

Learners' Adoption of MOOCs Prior and During COVID-19 Pandemic: A Case Study on Building Resilience in Higher Education.

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Introduction

The COVID-19 pandemic disrupted the education of massive population of learners around the globe by inducing lockdown and university closures in the past two years. This crisis triggered the need to adopt remote learning platforms and pushed more learners to enrol in alternative learning platforms that support Edtech technologies. It is claimed that MOOCs enrolment surged during the pandemic as it helped countries to keep teaching continued by providing flexible deliveries models both pre-COVID and post-COVID period (Impey & Formanek, 2021; Kerr, 2020; Shah, 2020). The pandemic brought back MOOCs in the spotlight, which was evident from the data revealed by class central, a search engine that aggregates courses from MOOC providers and assistant learners to choose courses to meet their demands, that the number of new learners signed up for at least one MOOC course in the years, 2018, 2019, 2020 and 2021 were 20 million, 19 million, 60 million and 40 million respectively (Shah, 2018; Shah, 2019; Shah, 2020; Shah, 2021). In India, SWAYAM observed a massive rise in student enrollment amidst the pandemic (Nazir, 2021). This portal saw over one crore enrolments and in July 2020, more than 1.6 lakh students registered in courses (machine learning, programming, data science, data structures and algorithms) offered by some elite institutions. MOOCs were also perceived as one of the crisis management solutions, especially during the pandemic, enabling higher education institutions to continue teaching without being disrupted. During this period, the student community preferred to undertake certificate courses since they were convenient to pursue and permitted flexibility (Raja & Kallarkal, 2020). The current study endeavoured to examine the learner orientations and adoptions of MOOCs prior to and during COVID-19 Pandemic to draw implications for building a resilient higher education system in India.

Methodology

The study is limited to Indian learners who were enrolled on a selected MOOC course on 'Communication Technologies in Education' before and after the onset of the pandemic, falling from 2017 to 2021 (Harichandan, 2018). A Google Form containing 28 questions on their demographic details, MOOC enrolment, purpose, motivation, course access, and learning behaviours was developed to understand respondents' experiences and perception of online classes during the pandemic. The form consisting of both open and close-ended questions was emailed to the learners who enrolled for the selected course. The form link was open to responses for ten days. A total of 136 learners responded to the questionnaire sent, among which 35 learners enrolled for the MOOC course prior to the pandemic and 101 learners enrolled during/after the pandemic, i.e., July 2020 onwards.

Study Findings

This paper investigated the profile, and orientations of learners who enrolled for the selected MOOC course prior to and during the pandemic in terms of their demographic variables, access to the course, learners' purpose of joining, motivation and perceptions about the MOOC course.

Demographic profile

Among the total learners who responded, the percentage of females learners was high both in the pre-pandemic (80%) and during-pandemic (70.30%) period. The learner representation in terms of their age revealed that the pre-pandemic learners lay predominantly in the age category of 26-35 years (42.86%) followed by 36-45 years (31.43%), while a majority of the learners enrolled during the pandemic period, belonged to 18- 25 years age group (49.50%), followed by 26-35 years (32.67) age category. In terms of the learner's highest qualification, post-graduates dominated in the two situations; pre-pandemic (74.29%) and during-pandemic (59.41%), while the representation of the graduates was higher among during-pandemic learners (28.71%) and minimal among the pre-pandemic learners (8.57%). Another interesting finding the results disclosed was a higher representation of the 'student' community (63.37%) among during-pandemic learners, while the pre-pandemic learners comprised mainly of 'full-time' employees (65.71%).

Based on caste, the general or open category learners represented the most in both the groups (pre-pandemic-65.71%; during-pandemic-55.45%), followed by the Other Backward Class (OBCs) and the Scheduled Caste (SC). Geographically, as noted in earlier studies, the learners in this MOOC course also were dominated by urban learners (pre-pandemic- 85.72%; during-pandemic- 73.27%) followed by rural learners (pre-pandemic- 14.29%; during-pandemic- 24.75%). Although most of the learners were from the state of Maharashtra in both contexts, the profile of learners was more diversified and heterogeneous during the pandemic period (18 states) when compared to the learners in the pre-pandemic period (9 states).

