An Investigation into the key ingredients of Massive Open Online Course

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ABSTRACT

Due to the spread of the novel Coronavirus (COVID-19), many places around the world were facing partial or complete lockdowns Education sector was affected badly due to these lockdowns. To continue with the classes and to provide education to students without break Higher Educational Institutions (HEIs) started adapting the virtual platform to teach. One of these virtual learning mediums to teach and reach students is massive open online courses. Many of the universities adapted MOOCS for mainly two reasons: to increase the visibility of the institution in offering virtual educational opportunities to anyone who wants to participate; secondly, to drive student recruitment around the globe (Allen & Seaman 2014). As the MOOC has emerged as a wave and all institutions have started taking initiatives to develop their course, in the present paper author investigates what all major ingredients are used to make MOOC from scratch. The author after reviewing various literature came across three basic components viz. physical, educational, and evaluative. The majority of instructors make use of these ingredients to make their course successful and worthwhile. These ingredients are wide and open-ended. It means liberty is in hands of the instructors to choose what all to adopt and in how much proportion.

KEYWORDS- *Massive open online course, video lessons, assessment, discussion forum, instructor's role.*

INTRODUCTION

Due to the spread of the novel Coronavirus (COVID-19), many places around the world were facing partial or complete lockdown and education sector was affected badly due to these lockdowns. To continue with the classes and to provide education to students without break Higher Educational Institutions (HEIs) started adapting the virtual platform to teach. One of these virtual learning mediums to teach and reach students is massive open online courses. They are the new revolution that has changed the mode of education in the world. They are called 'massive', to the number of registered students, and 'open', because the course content is free of charge. They can be accessed online and they are courses since they have a specific structure with a definite material to be studied (Siemens, 2013).

MOOC, as the name suggests, is an online course that has enrollment in huge numbers and is conducted online on different platforms. Such courses are open for all irrespective of gender case age and location. Such courses receive an enormous response from students. MOOCs help students to form a community wherein students of all countries take part and share their learning. With MOOC the learning is now not only enclosed in four walls of a classroom. MOOCs are also famous because they provide us with a high-quality education from

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renowned institutions around the globe for free. According to a report by class central, by the end of 2020, 16.3K MOOCs were to be announced or launched by around 950 universities worldwide. In 2020 alone, around 2.8K courses were added(Shah, 2020). The ongoing pandemic has increased interest in online education. MOOC providers, in particular, have all seen drastic growth, which reminds of the year 2012 which was called the year of the MOOC by the New York Times.

HISTORY

Massive open online courses laid its foundation on 2008. George Siemens, Stephen Downes, and David Cormier first started MOOC and it was called connectivism and connective knowledge MOOC. Although the term MOOC was coined by David cornier. The basic principle that is involved in MOOC is learning is a process and not a product that involves making connections and knowledge is the network here. In 2011, Sebastian Thrun and Peter Norvig from Stanford started an online course on the subject of Artificial Intelligence. They decided to invite anybody who wanted to learn. And to their surprise, they got an enormous response of around 1.7 lakh students. In April 2012 Daphne Koller and Andrew Ng, both Stanford colleagues involved in the Stanford MOOCs, started Coursera. In May, Harvard and MIT joined together to create the EdX platform. After that many Indian universities started taking initiatives in MOOC. As the MOOC has emerged as a wave and all institutions have started taking initiatives to develop their course in the present paper author investigates major component and their constituents that are used to make MOOC effective and attract learners. A successful online course includes a wide variety of online resources, video, audio materials, etc. Teachers should include also make use ofweb 2.0technologies and make a community of students who benefit the most from online learning. Most universities start MOOCS for two main reasons: first of all, to increase the visibility of the institution in offering virtual educational opportunities to anyone who wants to participate; secondly, to drive student recruitment around the globe (Allen & Seaman 2014). According to a study conducted by Pilli et al., (2018), accessibility, lifelong learning, and brand extensions are some of the strengths of MOOCs, whereas dropout rates, poor pedagogy, and low-quality assessments are major barriers to their effectiveness. Alternative education and collaborative learning are some of the outstanding opportunities MOOCs present, which worth the efforts to create more democratic and innovative higher education. Results indicated that it is worth exploring the ways to improve the completion rates, weak pedagogical structure, degree provision, quality insurance, and assessment as well as to discover the needs of a new generation in online learning.

