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Recent Advancement Inmassive Open Online Courses (Moocs): A Review Literature

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Abstract:

The primary aim of this study is to review the contemporary literature published related to the recent advancement in online courses. The main objective of the study is to examine available literature concerning the online courses. The literature consulted will give us understanding of the related developments like inclusion in the 'blended teaching learning environment', 'reservation of credit in certain courses' curriculum', 'technological integration', 'content development', 'content delivery methods', 'implementation barriers', 'different challenges' etc. taking place in MOOCs all over the world. This systematic review on massive open online courses (MOOCs) examined the research literature published in 35 peer-reviewed articles published during 2021.

Keywords: Online Courses, MOOCs, Recent advancement, Review Literature

1. INTRODUCTION:

Massive Open Online Courses, or MOOCs, have increased at a galloping pace since the term was first coined by Stanford University in 2011. This free (few are paid), high-quality, university-level courses are available to anyone with an Internet connection. There is no denying and debate that MOOCs is a 'revolution' in education and India is no exception in adopting this outstanding teaching-learning platform. To develop sustainable Open Knowledge Network and Open Learning System, Government of India has initiated different MOOCs and Open Teaching-Learning Platforms under National Mission on Education through Information Communication Technology (NME-ICT) Programme. As per the Gadget of India No. F. 1-100/2016(MOOCs/e-content), University Grants Commission has issued a notification on 25th March, 2021 where it has been notified that students may take up to 40% of the total courses in a semester in a programme through SWAYAM (Study Webs of Active Learning for Young Aspiring

Minds).SWAYAMis the country's national Massive Open Online Course (MOOCs) platform. The UGC, as the national coordinator for non-technology PG courses, developed 145 MOOCs and offered 208 MOOCs on SWAYAM platform.

When online courses and MOOCs platforms are rising exponentially, different possibility, better opportunity, creative content development are also taking place. Again, challenges like discontinuation rate, copyright, language barrier, positive engagement etc. are existing too. The aim of this study is to review the contemporary literature published related to the recent advancement in online courses and to discuss and suggest possible amendment in the advancement of MOOCs.

2. REVIEW OF LITERATURE:

Sobral, S.R. (2021) has studied that Massive Open Online Courses (MOOCs) are open courses offered to an indefinite number of participants and accessible through virtual learning environments. These courses have been the subject of research all over the world. The purpose of the paper was to analyze the scientific production on Massive Open Online Courses in journals indexed in Clarivate Analytics, Web of Science and Elsevier's Scopus. The sample is composed by 1908 articles in total. The results obtained by bibliometric analysis showed that the publication continue to increase, in which journals they are published, which are the organizations and countries that publish the most, and which are the most cited articles.

Huangqing, L., Yanping, X. (2021) In the epidemic period, online teaching has become the most important teaching form. On the basis of questions-centred massive open online courses (MOOCs) teaching, the online teaching mode of college physics was studied and discussed using the Tencent classroom, WeChat/QQ and Wisdom Tree Platform. MOOCs before class, Tencent classroom during class, WeChat/QQ in the whole process including solving problems after class, and Wisdom Tree Platform for quality inspection of online teaching were practiced in the teaching of each chapter including mass point kinematics. Due to the problem-oriented implementation of the three stages, the results of the online mock test were better than expected.

Wu, B. (2021)this paper formulated research hypotheses that MOOC learning progress has a direct impact on MOOC online reviews and an indirect influence on MOOC online reviews through social conversations in different forums. Coursera which is the largest MOOC platform is selected as research object, and data were collected from learners who participated in the MOOC discussion forum and provided valuable reviews spanning from August 2016 to December 2019. Data was collected and processed from 4376 learners. Then, keeping the hypotheses in mind, multi regression models were framed accordingly. It was observed that the length of MOOC online review text is affected by the MOOC learning progress, the number of discussion forum posts, the number of follow, the online review sentiment and MOOC rating. This study highlights

the main factors that affect MOOC online reviews. Accordingly, few suggestions are put forward for the development of MOOC.