MOOC experience

Most learners in this study reported this MOOC to be their first experience, and their percentages were about equivalent during the pandemic (83.17%) and prior to the pandemic (81.62%). At the same time, it was seen that significant proportion of learners had enrolled in more than one MOOC at the same time during the given periods (pre-pandemic- 37.14%; during pandemic- 43.56%). With regard to the question relating to; who provide them information about this course? A large segment of the learners claimed to have received the information from their university/college staff and SWAYAM platform itself. Among the respondents who participated in the survey, their completion rate was high among the pre-pandemic learners (91.43%) and lesser among those enrolled during the pandemic (60.98%).

Access to MOOC Course

Access to the selected MOOC provides information on feasibility and learner preparedness to participate and engage in online learning platforms. From the responses of the learners in the given two situations, it was revealed that the pre-pandemic learners accessed the MOOC via a laptop (51.43%), followed by a smartphone (28.57%), while the during-pandemic learners predominantly used the smartphone (80.20%) to access the course. It was also interesting to note that the frequency of access to the selected course differed among the two groups. The majority of the pre-pandemic learners accessed the course either daily (40%) or once a week (37.14%), while the during-pandemic learners accessed the course - once a week (54.46%) followed by daily (20.79%).

Purpose and Motivation

Evidence of a substantial surge in MOOC enrolment during the pandemic did raise the need to examine the purpose and motivation behind learners' willingness to engage in MOOC courses. According to Shah (2020), *'The ongoing pandemic has increased interest in online education. MOOC providers, in particular, have all seen drastic growth, which reminded me of the Year of the MOOC'*. In the current study, prior to the pandemic, the purposes for enrolment, as expressed by both pre-pandemic and during-pandemic learners, were mainly to; 'gain more knowledge' (45.71% and 47.52%, respectively). The other purposes were to gain a credit/certificate and supplement formal studies. The learners' response to the question on — what motivated them to take this course? A contradictory trend was noticed in the two contexts since the pre-pandemic learners cited reasons that were extrinsically motivated (72.22%), whereas the during-pandemic learners gave reasons that were intrinsically motivated (62.38%). The intrinsic motivating factors were related to; enhancing experience: self-knowledge and skills, pursuing their interest, curiosity, etc. The external motivating factors dealt with obtaining credits, certificates, fulfilling course requirements or doing what was suggested by their teachers.

Some of the intrinsic narratives of the learners were; *'was curious to know the different methods of teaching'*, *'to gain more knowledge about the subject'*, *'to acquire new skills that may help in teaching'*, *'the thirst of more knowledge and to upgrade myself for future and 'this is the era of technologies, so I want to know more how nowadays education are more engaged with technologies'* and *'I found this interesting and want to know more about this particular subject so, this motivated me to enroll for this MOOC course'*. While extrinsic indications were; *'to acquire course credit'*, *'for job'*, *'it is part of our education program'*, *'my friend motivated me to enroll for this course'*, *'our professor motivated us to enroll for this course'*, etc.

Learning Experiences

The content of the MOOC course on 'Communication Technologies in Education' was transmitted using various learning resources such as text materials, audio content, videos and illustrations or case studies. The learning preferences of the learners towards these resources were almost similar in both the contexts; pre-pandemic and during the pandemic. According to all the respondents, the learning resource which effectively facilitated them to get involved, engaged and learn was the video content (68.38%) and text materials(25%). In both the settings, although a majority (more than 50%) confirmed accessing the references prescribed in the course, close to fifteen per cent from each setting denied accessing the course reference, and a significant proportion (33.66%) from the during-pandemic learners expressed as 'maybe' accessed the reference.

Regarding learner engagement, the learners, when asked- how often they asked questions or raised queries in the dashboard for clarification of doubts? Their response on a five-point scale – Always, often, sometimes, rarely, and never – was noted to be uneven in pre-pandemic and during-pandemic circumstances. A majority from the pre-pandemic group expressed 'sometimes'(37.14%) followed by 'rarely'(28.57%), while maximum learners from the during-pandemic group indicated 'rarely' (39.60%) and a lesser claimed to be 'never'(25.74%). Inconsistencies in their reaction to the question - how frequently were the issues redressed or responded on the MOOC platform? A majority of the pre-pandemic learners stated as 'daily'(40%) followed by 'never' (25.71%) response, whilst no significant trend was noticed among the learners from the during-pandemic group as their responses were almost equivalent in all the five rating scales (range of 16-25%).