CLASSIFICATION OF MOOCS

MOOCs can be classified as xMOOC and cMOOCs based upon the learning theory they follow. cMOOCs are broadly referred to as connectivist MOOCs or sometimes as Canadian MOOCs. Canadian researchers George Siemens, Stephen Downes, and Dave Cormier were Canadian and gave the concept of cMOOCs based upon the theory of connectivism. According to this theory, learning does not necessarily mean a transfer from student to teacher and does not occur in a single environment but proposed that knowledge is transferred through interactions with people in a web environment(kop,2011). In cMOOC,

individuals are responsible for their learning.xMOOCs are teacher-led MOOCs where in instructor provides video presentations to teach the course while each student follows their coursework at their learning speed (Mangelsdorf, 2012). Coursera, edX, Udacity, Udemy, Khan Academy, and Venture Lab are some examples of xMOOC. Students can take the course they wish to learn, watch lectures complete assignments participate in discussion forums, and go towards automatic grading assessments.

ENROLLMENTS IN MOOC

From many studies done in the past, it has been found that students enroll in MOOC for various reasons. Some students find MOOCs interesting and enroll to satisfy their learning craves. Students also enroll in MOOCs to gain certificates and get recognition or credit. It has also been found by some research that students enroll in the course to make social connections with other students. Students also enroll in MOOCs out of curiosity. MOOC help professional who is in a job to prepare for future job opportunities.

INGREDIENTS OF MOOC

Making a MOOC is a long process and a lot of effort and time is required. In this paper, the author after reviewing various literature and attending various online courses came across three basic components viz. physical, education, and evaluative that make online courses effective and operative.

Components	Ingredients
1. Physical	Choosing the right platform
	Title
	Description of the course
	Introductory video
	Welcome email
	Announcement
2. Educational	Video lessons
	Discussion forums
	Assessment
	Additional resources and activities
3. Evaluation	Proctored exams
	Feedback for the course
	Certificates and badges

Table-Key Ingredients of MOOC

All three components contain various ingredients that are open-ended and wide. It means liberty is in hands of the instructors to choose what all to adopt and what all to keep aside. The majority of instructors use all the below ingredients to make their course successful and

worthwhile. Having attended many MOOCs the author found that three basic components are there in MOOC which include different ingredients in it. The three phases are as follows

1. Physical components

Before a house is made the architect gives a blueprint of the house. Similarly, before a course begins the instructor need to prepare a blueprint. A solid blueprint will result in a long-lasting and effective course. Physical components are like the blueprint of the course. In the physical components, the various parts are

A. Choosing a platform

There are various platforms in the market in which some are free and some are paid. Instructors can based on their budget can choose a platform. Udemy, Audacity, Swayam, Coursera, EDx,Future learn, Learn dash are some platforms where instructors can develop a course. Learning management systems like google classroom, Schoology, Moodle, etc can also be used to prepare a MOOC

B. Title of the course

As an instructor, you have the freedom to select the topic of the course which can be appealing and catchy. This enables learners to join the course and create enthusiasm in them. Titles should be such which attracts the learners. It should be specific to the topic or course the instructor is interested in teaching.

C. Description

The description of the content should include all the details of the course. It mainly consists of the start and end date of the course. It should include the basics of the course like the course fees and the features in the course. Some courses also include the learning outcomes of the course and the course syllabus. The prerequisites of the course can also be mentioned whether it is for beginners or some skills are required to enter the course. It can also include the description of the course assessment and information of the proctored exam is taken. It can also include whether the certificate will be given at no cost or not. Description of the course can include registration requirements like educational qualification essential for the course. If the course is master's level then a bachelor's degree is a prerequisite etc. Some course is open to all and students use it just for learning and knowledge transfer.

