Exploring the MOOC model of Online Education in light of COVID-19 Pandemic: An enquiry

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Abstract

In the present era when the world is trying to recover from the COVID-19 pandemic through preventive measures like social distancing, taking greater care of personal and oral hygiene and so on, professionals are required to work from home. There has been a very pronounced shift in the way educational contents are to be delivered across educational institutions owing to the suspension of normal classes and uncertainty is prevailing over the period when normal classes will resume again. Given this scenario, educators are entrusted with the responsibility of working from home and ensuring effective online delivery of contents to students through available digital teaching platforms. In this context, we try to look into the potential of MOOCs as a new mode of education which has further gained importance owing to the current suspension of conventional classes across all institutions globally. The present paper seeks to analyze the impact, potential and challenges associated with MOOCs in the present era of online education in the wake of the pandemic COVID-19.

Keywords: MOOCs; Online Learning; Online Education; Digital Education; Educational Content; Educational Delivery;

1. Introduction

The rapid advances in the fields of digital technologies have ensured that the growth rate in the digital world is surpassing all expectations and the world is indeed relying upon data and digital technologies more than ever before (Gantz, J., & Reinsel, D. 2012; Knox J. 2019; Boyd et. al. 2017; Jarrahi et. al. 2019). Platforms like YouTube,

Facebook, Twitter and Instagram are increasing in terms of the number of users and frequency of usage at exponentially high rates and the trend is set to continue in the future. The rate at which digital expansion has taken place has surpassed all estimates and the reliance of humans upon data is at an all time high. It won't be an overstatement to state that the era of big data has well and truly arrived all around the globe (Duan, Y. et al. 2019; Lemoine et. al. 2018; Choi et. al. 2018; Hurley et. al. 2016).

Among the various factors that have contributed toward this very high degree of reliance upon data which has realistically hailed the arrival of 'big data era' is the fact that using data is becoming simpler with the sophistication of technologies via very effective abstraction mechanisms for users. This has really simplified the process of accessing data anytime, anywhere across various devices with ease and subsequently users find it very convenient to gain insights from the data which enhances their knowledge and also facilitates decision making as per need. It is very evident in contemporary times that big data is an integral part of human life and it has brought about significant changes in the way humans access, perceive and use data (Bragazzi, N. L. et al. 2019; Ozdemir & Hekim 2018; Gupta et. al. 2018; Zaheer & Dhunny 2019).

Given the present scenario it is very natural that big data has brought into the equation various possibilities that can be both interesting and appealing for the field of education. The digital age is in the process of changing

the world and the traditional teaching methodologies are also now slowly but surely getting revamped with newer technologies that utilize the wide array of possibilities being thrown in by 'big data' era. One of the most notable developments in this big data era has been the emergence of the MOOC model. In very simple terms the MOOC model which stands for massive online open course, is a novel approach to education in this era of 24X7 connectivity by supplementing traditional lecture methods with interactive courses powered by the internet supported by various modes of discussion that facilitate community interactions and add value to the educational content and delivery. Over the last decade or so there has been a lot of research being carried out in the field of MOOCs and the same has seen noticeable increase on a global level in the wake of the Covid-19 which has necessitated the suspension of normal class rooms across schools , colleges and other institutions all around the globe.

The present study seeks to explore and understand the concept, effectiveness, issues and trends associated with the MOOC model of imparting education in the present era that has been marked by changes brought about by Covid-19 in terms of social distancing norms, suspension of normal classes and giving rise to a number of queries related to educational content creation, delivery, assessment and related aspects which need a thorough examination and analysis.

2. Theoretical Framework for the study

The proposed framework for this study emphasizes upon those aspects of MOOCs that makes it unique from other forms of virtual learning that have grown in importance over the last few decades. The most salient principles of learning such as designing of lessons, eliciting feedback from respondents, evaluating them across various parameters have been explored and discussed to arrive at possible instructional strategies that could benefit all stakeholders in the present times when there is a great deal of emphasis upon online learning on account of the restrictions imposed by the pandemic covid-19. Despite the fact that MOOCs have undeniably emerged as a potent solution towards catering to the large population of students spread across the globe, there remains a need for fresh perspectives and rethink related to certain aspects such as content designing, assessment modes, effective delivery strategies and so on. The present study tries to look into these aspects in a thorough manner. The study also focuses upon identifying and discussing the issues and challenges that face MOOCs in the present times.

