interactions correlate with achievement. We explore the strong correlation between procrastination and achievement and implications for MOOC design.
- Open Educational Resources (OET) provide a strategic opportunity to improve the quality of education as well facilitate policy dialogue, knowledge sharing and capacity building.

Some Emergent forms of MOOC-type courses

There are emergent new MOOC – type forms being explored, spawning new acronyms. Some of these are:

- **OBC:** Open Boundary Course – formally enrolled students as well as outsiders study the course together – although with different levels of educational support
- **SPOC:** Small Private Online Course
- **MOC:** Massive Online Course
- **Wrapped MOOC:** A MOOC that is adapted for paying students or included as part of an existing course for enrolled students
MOOCs Stakeholders

All of the players in the MOOC game—MOOC providers, university administrators, faculty members, authors and publishers, curators, academic senates, foundations, the general public, policy makers, enterprises and most important of all students are the main stakeholders in MOOC research.

Methodological Approaches:

As MOOC is still in its infancy stage, there is still a lot of researches is yet to be done in this regard. The major pedagogical and technological approaches used in MOOCs are as discussed below:

A. Pedagogical Aspects: The studies carried out to date from a technological perspective have focused mainly on desk research (Reich, 2015), as we have seen in the evolution of MOOCs' pedagogical design. There are, however, also a significant number of experimental research studies dealing with the evaluation of pedagogical strategies and, in particular, with student motivation and engagement (Sangra et al., 2015). Motivation has already been identified by Milligan, Littlejohn & Margaryan (2013) as a variable that contributes to increasing students' participation and success. Contributions in this area have come from several authors, including Cheng (2014), who deals with the emotional competence of students on a MOOC, Veletsianos (2013), on learning experiences with MOOCs, and Castaño, Maiz & Garay (2015b) on students' learning perspectives. Other research examples include those by Anderson & Ponti (2014) on instructional strategies, on co-creation of content and participatory pedagogy. Lastly, studies into students' engagement with the MOOC in question, types of student, participation and dropout rates are also often covered. Basically two MOOC have been adopting two types of knowledge transmission model like xMOOCs and cMOOCs. X-MOOCs stand for eXtended MOOC, based on a traditional classroom structure. They are a combination of a video (pre-recorded) with quizzes, tests or other assessments. x-Moocs are centre around an educator or professor/instructor rather than community of students. Actually they are more inferior to c-MOOCs. They do not emphasize on teacher students interaction eg. Edx, Coursera, Udacity.

On the other side c-MOOCs are more popularized by the Stephen Dowens in 2008. It emphasize on involvement of groups of people learning together rather than then the content delivered by individual instructor. cMOOC stands for ‘Connectivism’. These online courses are based on the learning theory of connectives. It emphasized on the power of networking with other individuals as it is based on the theme of that learning happens within a network, where learning platform such as blogs, wikis, and social Medias make connections with the learning communities and other learners to create and construct knowledge. The participant's play dual role of both teachers as well as of learner as they share information with each other. The learning content is continually upgraded and generated by the online community and shared with others in open masses. George Seimens differentiate between x-MOOC and c-MOOC by saying that c-MOOC focus on Knowledge creation while x-MOOC on Knowledge duplication.

B. Technological Aspects: MOOCs offer students collaborative spaces to interact and strengthen their work with the support of a wide range of tools, from traditional forums to the use of their own Web 2.0 social media and Facebook groups. The use of new tools has become essential to be able to apply the
learning analytics to measure, compile, analyze and present the students’ data as well as that from their contexts, with the purpose of understanding and optimizing learning and the environments in which it is produced (Ferguson, 2012). New research projects that propose a technological framework in which to integrate xMOOC and cMOOC learning strategies, which have the capacity to adapt and manage the generated knowledge both in the formal and informal learning arena (Fidalgo, Seín-Echalué & García Peñalvo, 2015), show the direction in which these new studies are going. Advances in knowledge and awareness of MOOCs means that richer methodological designs will be needed, which will enable more attention to be paid to the causal factors that promote students’ learning (Reich, 2015). Effective communication with students is very important and the emphasis should be on interaction, sharing and generation of knowledge among participants. It is therefore advisable to include spaces to facilitate and promote that communication, which could be centered on forums on the same platform or distributed through social media such as blogs, hangouts, and so on. The communication tools to facilitate student-student and student-teacher relations are: Electronic mails (E-mails), Forums: (most used communication tool in a MOOC, Hangouts on Air, YouTube Live (allows video conferences, video chats and web conferences) Social networks (Blogs Twitter and Face book where learners can exchange ideas and interact with other learners and instructors can also interact with them).

C. Strategic Aspects:
The strategic aspects are related to academic institutions' interest in MOOCs as a contribution to meet the demands of formal education. To this effect, Yuan & Powell (2013) pointed out that it might be a mistake to consider MOOCs as an isolated development on which to make strategic decisions, as they form part of a wider landscape of changes in higher education, so that improvement in education, innovation and new pedagogical practices can be enhanced. Research on MOOCs initially focused on replacing classroom hours (as specified in the curriculum) with online classes by means of MOOCs (Vihavainen, Luukkainen & Kurhila, 2013), the main current trend is to complement the curriculum in different ways with MOOCs.