D. Introductory video

When is course is being launched the instructors need to make a course video that will introduce the learner about the course and why the course will be beneficial to them. The course video can give a brief introduction to the instructors of the course.

E. Welcome email

When the students enter a course, they should feel welcoming and part of the course. The platform can send a welcome email to the registered learners before the course begins and welcome them to the community of online learners. This can result in motivation for learners to enroll in the course.

F. Announcement

As an instructor when you make a course you want to keep students updated about the course and keep them reminding about the course start date so that they don't miss any part. In this part, the announcement section is very important. This can be as an email or a chat platform or just a notification on their mobile from their MOOC platform.

2. Educational components

In this part of the course generally, the instructors include everything related to the course content or the topic which has been selected to make the MOOC. The instructor begins beth video lessons, adds some formative assessment to it, some games, activities, and additional resources for students self-learning. Students also come across a forum called discussion forum where student's and teachers' student interaction takes place. Let's looks into each component in detail;

A. Video lessons

The instructors prepare video lessons for the learners to understand the content. The videos are considered key components of the MOOC. Generally, instructors make use of 4 different types of video which include :

- Talking head video
- Live-action video
- Screen capture video
- Keynote or PowerPoint presentation video
- Open source videos

Students watch video lessons of the course to understand the content of the course. Videos sometimes also contain transcripts and activities in between. Students also have the facility of taking down notes while pausing the videos. Students can also download the videos and watch them later. According to Chauhan, et al.,(2015), video provides self-regulated and independent learning. It has transformed the traditional classrooms by replacing the "one-size-fits-all" approach with self-paced learning, and from curriculum/teacher-centric to student-centric learning. Duration and quality of the video are also important while making a video. According to an empirical study conducted by Guo, et.al.,(2014), shorter videos are with instructors talking heads are more engaging. High-class prerecorded videos are not engaging when chopped for a MOOC. Videos wherein instructors speak with enthusiasm and fast are more engaging.

B. Discussion forums

A discussion forum is an electronic space in MOOC wherein students discuss their experiences with each other. It is also a platform where students can learn from each other as well from others experiences. It's a space to share knowledge and also transfer. In discussion forums, students get an opportunity to start their threads or take part in a thread already created by the instructor or the other learners. The threads are the medium for the instructors to know where the students are facing challenges what where the course needs to be improvised. Accordingto Persell (2004), as cited in Xia, etal.,(2013) the roles played by instructors and students in discussion forums can be categorized in this way.

- Starters: who ask questions, raising issues, and reflecting on teaching materials
- Responders: answering questions, posting new questions
- Facilitators: tutoring, introducing new learning sources, administrating

Hence, discussion forum helps the learners to initiate ideas, share content and collaborate with others. It gives a platform for the learners to play wide variety of roles.

Instructor roles in discussion forums

- Host: creating and managing the discussion forum

- Connector: connecting different threads, sources, students for synthesizing purpose

- Mirror: reflecting students' thoughts and raising questions.

- Technical supporter: technically supporting students to use online tools and resources

- Evaluator: assessing students' performance in a discussion forum

Hence students and instructors both play an important role in managing and functioning a successful forum. Onyema etal.,(2019) conducted a study on online discussion forums as a tool for interactive learning and communication. The study suggested prompt or timely feedback by teachers and administrators of online discussion forums. Grading of participation of students in online discussion forums and formulation of policies regarding the usage of the online discussion forum in schools.

C. Assessment

Assessment is an important component of MOOC. Platforms provide a variety of assessment facilities for students to check to assess their learning. It also helps other peers to take part in the evaluation process by making use of peer evaluation. Both formative and summative types of assessment are s used in MOOC. The basic types of assessment found are.

Automatic graded weekly quizzes- most of them are multiple-choice questions testing the content knowledge of the course content. Such a method provides a good chance to assess any topic that you are not sure about.

Peer assessment – Open-ended questions are difficult for automatic grading; in such case a certain set of the rubric is given by the instructors to the learners to assess their peers. The rubrics guide student on how to add or subtract marks and evaluate an answer.