Self-learning strategies

Past studies have shown that self-learning strategies assisted learners in effectively participating and enhancing their learning experience while engaging in MOOCs and online platforms (Shukor & Sulaiman, 2019). Adoption of self-directed learning being critical for learners undertaking MOOCs, an attempt was made to explore how MOOC learners in the two situations adopted to participate and engage in the course. In both groups, most of them took notes while viewing the videos (pre-pandemic- 65.71%; during-pandemic – 67.33%), and less than fifty per cent preferred taking notes while reading the text material (48.57% & 44.55%, respectively). However, a significant percentage of pre-pandemic learners also resorted to strategies like time-management, self-management and self-monitoring, which were not prominent among the alternative group. Some of the detailed responses are worth mentioning, just like this learner who stated, *'after watching the videos, I made concept maps and cross checked the same from the texts provided in the module'*. Other strategies were; *'preparing running notes as well as short notes'*, *'memorising the facts'* and *'understanding the concepts'*. Ensuring 'regularity' was also a strategy adopted by few and evident in the following statements mentioning about maintaining; *'regular attendance of class and revising the previous class when necessary and also the test'*, *'giving every day atleast 2 hours and go through the audio video content available'*, *'I was constantly visiting my course dashboard regarding modules and videos'*, *'simultaneously I was studying my syllabus from my learning materials'*, *'watching the videos was of great help'* and *'I was checking the updates in the course every day and learning new things about the course'*. The utilisation of other resources, apart from those provided in the course, were also some the approaches adopted. Learners confessed visiting *'using various websites'*, watching *'you-tube videos'*, and *'complete the course on time as well as use other resources and follow instructions'*. It is essential to mention that a little more than a quarter proportion (26.47%), however, admitted to confining only to the learning materials provided in the course.

Learners' Feedback on the Course

Despite this course being offered entirely online, when learners were asked their preference, more than half the percentage (55.15%) chose online mode, while less than one-fourth (31.62%) favoured the blended mode and the least (13.24%) indicated face-to-face mode. This order of preference was similar in both contexts. The learners' opinion about the usefulness of the course on a five-point scale of 'extremely useful', 'very useful', 'moderately useful', 'slightly useful' and 'not useful' was also identical, and in the decreasing order of – 'very useful', 'extremely useful' and 'moderately useful'. Their extent of satisfaction on a five-point Likert scale - very satisfied, satisfied, neutral, dissatisfied and very dissatisfied - was also identical, with a majority rating 'satisfied' followed by 'very satisfied'. The learners, in general, also felt that the timeline allotted to this course was appropriate, i.e., 15 hours.

Discussion

MOOCs gained momentum in India after the establishment of SWAYAM on 9 July 2017 and especially after the Choice-Based Credit System (CBCS), which allowed the transfer of credits for MOOCs courses, was officially announced by the University Grant Commission (UGC) in 2016 (Bordoloi, et al., 2019). SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) guaranteed to improve access, equity and quality of education at both school and higher education, has been offering courses on this platform every year in June and November. The MOOC course chosen for the current study, 'Communication and technologies in education' was also initiated in 2017 and hence gave the advantage to examine learners' adoption of this MOOC in the pre-pandemic and during-pandemic times. One of the limitations was inadequate responses were received from learners who enrolled prior to the pandemic, which is attributed to the long time gap that prevailed while this study was conducted. Yet the received responses are presumed to be adequate to estimate and draw inferences on learner adoptions and learning trends that took during the selected period.

Christensen & Alcorn (2013) had urged that *'Massive Open Online Courses (MOOCs) may be one potential solution, not to overcome India's higher education challenges entirely, but to help alleviate some of the country's access and quality issues in higher education'*. This may hold true since the current study findings revealed that the outreach of learners widened during the pandemic and MOOC learners also affirmed their learning experience to be satisfactory. When most of the MOOC learners in this study opted for online learning, this requires contestation because these responses are the voices of the urban learners predominant in this study. In the view of the vast digital disparities that continue to prevail in the country, a sudden shift to online learning during the pandemic has certainly presented more challenges to socially marginalised learners, especially those belonging to the ST, SCs, female students and those living in rural areas (Goswami et al., 2021; Muthuprasad et al., 2021). Nevertheless, at the same time, it is encouraging to see that more than three-fourths of the learners who participated in the study are females, also possibly drawing attention to the fact that there is higher female participation in MOOCs. Apart from social and gender barriers, past research has also shown that learners, due to the unaffordable high-speed internet, insufficient infrastructure and poor internet connectivity, have also not been

able to take full benefit of online learning platforms like MOOCs (Mohan et al., 2020; Muthuprasad et al., 2021). Poor access in terms of affordability to devices was also evident in the current study since the during-pandemic learners utilized mostly smartphones compared to pre-pandemic learners who had access through laptops or desktops.