Among the various dimensions that influence e-learning in the present times, this study focuses predominantly upon pedagogical aspects and assessment related issues in context of MOOCs because it is felt that these aspects have a great deal of bearing upon the over-all effectiveness of any online teaching/learning platform. Further, collective learning which is at the very core of effective learning in a online platform is considered is also analyzed thoroughly. The collaborative learning aspects of MOOCs are explored thoroughly to gain insights regarding their potency and subsequently perspectives of stakeholders are also put forward. A comparative analysis between MOOCs and traditional education is also analyzed from the perspective of trying to get insights regarding the paradigm shift and its subsequent impact upon faculties as well as the taught.

The current issues and challenges facing MOOCs and online education in general are also taken up with views of selected stakeholders gathered in course of discussions are also incorporated as a part of the study.

3. Research Questions

The present study has been conducted as an exploratory research enquiry and it relies both upon primary and secondary data sources. The secondary data sources have been obtained through an intensive review of literature on the subject across dimensions as identified in the theoretical framework for the study. The primary data has been gathered via discussions with academicians as well as students and the same has been incorporated in the study. The study essentially seeks to find answers to the following questions:

Research Question 1: What is the MOOC model and what are the reasons behind its popularity?

Research Question 2: What has been the impact of the transition from traditional method to online mode of educational delivery in the present era?

Research Question 3: What are the features that make the MOOC model such an attractive proposition for both academicians as well as researchers?

Research Question 4: What are the critical challenges facing MOOCs and how can the same be resolved?

4. Methods

An intensive review of literature has been carried out in context of the given enquiry with special focus on the works done in the period from 2010 onwards. The rationale behind setting the time frame from the year

2010 was that this is the decade which has witnessed the most pronounced paradigm shift with incremental changes on the technological front as well. Synthesis of the literature gathered has been done carefully keeping in mind the research questions identified and the theoretical framework established for the study. Apart from an intensive literature survey which took care of the secondary data requirements for the study, the primary data was gathered through discussions across various related dimensions of online education and MOOCs. The views of both academicians as well as students have been incorporated in the study. A select number of Focus Group Discussions (6 in total) were also conducted with 6-8 participants per group to generate insights relevant for the enquiry.

5.MOOC: Review of Existing Literature

The commencement of MOOC or massive online open courses can be traced back to the year 2012 with a company Udacity developing and offering MOOCs free to interested users (Bozkurt, A. et. al. 2017; Kaplan, A. M., & Haenlein, M. 2016; Cunha et. al. 2020; Duggal & Dahiya 2020; Bozkurt et. al. 2016). Subsequently, another company called course era under two professors of Stanford, affiliated with the computer science department, entered into collaboration with various universities to prepare and offer MOOCs to students. The commonly accepted working definition of MOOC is that it refers to online courses offered to students on a very large scale aimed toward ensuring interactive participation between the teacher and the taught relying upon the services of internet (Curinga, M. X. 2016; Nurhudatiana, A. et. al. 2019; Chiapponi et. al. 2016; Higbee et. al. 2016; Meguid et. al. 2017). The relevance and utility of MOOCs for education purposes can be appreciated by noting that this methodology is not limited to only making available video resources to the students but it also provides materials in the text format for student self-learning, online question answer sessions, participation in relevant communities to learn and exchange knowledge among peers and so on.