Tang, H. (2021) Learning in Massive Open Online Courses (MOOCs) requires learners to self-regulate their learning process or receive effective self-regulated learning (SRL) interventions to accomplish personal goals. Much attention has thus been paid to how SRL influences learner performance in MOOCs, but research has overlooked a person-centered analysis of how online learners perform SRL in this setting. Using K-means clustering analysis, this research revealed four different self-regulated learner profiles: all-around SRL learners, disillusioned SRL learners, control-oriented SRL learners, and control-dominated SRL learners. In addition, all-around SRL learners outperformed the other three clusters in course grades. This research also identified cultural differences between those clusters. Practical implications on how to design effective SRL interventions are provided.

Wei, X., Saab, N., Admiraal, W. (2021) in this systematic review on massive open online courses (MOOCs) in higher education, the assessment of learning outcomes was examined based on 65 peer-reviewed articles published between 2017 and 2019. This study aims to investigate the learning outcomes, related instruments, and assessment characteristics of instruments in MOOCs. Learning outcomes that were examined in the studies that were reviewed concerned cognitive, behavioral, and affective learning outcomes. The results indicate that a consideration of the assessment of learning outcomes at the beginning of course design could support the formulation of explicit assessment goals and, in this way, instruct learners to work toward learning outcomes. The findings provide a holistic picture of learning outcomes and related assessment instruments in current MOOCs. Curriculum designers and teachers could benefit from this study to consider appropriate learning outcome variables and instruments to apply in their MOOC practices.

Albelbisi, N.A., Al-Adwan, A.S., Habibi, A. (2021) Literature emphasized the importance of quality antecedents on the successful implementation of MOOCs. However, rare studies are available on how to examine the quality antecedents in the MOOC context. Thus, the objective of this study is to assess the impact of quality antecedents on satisfaction toward MOOC. This study is mainly quantitative, adopted the D&M IS Success Model to examine the relationships between quality antecedents (i.e. system quality, information quality, service quality) and satisfaction toward MOOC. An online survey method was used to collect data from 1000 undergraduate students from five universities in Malaysia; 622 questionnaires were returned for a response rate of 62.2 percent. The results partially supported the effect of the quality antecedents on learner satisfaction toward MOOC. The findings provided by the study have significant practical and theoretical implications about the implementation of MOOC successfully.

Altalhi, M. (2021) The objective of this study was to use a UTAUT model to identify the major factors determining learners' acceptance of MOOCs in higher education in Saudi Arabia. An online survey was administered to 169 students of Taif University in Saudi Arabia and structural equation modeling was used to analyze the data. The results show that the proposed model can explain 63.3% of behavioral intention and 66.1% of user behavior of MOOC. The study unexpectedly found that behavioral intention was affected only by attitude. The main finding is that although most studies of technology acceptance exclude attitude, this study found it to have a critical role in verifying the UTAUT model. This study highlights the main factors that affect MOOC intention and its usage for students in higher education.

Crane, R.A., Comley, S. (2021) Results demonstrate that the former are considerably more likely to complete MOOCs, with median steps (i.e. click points• within each MOOC) accessed (as a percentage of total steps) for Social and Non-Social Learners ranging from 50 to 100% and 96% respectively. In addition, the number of Non-Social Learners enrolled onto each MOOC was consistently greater than the number of Social Learners, with ratios of Non-Social Learners to Social Learners for each MOOC ranging from 1.75 to 11.30. Results therefore suggest that whilst Social Learners are in the minority Social Learning is an important tool to prevent student attrition.

Naskar, D., Hasan, N., Das, A.K. (2021) This study aims to highlight the popularity of Emerging Trends & Technologies in Library & Information Services (ETTLIS) course and investigate the learners' involvement using the YouTube Channel and Discussion Forum of the course. The authors statistically analyzed the learner's engagement in the course by using social media channels. It was found that the learners' active participation in the online discussion forum saw an increase from time to time, and the performance of social media involvement also got popularized through the YouTube channel. The paper, based on social media analytics of the course ETTLIS, suggests the possibility of the development of a set of stable performance indicators based on online engagements in LMS platforms.