The increased representation of younger and student proportion in during-pandemic courses, could be due to the recent decision of the UGC, permitting universities to offer up to 20 per cent of the courses online (increased to 40% to date), using the SWAYAM platform and also enabling students to transfer the course credits for completing the course from another university to their university. However, while looking at the purpose and motivational reasons for joining the MOOCs, they were more intrinsically driven, thereby depicting that MOOCs have been able to achieve the learning goals of both students and teachers by providing them opportunities to re-skill and up-skill as well as complementing their traditional learning environments (Kundu & Bej, 2020). Many other studies have also revealed students' beliefs that online education platforms have facilitated the continuation of education during the pandemic (Goswami et al., 2021; Mishra et al., 2021).

Indian learners have claimed to be the second-largest group enrolled in MOOCs offered by various platforms from the west (Banerjee & Duflo, 2014; Haumin & Madhusudhan, 2019). However, while looking at the learners in the current study, this was their first MOOC experience. One of the reasons for poor enrolment in MOOCs is poor awareness among the students in higher education institutions (Ambadkar, 2020; Purkayastha & Sinha, 2021). Their participation can be enhanced when university and college teachers take further initiatives to spread awareness of different and relevant MOOCs offered on the SWAYAM portal.

According to the present study, learning preferences have been toward content presented in text form and video tutorials. Similar finding were also revealed by Goswami et al., (2021), who observed that the students preferred text and online videos. In general, the extent of interaction or engagement in this MOOC was relatively low. Findings relating to preference to the mode of learning have been inconsistent. Few have revealed face-to-face interaction chosen as a better option (Goswami et al., 2021), whereas in the present study, the learners have acknowledged the online mode. However, because of the demand for more interactions, including face-to-face, future approach to learning is likely to be more inclined toward blended learning (Goswami et al., 2021). Yousef et al. (2015) perceived that '*an effective bMOOC that has the potential to take into account the different MOOC stakeholder perspectives can be viewed as the convergence of cMOOC, xMOOC, and face-to-face learning models*' (p. 72).

Recommendations

The learners made several recommendations to enhance their MOOC experiences. Some of the issues they addressed were relating to; increasing awareness, developing interactive content, adopting blended approaches, integrating inclusive and higher-level learning pedagogies and bringing in flexibility in assessment. Few of the noteworthy expressions on the course that gained attention were; '*it should make students think more*', '*online Q&A/discussion session after a module*', '*answer the queries in times*', '*regular discussion forums*', '*quick result and feedback*', '*should not be monotonous, add some variation and more small concept check quizzes at the end of every module*', '*there is need of face to face interaction, it improve confidence*' and '*to make video and content interesting*'. Most of these recommendations have implications for choosing appropriate pedagogies, design and development of MOOCs in India.

Conclusion

Formally accepted as an alternative in mainstream higher education, MOOCs can pose several challenges relating to developing robust design, accessible delivery, efficient regulation, MOOC pedagogy and critical literacies (Trehan et al., 2017) need to be addressed in the Indian context too. There is a dearth of empirical studies investigating the self-learning strategies adopted by Indian learners while undertaking MOOCs and other online programmes. Martins et al. (2016), based on experience while developing their first MOOC, recognized the aspect of the group dynamic to be very important for the design, development and execution of a MOOC. Even in the current study, the learners from both situations have demanded designs that facilitate interactions, application-based learning, activity-based learning and provide opportunities for inclusive and interactive pedagogies. More efforts should be made to increase awareness on MOOCs and understand how learners can be intrinsically motivated to participate and engage in MOOC platforms. India has, although taken several bold moves to introduce and integrate MOOCs into the formal educational system; it still has a long way to go in terms of making this platform more supportive, interactive and sensitive to the principles and theories of connectivism (Bawane, 2020). Higher Education during emergencies further necessitates robust, responsive feedback mechanisms to address learner queries and keep them engaged periodically. Based on the experiences and recommendations

made by learners, need-based research focusing on the identified gap areas should be encouraged to build MOOC frameworks that are pedagogically robust, resilient and most importantly, 'truly open'.

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