ISSUES AND CHALLENGES FOR PROVIDING MOOC COURSES
Over recent years there has been a significant change in societal adoption of Internet technologies with extensive proliferation and use in more economically developed countries. However, in terms of the proliferation of MOOCs as an educational approach, there is a risk that the current enthusiasm is being driven by a self selecting group of highly educated, IT literate individuals who are able to navigate the sometimes complex, confusing and intimidating nature of online learning. However, in both cases, there is the challenge of finding a viable model that allows for sustainability of MOOC provision. MOOCs are used now as a supplement to classroom teaching or as a replacement for it? Can they destroy universities? It is a big issue that how these courses are actually being used i.e. what pedagogy and quality of content of MOOC courses will be used as they: Increase instructor leverage, student throughput, student’s mastery, and student engagement. It is also a big concern about the suitability of the learner that whether these courses are also good for Ph.D and M.Sc students to improve their learning process. Another concern about the successful implementation of MOOC is ‘it’s Duration’ of the courses. Whether the duration of the courses should be of 8-15 min via video lecture clips (like YouTube) or be the 8 weeks instead of 15. Besides these, MOOC-based learning research has to face some other barriers in its proper implementation. These barriers may be technological, legal, business-related, cultural, and organizational. These issues generate several major challenges in the proper and successful implementation of MOOC. Some barriers creating challenges are as follows:

1. It is difficult to manage a huge Data base of MOOC, which is quite against the definition of a MOOC i.e. ‘easy accesses to the ‘learning experience’.
2. The process of registering for a course is a lengthy process.
3. There is a legal and ethical issue which stands as a challenge in the success of MOOC as there is chance of violation of capturing information subject to student privacy laws and it is unclear how these laws might apply to a non-matriculated student taking a free course. Institutions and MOOC providers are understandably wary of transgressing the rules.
4. MOOC audiences are heterogeneous while access is universal.
5. Institutional rules may inhibit MOOC-related research (necessarily away from the requirement of IRB i.e. Institutional Review Board approval). Therefore, data related to MOOCs usually comes from third parties, may be an issue.
6. The ownership of data may also be a problem. Who owns the data? Could there be any restrictions on the publication of results that make use of those data? While Coursera and other MOOC providers have
a very strong interest in making data available and having research performed on MOOC effectiveness and improvement, there are some potentially competing issues over data ownership.

7. Evaluation procedure still requires more technically sound procedures and tools to properly assess their progress. Therefore, learner should be involved in the peer grading of exams, group forums and personalized feedback, diversity of fast assignments: interactive quiz questions, multiple-answer tests, programming assignments, example running, essays, and final exams.

8. Publication of MOOC-related research does not pay more attention towards the general academic recognition standards and to receive promotion and tenure credit for one’s work.

9. There is no coordinating body for MOOC-related research that could identify research questions, serve as a clearing house for research activities and the dissemination of results, track replication of findings, work with foundations on their particular goals for research, convene meetings of researchers (or even hold conferences), establish Internet forums and discussion groups, and perform many other coordinating functions.

10. There are some myths about MOOCs regarding lower costs by hiring faculty and teaching assistants, thus sacrificing educational quality.

11. MOOCs may face a failure, because of many aspects followed in the traditional classes, such as small-group discussions and face-to-face time with instructors, do not work in the MOOC format.

12. MOOCs distract faculty who should be focusing on improving their on-campus pedagogy.

13. MOOCs will reduce diversity in instructors and teaching approaches, as economics will favor a “winner takes all” scenario in which one specific MOOC will dominate each course.

14. Simulation-based educational software designing and development (keeping in view the personalized teaching systems) is itself is a great issue.

15. Some other barriers included in the proper and effective implementation of the MOOCs are cultural tensions regarding MOOC pedagogies, resources, learning environments;

16. Sustainability of MOOC is a big issue as well as a difficult challenge to tackle due to some common approaches to generate revenue like charging heavy fees from students for certificates of participation and preparing relevant transcripts to cater the needs of learner.

17. It would be also against the initial ideals of MOOCs if Universities started to charge tuition fees for their courses. Therefore, many institutions participating in MOOCs consider the courses they offer to be a branding and marketing activity at present.

Conclusion
MOOCs are a continuation of the trends in innovation, experimentation and the use of technology, initiated by distance and online learning to provide learning opportunities for a large numbers of learners. There is still a lot of research and work is yet to be done in order to meet the requirement of rapidly changing world and to cater the needs of learners of this technological era. MOOCs provide enough opportunities to the learner to choose the courses according to his interest which is free from classroom boundations. It provides opportunities for optimum use of resources whether the expert educators or the new innovative courses keeping in view the pedagogical principles as the main source.

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