Haron, H., Hussin, S., Yusof, A.R.M., Samad, H., Yusof, H. (2021) This study examines the adoption of MOOC deployment among students at UniversitiKebangsaan Malaysia (UKM). The survey was used in this research where data were collected from 400 respondents and then analysed using Structural Equation Modelling (PLS-SEM). The findings were obtained based on Unified Theory of Acceptance and Use of Technology (UTAUT) model. The result shows that performance expectancy, effort expectancy, social influence and facilitating condition have influenced the respondents to use MOOC in their learning. This research exposed that the UTAUT factors implemented in this study have a significant effect to behavioural intention in order students use MOOC technology. It illustrates the positive impact of these technologies and beneficial to

understand the MOOC adoption for all students, especially at public universities and in the area of online learning perspective.

Chen, M., Wu, L. (2021) In recent years, MOOCs has enjoyed great popularity due to its convenience and openness. However, with the development of MOOCs, the high dropout rate has aroused extensive attention. By analyzing the data of students' behavior and then predicting whether students are at risk of dropout, it can improve the course completion rate. Most of the existing methods relying on feature engineering and the sequential characteristic of data is not effectively utilized. In this paper, we propose a time series model named CNN-LSTM-ATT, which focuses more on local valid information and temporal information of the data. Through extensive experiments on a public dataset, it shows that the proposed model can effectively predict students' dropout behavior.

Feitosa de Moura, V., Alexandre de Souza, C., Noronha Viana, A.B. (2021) Massive Open Online Courses (MOOCs) are presented as an option to the traditional model of higher education institutions. MOOCs have been used as part of face-to-face regular university courses as a new form of blended learning (BL), but little is known about the best ways to design effective MOOC-based BL. Besides, studies that assess the intention to continue using MOOCs do not assess their quality and value as perceived by students. This study aims to understand how MOOCs can be better integrated into blended learning. The results show that the MOOC was used as a blended learning method in an introductory course, replacing part of the hours of face-to-face classes, allowing an increase of the number of students per teacher, besides making the discipline more attractive to the students.

Julia, K., Peter, V.R., Marco, K. (2021) studied the educational design of Massive Open Online Courses (MOOCs) in particular on their educational scalability: Possibility to provide better interaction and formative feedback to high student numbers without being highly depending on the capacity of the teacher. A design analysis instrument was applied that was specifically developed for large-scale online courses to analyse fifty MOOCs in a qualitative way. The goal of the analysis was to detect scalable best practices of formative feedback and interaction and focused on when, how and from whom students received formative feedback. While the study shows examples of scalable design choices in (open) online education, it also indicates a need for more elaborate interactions and feedback in MOOCs in order to improve their educational value and quality.

Paek, S. (2021) studied in response to the article entitled, MOOCocracy: the learning culture of massive open online courses (Loizzo and Ertmer, Educational Technology Research and Development, 64, 10131032: 2016). After summarizing the original study, this paper examines the value of Loizzo and Ertmer (2016) finding that massive open online courses (MOOCs) support a unique adult learning culture comprising a social

learning democracy. It suggests a number of ways researchers can apply the concept of a learning culture and the themes of MOOCacracy to other online contexts and audiences. The paper also addresses some limitations of the original study such as the need to ensure the themes of social learning democracy apply to content areas outside of the social sciences. The perspective concludes with suggestions for future research on the applicability and appropriateness of MOOCocracy in K-12 settings and the knowledge and skills leaners may need to participate in and benefit from a social learning democracy.

Keshavarz, M., Ghoneim, A. (2021) described the practical implementation of parts of Teaching in a Digital Age: Guidelines for Designing Teaching and Learning by A.W. Bates (2015) in a course for educators in Austria and the development of medical education for universities in Iran. With the publication of the second edition of Teaching in a Digital Age in 2019, the authors show the impact of the book in training educators and developers of educational content. This note from the field emphasizes the benefits of making informed decisions about educational technologies using Bates (2015) SECTIONS model and of learning about massive open online courses (MOOCs) and how to work with them using his book.