As far as types of MOOCs are concerned, the two very broad and well known categories are c-MOOCs and x-MOOCs. c-MOOC is referred to as connectivist MOOCs or Canadian MOOCs on account of the fact that their creators were a team of Canadian researchers and the concept was developed by them keeping in mind the theory of connectivism (Blanco, Á. F. et al. 2013; Wang et. al. 2017; Li et al. 2016; Henukh et al. 2019; Mackness, 2017). The said theory is not being discussed here as it is deemed to be out of the scope for this paper. However, viewed very simply, in a nutshell connectivism broadly refers to the philosophy of each individual being responsible for their own learning. Research in the field evidences that c-MOOCs are very similar to Personal Learning Networks in terms of their functioning and philosophy and they may be safely inferred as extensions of PLE.

The other category of MOOC namely, x-MOOCs are more widely known and recognized among academic and research circle and it is x-MOOC that is preferred most among learners in the present age. x-MOOC refers to instructors led course contents across diverse fields making extensive use of video presentations facilitating learning among users at their own pace (Flores et al. 2020; Fidalgo et al. 2016; González et al. 2020).When we talk of x-MOOCs, the most relevant and contemporary examples of the same are well known sites such as Course Era, Khan Academy, Udemy and many others which offer a wide range of courses to users. Many of their offerings are free and some are offered for a charge as well. These sites do not generally provide any degree (though certifications are provided in some cases) because the main objectives of these courses are to promote and facilitate learning of users and not to provide conventional college degrees. Further, different x-MOOCs have differences in terms of their operating procedures such as some sites require users to stick to certain specified schedules while others do not follow this approach and so on.

Owing to the versatility of MOOCs, teaching and learning community all around the globe has welcomed it with open arms. USA had been the most early adopters of this new teaching and learning methodology with other countries like Spain, South Korea, Germany, India and many others following suit and developing their own MOOC teaching platforms as pe need, requirements and existing dynamics of their respective student and teacher communities. Due to its appealing features, the MOOC methodology has caught attention of a large number of colleges' world-wide and the trend is likely to continue in the future.

The main characteristics of MOOC model of educational content delivery that differentiates it well and truly from conventional modes are its capability to reach a practically unlimited number of students irrespective of geographical constraints leveraging the power of digital technologies via internet and also the customized interactions that it offers among the teachers as well as students (deWaard, I. et. al. 2013; García et al. 2018; Zaporozhko et al. 2017; Wise et al. 2017). The number of students who can participate in a MOOC course are not limited to a given schools or colleges but all students around the globe across all institutions who wish to take the course may join it. This has resulted in large numbers of participants learning at the same time. With internet speed increasing by the day and cost of internet services getting more and more competitive with each passing day, this model effectively addresses the issues of students' inability to attend classes and also local

institutes specific issues like lack of teaching resources and infrastructural constraints in conducting classes. Now, students across any institution around the globe have the facility to pursue their preferred courses without any problems.

Further, another long existing bottleneck of lack of sufficient teaching staff which has further intensified with an increase in the number of students is also addressed effectively through MOOC. Imparting of education digitally, without any constraint of time and space and also incorporating interactive collaboration among learners has resulted in the increase in popularity and importance of MOOC in the big data era.

MOOC vs Traditional Education: The paradigm shift and its impact

In stark contrast to the conventional or traditional mode of education where resource availability was restricted within local areas the MOOC model provides open learning irrespective of geographical constraints (Sun, G., & Bin, S. 2018; Aihua 2017; Korableva et al. 2019; Andone & Vlad 2018). It has made education reach areas where it could not in the traditional mode. The model has succeeded in revamping the educational ecosystem completely with provisioning of a curriculum that is open and practical, not being bound within conventional borders, unrestricted and free access to resources and collaborating with various institutions globally. The model truly acknowledges the fact that for the personal growth the human mind will always welcome resources in a manner that is cost effective and yet rich in terms of contents. Today it is very much possible to stay in a developing country like India and benefit through the lectures and contents delivered in institutions based abroad through the MOOC methodology of online education which rewards self-learning for anyone interested.