Self-assessment- MOOCs provide students with an opportunity to assess themselves while learning and to understand their strengths and weaknesses. Self-assessment was argued to be the most suitable assessment method to correspond to the needs of these self-regulated learners and a potential solution to the high attrition rates and the patriotic grading bias during peer-assessment. (Ventista,2018).

Falchikov (2007) argued that assessment, rather than teaching, has a major influence on students' learning. The paper argued in favor of the self-assessment as to the most effective and appropriate method of formative assessment when open-ended questions and essays in MOOCs are concerned.

D. Additional resources & activities

MOOC provides students with additional resources where students can learn extra about their course content. the resources include worksheets, exercises, quizzes, resource lists, e-books, pdfs, and handouts. Some instructs also allow students to download the PowerPoint presentation handouts for future references. Such supplementary materials help students to dive in through a variety of resources on a specific content topic and it also helps them to filter out the useful resources available on the internet which is authentic and valid for the course. Instructors should create materials that help students to apply what they are learning. The material should support and reinforce the video lessons. Always save the handouts, ebooks in pdf format for easy accessibility to the students. MOOCs also incorporate games-based learning and many researchers in past have shown the benefits of using games in education.

3. Evaluation components

As the course comes to an end the instructors come up with a survey to evaluate self on the platform used for the learning. To make the next lesson more engaging and resourceful a feedback at the end of the course is a must. This helps the instructors to find the strengths and weaknesses of the course. Following three are the basic ingredients of evaluative components

A. Proctored final exam

To secure a certificate student need to undergo a final exam which is mostly multiple-choice questions and objective types. Here the instructors make use of a webcam to keep a keen view on the student so that they don't use other materials and online resources while answering questions. Outsourcing is frequently employed in such kinds of exams by the institution or the instructors who develop the course.

B. Feedback

Learners should be allowed to evaluate the course to provide a more effective means of improving the course. This can be done in the form of small survey, interview or group discussions at the end of the course. Surveys can be given out at the end for the students to rate the course components. Instructors can, then, improve their course based upon their learner's feedback and reflect upon their journey as course instructors.

C. Certification and badges

Institution or instructors can create their certifications which students can then use to claim credits at other educational institutes. Kopp etal., (2017) stated that awarding certificates does have an impact on MOOC learners. As all students do not enroll to complete the course, some students only complete one or two units of course. So it becomes important to recognize their learning and so digital badges come into pictures which are given for successful completion of some parts of the course. So nowadays most MOOCs are offer badges for completing either the entire course, of each unit or a week of work. Some MOOCS like swayam and Courser a offer proctored exams for a fee, which will involve the earning of a certificate. MOOCs provide a statement of accomplishment for successful students, but here no college credits are associated with this type of certificate. Although Certificates are provided for free some charge fees to get a verified certificate which can help in employability. Students can pay for the fees to show off skills on a resume or portfolio, ensure authenticity and value and sometimes gain possible access to additional services by paying.

CONCLUSION

Massive open online courses provide students around the world to enroll and gain knowledge irrespective of age and geographical border. Students get options to choose from a variety of courses and get themselves enrolled in courses from well-known institutions. For instructors to gain maximum learners in their course they need to keep themselves updated with all the above components and make their course enriching. Many learners join MOOCs for fun some out of curiosity and some to upgrade their knowledge so a so it is important for the instructors to provide a variety of learning experiences according to the needs of the learners. Moreover, if instructors of the course will understand what are the essential course component, it will be helping themselves to succeed in their online course development. Every year thousands of students enroll for MOOC out of which many continue the course and many also drop out from the course. Those students who enroll in the course get to benefit a lot. Students get an opportunity to join an online community of students which is diverse and large. They come across a variety of resources online recommended by instructors around the world and become an expert with upgraded knowledge about the course content. Sometimes before enrolling in a university, getting to study that course online will help students know more about the course and how passionate they are about it. From learning how to bake a cake to how to be confident on-screen while making videos the world of MOOC is full of variety and resources. MOOC are also available on mobile and students can learn anything from anywhere around the world. Enrolling in MOOC makes learners part of the whole world. Learners get an opportunity to be part of something global and wide.

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