Wong, J., Baars, M., de Koning, B.B., Paas, F. (2021) it was studied that limited instructional support in Massive Open Online Courses (MOOCs) inherently demands learners to self-regulate their learning. MOOC research shows that learners are more successful when they engage in self-regulated learning (SRL) behaviors such as planning what to study and reviewing study materials. In this study, the effect of two types of SRL prompts (i.e., questions or a combination of questions and recommendations) on SRL activities, course engagement, and performance in MOOCs were examined. Learners either received questions supporting SRL, questions supporting SRL followed by recommendations, or neither questions supporting SRL nor recommendations. However, the effectiveness of the SRL prompts may be influenced by the complexity of the MOOCs. The study adds to the field of SRL by examining prompting as an approach to enhance SRL in MOOCs.

Janelli, M., Lipnevich, A.A. (2021) This study examined the effects of pre-tests and feedback on learning and persistence in a massive open online course (MOOC). Participants (N = 399) from around the world enrolled in the American Museum of Natural History's (AMNH) climate change MOOC and were randomly assigned to one of four experimental conditions. Results indicated that: (1) among all students, pre-tests and feedback did not affect learning outcomes; (2) pre-tests negatively affected persistence; (3) among those who completed the course, pre-tests positively affected learning outcomes; and (4) among those who took pre-tests, persistence positively affected learning. These findings represent a new contribution to assessment and feedback literature.

Kusumastuti, D.L., Tjhin, V.U. (2021) Since its introduction in 2008, many believe Massive Open Online Courses (MOOCs) will be the future of learning at the college level. The general idea is to provide knowledge and courses for free too many students who have changed the way to run an education business, which can also change dramatically the methods and principles of learning that have been known for hundreds of years. Furthermore, this study needed to know about the MOOC's role to increase learner motivation to indirectly improve learning success. Samples were taken at the best private university in Indonesia on online learning students by analyzing student participation in MOOC. The processing data used the quantitative method. Descriptive analysis was carried out by describing the data obtained. The results obtained are that most of the students' courses are courses that are not in accordance with the student's majors, namely 64.24%. It meant that students make use of the MOOC to conduct learning.

Surya, T., Dewi, C., Hendijani, R.B. (2021) aimed to further examine the key decision-making factors of MOOCs users towards paid MOOCs. The research intends to assist in improving, and consequently, will contribute to research and implementation of more suitable MOOCs. Questionnaire was distributed online among 202 MOOCs users who have used paid MOOCs (purposive and snowball sampling). The findings said that most participants were professionals who sought resources to develop their career in flexible environment. The findings also showed environmental factors are important as they affect participants' learning motivation, encouragement and perception. This study highlights the need to produce MOOCs to be more relevant to the learners' community.

Thanachawengsakul, N., Wannapiroon, P. (2021) This paper presents the development of a learning ecosystem using digital knowledge engineering through a MOOCs knowledge repository system. This study can be used to support further development of the MOOCs knowledge repository system assess digital entrepreneurs' competencies according to digital knowledge engineering learning process.

Agnihotri, M.A., Pandit, A. (2021)MOOCs are a host of courses delivered online with normally free access to anyone, anywhere, anytime and can be studied at the users' own convenience, space and choice. MOOCs which started growing throughout the world since 2012, India is relatively a new player which has contributed significantly with the introduction of SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) in 2017. SWAYAM is an online academic resource platform sponsored and developed by The Ministry of Education and based on the principles of access, equality and quality. In this chapter efforts have been made to present a relative position of SWAYAM in the current context by comparing it with some of the major international MOOC players such as Courseera, edX and Future learn. The objective of this paper is to find ways in which SWAYAM can attain a position of being a major MOOC from a novice player.