Further, the MOOC model puts a great deal of emphasis upon paying due attention to customized learning needs of the student community and it also promotes autonomous learning. Learners are exposed to interactive contents, multimedia resources delivered through networks with a very simple user interface aimed at providing a high degree of autonomy and spontaneity. It empowers students to take decisions related to finalizing their own learning plans as per their requirements, set up their own educational goals and objectives, customize their contents and make optimum use of resources that are available 24x7 across various devices. It can be said that MOOC has to a very large extent succeeded in optimizing the existing traditional education model which suffers from the limitation of somewhat one way interaction and non-attention towards the autonomy and customized needs of the students (Perifanou, M. et al. 2016; Bralić & Blaženka 2016; Blum et al. 2020; Liu et al. 2019). MOOC has made educational content delivery and the over-all process of education more tuned to the customized and individualized needs of the student.

In the MOOC model of imparting education, the traditional mode which emphasized a great deal upon memorizing concepts and subsequently had an adverse impact upon students' analytical and critical reasoning skills is revamped completely. Active learning by the students is encouraged through fully functional and active learning communities which provide a valuable platform to students and enable them to learn via discussions and mutually beneficial interactions with others spread across the globe. This approach encourages the students to think out of the box and be pro-active in applying concepts they learn in the real world scenario. This to a large extent helps in the enhancement of cognitive skills of the students as well.

The MOOC model has also brought about a significant change in the way teachers approach their teaching methods. Teachers realize that this model goes beyond the conventional face-to-face teaching methodologies and it very optimally integrates online and offline learning to promote teachers to reach students all across the globe (Bralić, A., & Divjak, B. 2018). This innovative hybrid approach adds a lot of value to the conventional model of education. Owing to the support of online communities to support the learning process in addition to convenient 24x7 access to digital contents, students are now empowered by learning not only from the teacher but also from their fellow colleagues across the globe. This collaborative approach towards learning results in more effective comprehension and definitely speeds up the learning progress as well. Further, the evaluation mechanism in MOOC is also very innovative with a right blend of faculty evaluation, self evaluation and also peer evaluation. This approach towards evaluation maintains the enthusiasm of the students.

It can be said that despite being a relatively recent phenomenon, the MOOC approach has tremendous potential in terms of bringing together a large number of learners around the globe, having diverse learning requirements in one roof and provide them a enduring platform that supports collaborative learning 24x7.The inherent characteristics of the model make it a preferred option from the point of view of practical and skill based learning and it is going to change the educational scenario worldwide.

6. Findings

It is very clear in light of the above discussion that in the modern-era owing to the value addition that it does along with its revolutionary approach towards student-centric learning, the MOOC model is very widely used all

across the globe and especially in this period of the pandemic covid-19 the importance of this model has further increased on account of online education replacing face to face interactions across most educational institutes around the globe for the last few months. The popularity of MOOCs is evident from the fact that at present they are being offered by more than 100 renowned universities across the globe with very high student enrollment numbers. However, owing to the inherent nature of MOOCs apart from the benefits that it offers, there are some challenges that it is facing as well. The next section of the paper focuses upon looking into the challenges that this model is encountering in the present times.

The FGDs conducted brought to light the fact that among the most crucial challenge that MOOC faces is ironically a byproduct of its innovative way of offering 'open courses' to the participants and empowering the students to set their own goals in regard to the course that they choose to pursue. This results in the absence of any tangible evaluation criteria that can be rigorously followed for the purpose of evaluating students. Moreover, being a reasonably recent phenomenon, these courses lack any formal structure as well. The high degree of flexibility enables learners to set their own goals but at times it also leads to unclear or no goals for participants as well. The assessment criteria in MOOC courses are also very flexible and this interferes with the evaluation process. The evaluation and assessment methods that are in place in the conventional model are very difficult to customize for MOOC courses from the educator's point of view.

Further, interviews that were conducted with the various stakeholders also underlined the very important fact that, despite the number of participants enrolling for MOOC courses are on the rise, the number of participants who complete their courses are very less and that is a major cause of concern. Research carried out in the field evidences that as low as less than 10% of the enrolled students actually go ahead and finish their respective courses. Therefore, if completion rate is considered as a measure of effectiveness of the model, the MOOC courses are found wanting in this regard. Some students do gain relevant knowledge and learn through discussions in their respective communities but, the fact remains that the percentage of students who formally complete the courses remains low.