Martin, J.L., Amado-Salvatierra, H.R., Hilera, J.R. (2021) The aim of this study is to analyze the accessibility of a selection of eight popular MOOC platforms: Coursera, edX, Udacity, MiriadaX, UNED COMA, Udemy, Futurelearn and NovoEd. To this end, three automatic accessibility evaluation tools have been used: eXaminator, FAE and Tingtun. The study has been complemented with a heuristic evaluation by experts in order to have a holistic perspective of MOOC accessibility. The idea behind this study is that the stakeholders in the teaching-learning process will be able to identify and select the most inclusive platform based on the international standards. Moreover, the technical staff in educational institutions will be provided with a procedure to identify accessibility issues in other platforms and engineering teachers will be aware of the potential obstacles that students with disabilities may experience. The results of this study identify edX and Futurelearn as the best MOOC platforms. Finally, conclusions and future work ideas are presented.

Al-Nuaimi, M.N., Al-Kabi, M.N., Al-Emran, M. (2021) In late December 2019, a novel coronavirus (COVID-19) was determined in Wuhan, China. Within a short period, more than 100 countries were infected with this epidemic. To mitigate the development of this virus, many countries have announced the closure of their educational institutions. The closure decision has left many institutions unable to select the appropriate technology for delivering the learning materials to their students. To assist those institutions attempting to digitize their learning during this pandemic, the main aim of this research is to review the leading technologies used for delivering the learning materials by considering the experiences of the most infected countries at the time of conducting this study.

4. FINDINGS:

After a general review of several articles mentioned above it can be summed up that MOOCs have gradually taken its permanent space in the education curriculum. In the field of engineering, humanities, computer science, biotechnology, science, the educators and teachers have been contributing their valuable share to the knowledge building. The most essential development in MOOCs are its short term certificate courses where they are acting like a bridge course or refreshment course. The higher education systems have opted MOOCs in blended education pattern which are a part of curriculum now. Most recently in the month of May, 2021, UGC has announced 123 free UG, PG courses at SWAYAM portal as the higher education institutions are closed due to COVID'19 and only online courses are running.

Wong, J., Baars, M., de Koning, B.B., Paas, F. (2021) studiedthat learners are more successful when they engage in self-regulated learning behaviors such as planning when and what to study, reviewing study materials etc. **Chen, M., Wu, L. (2021)** have studied the dropout rates and factors. **Samanta, A. (2018)** explored how SWAYAM is considered to be a new approach to education in Indian scenario. **Tsironis, A.;**

Katsanos, C.; Xeno, M. (2016) haveconducted a study on comparative usability of three popular MOOCs platform edx, Coursera and Udacity which are international in nature. These studies explain potential workflow and again give us a scope to continue study in other tentative fields.

4. DISCUSSION:

Since its inception, the whole world has divided into two groups with diversified opinions about the boon and bane of MOOCs. It has been pointed out that the online courses create poor eyesight, mental instability, lack of concentration etc. One of the major concerns is that a huge number of students do not complete their courses and this raises the challenge graph higher. The MOOCs providers are working hard to make their course richer, more interactive and more interesting.

5. CONCLUSION AND SUGGESTION:

The purpose of this study is to examine the literature available on the progress made on MOOCs and how these online courses are bringing out massive structural as well as qualitative changes in the modern education system. The under developed and developing countries are trying hard to adopt this educational blessing but obstacles like poor infrastructure, limited access, positive expansion, unawareness making it a delay. It is again true that this advancement will reach to them as these omnipresent courses are meant for all, at any point of time.

Online platforms like Coursera, edx, Udacity, SWAYAM are successfully delivering their online courses and the millions of registered users are the evidence of MOOCs success. Positive Intellectual Property awareness, more interactive interface, stronger course content develop, better delivery techniques will definitely have better access and stronger community.

Future research might investigate the motivation of learners to participate in a MOOC and how this changes during a MOOC. This could help MOOC designers and teachers to align how learners are motivated, what they want to learn, and what they actually do learn.

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