Most of the faculty members who were interviewed opined that evaluation of teaching effectiveness which was very easy to implement in conventional education through anonymously filled up student responses is not that simple for MOOC courses due in mainly to the varied roles that the instructor now has to play. As per various courses and their unique characteristics an instructor may have to juggle roles from a subject expert to a facilitator in a need based manner. The significantly large number of students also makes it very difficult to ensure individualized student attention and subsequently in some cases despite all support from peers through communities, a student may feel somewhat alienated and cut off from the process.

Among the student community as endorsed through both FGDs and interviews, the most widely discussed benefit of MOOC courses is their availability online for anyone who is interested in pursuing these courses. However, the accessibility of the contents which are predominantly in multimedia format are not uniformly accessible owing to disparities in internet speeds and bandwidth issues across different parts of the globe. Further, some video contents lose their relevance if they are not presented with subtitles or captions for students not too comfortable with the language of delivery. Owing to these issues if the students are not able to uniformly access, comprehend, assimilate and engage with courses, the evaluation becomes more difficult.

A majority of the faculty members expressed their views by stating that in the conventional mode the mechanism of instructor feedback upon the students' performance is fairly simple and easy to implement. The purpose behind the feedback being to ensure that students are made aware of their strengths and weaknesses so that they may work upon the needed areas and improve themselves. This in-depth feedback is not there in MOOC courses owing to the very high number of participants. In some cases there is a provision for automatic feedback but the same is very passive when compared to conventional instructor driven feedback and subsequently it is observed that students end up repeating the same mistakes again and again on account of the absence of active mentoring.

Another area of concern in the context of MOOCs that have been brought to light by recent research is that the developments in the model in recent times seem to focus more upon consolidating the commercial aspects associated with the model than upon the pedagogy issues which need attention. The MOOC phenomenon over the last few years is being viewed as tilting more towards business dimension as is evident from initiatives like Nanodegree which came into being in 2014, which represents paid and restricted access to contents and certification. This is something which contradicts the basic philosophy of MOOC which is to provide the learners unrestricted access to quality education all around the globe. This increasing attention towards business and decreasing attention towards pedagogy remains a cause of concern in the present age.

7. Conclusion

Despite the concerns related to MOOCs and the pedagogical issues that demand urgent attention, it is important to realize that MOOCs have emerged as an extremely potent tool for online education which caters to millions of learners all across the globe and provides them quality contents as per their customized requirements at extremely affordable rates and in most cases for free. With the enhancement of internet speeds, arrival of 4G and 5G being in the pipeline, online contents are going to be available very easily in the future as well. The MOOC phenomenon is going to ensure that the role of a teacher is going to be more of a facilitator as resources that are required by the modern students is already available to them as per their requirements. Faculty members have to work harder to ensure that they create engaging contents that could hold the attention of the recipients in an era where there is no restriction upon access to quality contents.

Further, it is quite likely that on account of the growing relevance and importance of MOOCs in the future, universities all around the globe will ensure that they leverage the benefits offered by MOOCs for their respective students and also ensure that the role of the faculty members evolve so that they make a smooth transition from being instructors to facilitators in the new era of online education in which MOOC is expected to be a major player.

Taking into account all aspects discussed above it can be said that the MOOC phenomenon though relatively recent and evolving one has the potential to truly revolutionize education all around the globe. It is true that there are various areas of concern at present, the most notable ones being lack of attention towards pedagogical issues and increasing commercial interests, but still the future looks hopefully at the MOOC phenomenon to effectively address shortcomings of the conventional education system which needs an overhaul. In the modern era education cannot be viewed in isolation but it has to leverage the benefits that technology offers in an optimal manner and that is where the MOOC model scores handsomely and it is all set to play a dominating role in transforming global education in the future

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